

# DELHI TECHNOLOGICAL UNIVERSITY

# Minutes of 20<sup>th</sup> Meeting Academic Council

held on 10.05.2019

Shahbad Daulatpur, Bawana Road, Delhi-110042

# **DELHI TECHNOLOGICAL UNIVERSITY**



Established under Govt. of Delhi Act 6 of 2009 (Formerly Delhi College of Engineering) BAWANA ROAD, SHAHBAD DAULATPUR, DELHI-110042

No. F.DTU/Org/AC/Meeting/01(1)/10/Vol-IX/831-53 Dated: 21/5/19

Minutes of the 20th meeting of the Academic Council held on 10.05.2019 at 11:00 a.m. in the Pragyan Hall, DTU.

#### The following members were present:

- 1. Prof. Yogesh Singh, Vice Chancellor, DTU.
- 2. Prof. S.K. Garg, Pro Vice Chancellor, DTU
- 3. Prof. Smriti Srivastava, Head-Division of ICE, NSIT, Delhi
- 4. Sh. Lokesh Mehra, (FICCI nominee)
- 5. Prof. R.S. Mishra, Dean (Outreach & Extn. Activities)
- 6. Prof. Madhusudan Singh, Dean Academic (UG)
- 7. Prof. H.C. Taneja, Dean Academic (PG)
- 8. Prof. Ashutosh Trivedi, Dean (IRD)
- 9. Prof. Vishal Verma, Dean (International Affairs)
- 10. Prof. Samsher, Dean (SW) & Registrar, DTU
- 11. Prof. Pragati Kumar, Dean (Continuing Education)
- 12. Prof. Pravir Kumar, Dean (Alumni Affairs)
- 13. Prof. Narendra Kumar (II), Dean (Student Discipline & Chief Warden)
- 14. Prof. Nirendra Dev, HOD (Civil Engg. Deptt.)
- 15. Prof. Vipin, HOD, Mechanical Engg. Department
- 16. Prof. Rinku Sharma, HOD (Deptt. of Applied Physics)
- 17. Prof. Jai Gopal Sharma, HOD (Bio-Technology Deptt.)
- 18. Prof. Sangita Kansal (HOD- Applied Mathematics Deptt.)
- 19. Prof. S. Indu, HOD (E & C Deptt.)
- 20. Prof. S.K. Singh, HOD (Environmental Engg. Deptt.)
- 21. Prof. Kapil Sharma, HOD (Deptt. of I.T.)
- 22. Prof. Ranganath M.S., HOD (Deptt. Of Design)
- 23. Prof. A. Mookerjee, HOD (USME)
- 24. Prof. Rajni Jindal, HOD (Comp. Sc. Engg.)
- 25. Dr. Archana Rani, HOD (Applied Chem. Deptt.)
- 26. Dr. Nand Kumar, HOD (Humanities)
- 27. Dr. Rajan Yadav (HOD-DSM)
- 28. Dr. Rajesh Rohilla, HOD (T&P)
- 29. Prof. Narendra Kumar-I, Electrical Engg. Deptt.
- 30. Dr. Naokant Deo, In-charge, B.Tech (Eve.)
- 31. Dr. M. Jayasimhadri, Asstt. Prof. Applied Physics
- 32. Sh. Kamal Pathak, Controller of Examinations, DTU
- 33. Ms. Shubhi Sareen, Student Representative, Special invitee

Following persons have also been invited to attend the meeting:

- 1. Dr. Manoj Kr. Sharma, CEO, (DTU IIF)
- 2. Sh. R.K. Shukla, OSD, USME
- 3. Sh. D.P. Dwivedi, Consultant, Finance & Planning
- 4. Prof. Rajeshwari Pandey, Associate Dean (UG)
- 5. Prof. M.M. Tripathi, Director, IQAC
- 6. Sh. Anil Kumar, Deputy Registrar (PG/IRD)

Prof. Surendra S. Yadav, Professor of Management, IIT, Delhi; Sh. S.G. Deshmukh, Director – IIITM, Gwalior; Prof. Tarun Kumar Das, Registrar, University of Delhi; Dr. Bhim Singh, Dean, Academics, IIT, Delhi; Prof. Naveen Kumar, Prof. Rakesh Kumar and Sh. Neeraj Kumar Bhagat, Associate Professor could not attend the meeting due to their pre-occupation.

#### Agenda 20.1 : Opening Remarks by the Chairperson.

Hon'ble Vice Chancellor welcomed all the members of Academic Council in its 20<sup>th</sup> meeting held on 10.05.2019 in Pragyan Hall of DTU. He informed about the advice of Hon'ble Lt. Governor, Delhi about the frequency of meeting of Statutory Bodies as per the DTU Act and assured that Academic Council meeting will be conducted 04 times in a year. One, in the month of May for curriculum/admission related issues and the second, before the Convocation and remaining two in between as per requirement.

He informed the house that Peer Committee of NAAC is scheduled to visit DTU during 16-18 May, 2019 for accreditation of the University. He emphasized about the Strategy Plan (2019-2030) of DTU which is a road map for progression of DTU in next 11 years. Two M.Sc. Programmes (Applied Physics and Applied Mathematics), 02 MBA Programs (MBA in Family Business & Entrepreneurship and MBA in Entrepreneurship, Innovation and Venture Development) are scheduled to be started from the coming academic year.

He shared about starting of construction of two academic blocks and 03 hostels under stage-I of DTU Phase (II) project. The same is expected to be completed by mid of year 2020-21. All these facilities will be centrally air-conditioned and having next level of infrastructure. He further informed that Sewage Treatment Plant (STP) and Waste to Energy has been taken into operation. Now, DTU is a zero discharge campus. The discussion with Jal Board Authorities is in progress and we expect that the water supply from Jal Board will be started soon.

It is pride for DTU that the Pro Vice Chancellor, Prof. Anu Singh Lather has now being appointed by Delhi Govt. as Vice Chancellor of Ambedkar University, Delhi. He, further informed that ranking of DTU in NIRF has improved with the active support of all stake holders of DTU. Under the Engineering category, the ranking has improved from 41 to 34, under University category from 77 to 47 and under overall category from 100 to 71 and we expect that the DTU will improve in all categories in the years to come.

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Agenda 20.2 : Confirmation of the minutes of the 19<sup>th</sup> meeting of Academic Council held on 16.11.2018.

The Minutes of the 19<sup>th</sup> meeting of the Academic Council held on 16.11.2018, were circulated among all the members vide Ref. No.DTU/ORG/AC/Meeting/01(1)/2010/Vol-VIII/3464-86 dated 22.11.2018, no comments have been received from any of the members.

Decision: The Academic Council confirmed the minutes of 19th AC meeting.

Agenda 20.3 : Action taken report on the decisions taken in the 19<sup>th</sup> meeting of the Academic Council.

Action taken report was presented to the Academic Council. In item number 19.25 it was suggested that the Vice Chancellor, Ambedkar University, Delhi shall continue to be the chairperson of the committee. In item number 19.26 it was suggested that framing of guidelines be completed by the end of July, 2019.

Decision: The Academic Council took the action taken report on record.

Agenda 20.4 : To apprise the Strategic Plan 2019-2030 of Delhi Technological University.

It was submitted to the Academic Council that the University has envisaged to formulate its Strategic Plan 2019-2030 for the proper growth and development of the University. Accordingly, the Strategic Plan for 2019-2030 based on the future requirements was prepared indicating various activities to be implemented in the next ten years.

The matter was placed before the Planning Board which accepted the Strategic Plan 2019-2030 of DTU and recommended for placing before the Academic Council and then before the Board of Management with following observations:

i. A Strategic Plan Implementation Action Team shall be constituted by the Vice Chancellor to workout the strategy for achieving the targets.

ii. The above committee shall prepare five term plans of 02 years each with contigency planning of each quarter.

iii. The Planning Board will review the projects every 06 six months to ensure the implementation of resolutions, aims and actions. The Planning Board will submit its recommendations to the Board of Management for its approval.

The drafted Strategic Plan 2019-2030 is placed in Annexure at pages 01 to 27.

Decision: The Academic Council passed the Strategic Plan 2019-30 and recommended to the Board of Management for its consideration and approval.



# Agenda 20.5 : Introduction of Entrepreneurship Track in UG curriculum in lieu of an elective course (DEC/GEC).

The concept of "START UP" is relatively new in India. Both Central as well as State Governments are encouraging the startup culture in different educational Institutions of the country. The DTU proposes to introduce a formal Entrepreneurship track for UG students where the students can earn curricular credits in lieu of an Elective Course (DEC/GEC) being offered in V / VI Sem similar to the research and product development tracks introduced in 2018 in the B.Tech. programs of DTU. The students who opt for entrepreneurship program will be required to produce credible evidence of establishing enterprise / startup which has been conceptualized and started operation.

A group of maximum four (04) students can register for this elective at the beginning of V semester. The registered student/team should conceptualize a business idea and submit a proposal in the prescribed format (enclosed as annexure-II) in the office of Dean (UG) within 10 days of semester registration. An evaluation committee, comprising of (i) Dean UG (ii) A faculty member of relevant specializations and (iii) HOD of the concerned department will approve/reject proposals based on the merits and expected outcome of the proposal. The same committee may also assign the maximum possible grades for an approved project.

The student/team will be required to conceptualize a business idea and develop the idea into the form of a Startup/Enterprise/ Venture which comes into operation at the end of course with credible evidence of operation to earn the credits of the course. If the student /team is not able to develop idea into the form of a Startup/Enterprise/ Venture they will have to repeat the course in the form of a new project/register in some other departmental/generic elective course having equivalent credits. In case student /team wants to drop the subject equivalent credits may be earned by registering in any departmental/ generic elective course. The details of registration, method of conduct and evaluation, award of grades, etc. are given as under:

#### 'Entrepreneurship and Venture Development'

**Course Objective**: The aim of the Entrepreneurship track is to help student to build-up entrepreneurial skills and encourage the startup culture in the University.

The students who opt for entrepreneurship program will be required to produce credible evidence of establishing enterprise / startup which has been conceptualized and started operation

#### 1. COURSE CONTENT

The requirements of this course is to conceptualize a business idea and develop the idea into the form of a Start-up/Enterprise/ Venture which comes into operation at the end of course with credible evidence of operation.

The outcome of the Entrepreneurship course would be considered for the award of credits based upon the credible evidence of operation of the start-up.

The following is the nomenclature of the course:

Paper Code	Paper Title	Credits	Semester	Type	Marks		
Paper Code	1 aper ride			-	MTE	ETE	
XX 395 * "XX" is the departmental code	Entrepreneurship and Venture development	4	Fifth	DEC/GEC	40	60	

#### 2. COURSE REGISTRATION:

- a. The Entrepreneurship option will be offered to the students in the V semester as part of Departmental/General elective courses.
- b. The duration of the course shall be 1-2 year. The examination for the course will be conducted at the end of the VI to VIII semester.
- c. A maximum of four students can register as a team for the course.

## 3. PROCEDURE OF CONDUCT AND EVALUATION:

- a. The registered student/team must submit a proposal detailing the enterprise being setup including innovative idea generation, planning, organizing, financing and marketing strategies of the proposed plan in the academic section within 10 days of registration, in the prescribed format.
- b. An evaluation committee, comprising of (i) Chairperson(s) BOS of the respective department of the student/team (ii) Two faculty members and (iii) External expert; nominated by Vice chancellor will approve/reject proposals based on the merits and expected outcome of the proposals. The same committee may also assign the maximum possible grades for an approved proposal.
- c. The duration of the course shall be 1-2 year. The examination for the course shall be conducted at the end of the VI to VIII semester.
- d. The evaluation of the course will be based on mid-term and end term examination with a weightage of 40% and 60% respectively.
- e. The mid-term evaluation will be held at the end of each semester till the proposal approaches its outcome. The mid-term evaluation will be based on progress reports submitted and presentation at the end of every semester, before final submission.



- f. The end term examination will be carried out at the end of VI to VIII semester and not later than 10 days from the last theory paper examination. The examination will be conducted by the same committee which approved the proposal. However, in case of non-availability of any of the members the Vice Chancellor may nominate other examiners.
- g. The student/team shall be required to submit a final detailed project report (DPR) at least 3 days before the scheduled date of end semester examination for this course.
- h. The final evaluation will be based on the proposal outcome, report quality, presentation and viva voce.
- i. Absolute grading system will be used for the course. The Grade Moderation Committee for the course will be the same as that for other courses of the class.
- j. In case a student/team is awarded a failing grade in the course student/team shall have to repeat the course either in the form of a new project or register in some other departmental/generic elective course having equivalent credits as per their choice.
- k. In case a student/team wants to drop this course the student/team shall have to register in some other departmental/generic elective course having equivalent credits.
- I. Normal attendance regulations will not apply to this course.

#### **Proposal Format**

#### To be filled by student

Name	9	
Roll N	Number	
Depa	rtment	
Title o	of proposal	
Aims	of the Proposal	
i	Abstract and specific aims	A one paragraph summary of the idea and summary of the proposal goals.
ii	Introduction	Justification for the need of the proposed idea, expected outcomes and its uses. (Approx. 01 page)
lii	Project Design	Detailed description of the innovative idea generation, proposal planning, organizing finances and marketing strategies.  (1 -2 pages)
iv	Proposal budget	Details of budgetary requirement and justification. (1-2 pages)
V	Proposal Timeline	Outline the anticipated dates of completion of various stages of the proposal

Decision: The Academic Council approved the proposal with following modification:

"A maximum of four students can register for this elective out of which not more than two from the specific department."



# Agenda 20.6 : Approval for introducing of new Foundation Elective Course: Entrepreneurship Exploration in B.Tech. program.

It is proposed to include a new Foundation Elective course with course code FEC-49 and title "Entrepreneurship Exploration" to the basket of already existing 48 foundation electives which are being offered to the students of B.Tech Programme from 2018 onwards.

A student who registers for this course will be given an initial seed amount upto Rs. 10,000/- to start a small profitable business. This will help students in realizing their potential for putting in practice the innovative ideas and reaping the benefits. Through this course the student will able to understand the concept and development of entrepreneurship and will acquire entrepreneurial quality and business competency.

Teaching and	Examination Scheme		Hou	ırs/W	eek	Exam Dura	ation (Hrs)		Relativ	e Weig	hts (%)	)
Subject Code	Course Title	Credit	L	Т	P	Theory	Practical		PRS	MTE	ETE	PRE
FEC49	Entrepreneurship Exploration	2	0	0 -	4	0	3	0	50	0	0	50

#### **Syllabus**

#### **FEC 49 Entrepreneurship Exploration**

This course is designed as practical course and therefore no regular classes will be conducted. However, few classes will be conducted on following topics: Starting small business, planning, organizing, and managing human resources. Additionally, few motivational lectures in the form of success stories will be conducted for the students.

A group of maximum two students who registers for this course will be given an initial seed money upto Rs 10,000/- to start a small business. This will help students in realizing their entrepreneurship potential. The student will submit a Business Plan in the first week of the commencement of academic session. A group of maximum four (04) students can register for this elective at the beginning of I-III semester. The registered student/team should conceptualize a business idea and submit a proposal in the prescribed format in the office of Dean (UG) within 1st week of commencement of semester registration. A Mentor Committee, comprising of:

- (i) Chairperson(s)
- (ii) A faculty member/course coordinator and
- (iii) External expert.

The above committee will approve/reject proposals based on the merits and expected outcome of the proposal.



The same committee may also assign the maximum possible grades for the course. The student shall submit a detailed project report at the end semester for evaluation.

Reference book:

Small Business Management An Entrepreneur's Guidebook by Byrd Megginson, McGraw-Hill, Irwin. ISBN 978-0-07-802909-7.

Decision: The Academic Council approved the proposal subject to the condition that the University will not be responsible for loss beyond the seed money. However, the profit will be divided proportionally.

Agenda 20.7 : Approval for inclusion of new Foundation Elective: Extension and Outreach Activities for B.Tech (Full time).

It was submitted to the Academic Council that Academic Branch of the University has forwarded a proposal to include a new foundation elective- Extension and Outreach Activities for B.Tech (Full time) programme. The details are as under:

Subject Code	
Contact Hours	04 hrs per week including week offs
Examination Duration	Practical only (04 hrs per week)
Credit	02
Semester	I to IV
Subject Area	Initially conductance of classes, surveying and other activities to be performed for the society in the adjacent areas of DTU.
Pre-requisite	NIL
Objective	The students shall be specifically working for "Centre for Extension and Outreach Activities". The registered students shall be working in the field of Training, Coaching, Teaching, Learning and any other activity in the nearby villages, schools and community.
Remarks	It is made clear that this FEC 50 and internship (USIP) shall be treated as two separate ways for participating in outreach program:  1. Students may opt the FEC 50 and earn credits for the same.  2. Students may opt Extension and Outreach Activity through USIP which leads to internship. Students under this category will not be awarded credits of FEC.

Decision: Academic Council approved for the inclusion of new foundation elective- Extension and Outreach Activities for B.Tech (Full Time).

#### Approval for Academic Calendar (2019-20). Agenda 20.8

It was submitted to the Academic Council that the Academic Calendar (2019-20) has been prepared and given as under:

#### **ACADEMIC CALENDAR (2019-20) ODD SEMESTER**

26.04. 2019 (Fri) to

Filling of online registration forms by all students for

13.05. 2019 (Mon)

UG: III, V and VII Semester regular courses and /or back papers / improvements/re-registration as applicable including all Ex-Students. PG: III/V Semester regular / part time back papers as applicable

including all Ex-students

PhD: Continuing PhD students/scholars

01.08.2019 (Thu)

On campus registration in person by all UG and PG students

(except I semester students), continuing PhD students/scholars & all Ex-Students (for back papers, improvements, re-registration). Teaching starts for UG: III, V and VII Semester courses; PG: III/V Semester

courses.

01.08.2019 (Thu)

Vice Chancellor's Address to newly admitted Students Orientation

and on campus registration and Teaching starts from 02.08.2019

(Friday).

16.08.2019 (Fri)

Last date of registration of the courses, addition/deletion of courses for all regular and Ex- students (except those students

whose admission is confirmed later to this date).

#### Supplementary Examination/Make up Examinations: 19th August 2019 (Monday) onwards

20.09.2019 (Fri)

: Mid Term notification of shortage of attendance.

MID Semester Examination: 23rd Sept-28th Sept 2019 (Monday-Saturday) MID Semester Break: 7th Oct-11th Oct, 2019 (Monday - Friday) (Only for UG/PG students)

Notification of Make up for MID Semester Examination: 14th Oct-18th Oct 2019 (Monday-Friday)

20.11.2019 (Wed) : Teaching ends for all classes; Display of marks and shortage of

attendance

#### END Semester Theory & Practical Examination: 25.11.2019 (Monday) onwards

16.12.2019 (Mon)

Grade moderation and display of grades for UG/PG courses.

17.12.2019 to

Winter Vacation

01.01.2020

30.12.2019 (Mon) :

Declaration of End semester results

#### **EVEN SEMESTER**

26.12.2019 to

Filling of online registration forms by all UG, PG and Ph.D. students

02.01.2020

including Ex-Students (for back papers, improvements re-registration).

02.01.2020 (Thu)

On campus registration in person by all students including Ex-

Students (for back papers, improvements, re-registration) by submitting copy of online registration form & Teaching starts for

all classes.

17.01.2020 (Fri)

Last date of registration for all students, including Ex-students.

Supplementary /Makeup Examination: 13th Jan 2020 (Monday) onwards

28.02.2020 (Fri)

: Mid Term notification of shortage of attendance

MID Semester Examination: 02nd March -07th March, 2020 (Monday-Saturday)

MID Semester Break: 09th March -13th March, 2020 (Monday-Saturday)
Only for UG/PG students

Notification of Make up for MID Semester Examination 23<sup>rd</sup> March-27<sup>th</sup> March, 2020 (Monday-Friday)

30.04.2020 (Thu)

: Teaching ends for all classes; Display of sessional marks and shortage of

attendance.

END Semester Theory & Practical Examination: 04.05.2020 (Monday) onwards

29.05.2020 (Fri)

: Grade moderation & display of grades for II, IV and IV

semester (UG) courses.

08.06.2020 (Mon)

Summer Vacation, Workshop Training, Industrial Training

15.06.2020 (Mon)

Declaration of End semester results except Major Project-II for PG

program.

20.07.2020 (Mon)

University reopens after summer vacation

1. Technical Fest

: 7th -9th Feb, 2020 (Friday to Sunday)

2. Engifest

: 14th -16th Feb, 2020 (Friday to Sunday)

3. Yuvaan Literary & Film Fest

: 23<sup>rd</sup> - 25<sup>th</sup> Jan, 2020 (Thursday to Saturday)

4. Sports Aahvaan

: 21st - 23rd Feb, 2020 (Friday to Sunday)

Decision: Academic Council approved the Academic Calendar 2019-20 as above.

Agenda 20.9 : Shifting of Linear Integrated Circuits course from DEC to DCC in B.Tech EE Curriculum.

At present the students of the B.Tech (EE) program study the course EE- 203 Electronic Devices and Circuit (EDC) in III semester. This course covers the basics of electronic devices like by pn-junction diodes, BJTs, MOSFETS, differential amplifiers and feedback amplifiers. In previous teaching scheme of EE, the topics like, operational amplifiers, filters, timers and oscillators were covered in another core course in IV semester i.e. Linear Integrated Circuit (LIC). In the revised scheme (2015) of B.Tech EE, these topics are covered in a V semester elective course entitled 'Linear Integrated circuit'. It has been observed that many students do not opt for this elective because of ignorance /misinformation, and as a result remain ignorant about important concepts of Analog Electronics such as opamp, oscillators and IC etc. It was thus decided that the elective course EE-313 (Linear integrated circuit) be moved to IV semester as a core course in place of Electromagnetic Field Theory (EE-202). The course Electromagnetic Field Theory which is at present being offered in the IV Semester be moved to III Sem. and the III semester course Engineering Analysis and Design (EAD) be moved to V semester as an elective. These changes will be applicable for the students admitted in 2018. The revised subject codes of these subjects are given below:

EE-202 Linear Integrated Circuit: (DCC)
EE- 207 Electromagnetic Field Theory: (DCC)
EE-313 Engineering Analysis and Design: (DEC)

The BOS of the Department of Electrical Engineering has already approved the above changes in its meeting held on 02.03.2019.

Decision: The Academic Council approved for shifting of Linear Integrated Circuits course from DEC to DCC in B.Tech EE Curriculum.

Agenda 20.10 : Change in L T P breakup in r/o MC-261 Numerical and Engineering Optimization Method, course in B.Tech EE curriculum.

It was submitted to the Academic Council that the Course MC-261 Numerical and Engineering Optimization Method is a 4 credit course with 3 lecture hours and 1 tutorial hours per week and is currently offered to the III Semester EE B.Tech Electrical Engineering students. It has been observed that there is a requirement of lab work in this course. It is therefore proposed to introduce a 2 hour per week laboratory contents in this course in place of 1 tutorial hour per week. The revised LTP breakup will now be 3 0 2.

Decision: The Academic Council approved the change in LTP breakup in r/o MC-261 Numerical and Engineering Optimization Method, course in B.Tech EE curriculum.

# Agenda 20.11 : Addition and shifting of elective course in B.Tech (IT) Curriculum.

It was submitted to the Academic Council that the Department of Information Technology is offering B.Tech. in information Technology as per the course scheme approved by Academic council of the university. Presently, a course on Machine Learning is offered as Elective 3 and 4 in the 6<sup>th</sup> semester of B.Tech. (Information Technology).

Recently, development in the field of Machine Learning has been emerged as a "Deep Learning" which has wide applications in the field of Information Technology. Since 2006, Deep Learning has emerged as dominant concept in the field of Machine Learning.

Considering the need of present and future of Information Technology, the Board of Studies of IT department recommends (3/c) following changes in the present scheme of B.Tech. (IT).

- The course Machine Learning (IT-324) has to be introduced as Elective 1 and 2, which is currently running as Elective 3 and 4. The course code of "Machine Learning" can be IT-323. A detailed syllabus of "Machine Learning" is placed as *Annexure at page 28*. The credit of "Machine Learning" is 4 (L=3, T=0, P=2 Hours).
- A new course of "Deep Learning" has to be introduced as Elective 3 and 4 of B.Tech. 6<sup>th</sup> Semester. The course code of Deep Learning can be IT-324.
   A detailed syllabus of Deep Learning is placed as *Annexure at page 29*.
   The credit of "Deep Learning" is 4 (L=3, T=1, P=0 Hours).

Decision: The Academic Council approved the proposal. It was also suggested that a provision for laboratory for practical learning may also be made with L T P of 3 0 2.

Agenda 20.12 : Approval for minor modifications in Unit-6 (Semiconductor Physics) in AP 102 Applied Physics-II Course.

It was submitted to the Academic Council that the Department of Applied Physics has proposed minor modifications in Unit-6 (Semiconductor Physics) in AP 102 Applied Physics II course as below:



Existing	Proposed
Semiconductor Physics: Concept of intrinsic and extrinsic semiconductors. Fermi level, characteristics of PN Junction, static and dynamic resistance, zenar diode and LED, diode as a rectifier, transistor (PNP and NPN) characteristics, current and voltage gain.	Semiconductor Physics: Introduction to semiconductors; origin of Band theory of solids, Intrinsic and Extrinsic semiconductors. Fermi level variation with temperature, Statistics of holes and electrons, Law of mass action, Hall effect, Effect of temperature on conductivity and band gap, Life time, generation and recombination, drift and diffusion current, Einstein relation.

The matter was also placed before the Board of Studies its meeting held on 22.04.2019 which approved the proposed modifications.

Decision: The Academic Council approved the minor modifications in Unit-6 (Semiconductor Physics) in AP 102 Applied Physics-II Course.

Agenda 20.13 : Approval for modification in teaching and evaluation scheme for open elective courses.

It was submitted to the Academic Council that in existing teaching and evaluation scheme for B.Tech. Program one open elective course (OEC UExxx) 3 credit is offered to the students. In this course different departments offer open elective courses which can be taken by the students from different disciplines /branches. The current teaching and evaluation scheme is as under:

Teaching and Examination Scheme		0 17	Но	urs/W	eek		Ouration [rs)	R	Relativ	e Weig	thts (%	5)
Subject Code	Course Title	Credit	L	Т	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
UExxx	OEC	3	3	0	0	3	0	25	0	25	50	0

It has been observed that in some open elective courses there is a need for conducting laboratory/tutorial classes. It is therefore proposed to adopt the following generalised scheme of teaching and evaluation. This generalised scheme of teaching and evaluation will take into account the diverse nature of different types of open elective courses. The department offering the open elective course will decide the teaching and evaluation scheme to be used for the subject.



#### Revised teaching and evaluation scheme for open elective courses

Teaching and Examination Scheme		Credit	Hou	ırs/W	eek		Duration Irs)	R	Relativ	e Weig	ghts (%	)
Subject Code	Course Title	Crean	L	Т	P	Theory	Practical	CWS	PRS	МТЕ	ETE	PRE
UExxx	OEC	3.	0	0	6	0	3	0	50	0	0	50

Decision: The Academic Council approved the proposed modification in teaching and evaluation scheme for open elective courses.

Agenda 20.14 : Approval for introduction of an additional subject in the list of open elective courses.

It was submitted to the Academic Council that the Academic Branch-UG has submitted a proposal for introduction of an additional subject in the list of open elective courses as below:

1. Subject Code

EC 361

2. Course Title

Analog circuits: Design to Layout

3. Credits

3

4 Semester

V

5. Subject Area

OEC

6. Pre-requisite

Analog Electronics/Electronics devices and circuits

7. Objective

To impart knowledge of analog integrated circuit design

concepts and analog design EDA tools to prepare

students ready for VLSI Industry.

#### 8. Syllabus:

Unit	Content	Contac	t hours
	- C	L	Р
1	CMOS Physical design: MOS I/V Characteristics; MOS Device Model:-Small Signal Model, SPICE Models; Layout of basic devices- NMOS, PMOS, Resistor, Capacitor; Introduction to Physical verification (DRC)	4	16
2	Basic current mirror, Wilson current mirror, Cascode current mirror	2	8
3	Analysis and design of single stage amplifiers: Common sources amplifier (CS) - with resistive, diode connected and Current source load; CS amplifier with degeneration, source follower, common gate amplifier and cascode amplifier.	4	16
4.	Analysis and design of differential amplifier, two stage operational amplifier.	4	16

#### 9. Reference books:

S.No.	Name of Books / Authors/ Publishers	Year
1.	CMOS Analog Circuit Design by P. Allen, D. R. Holberg;	2009
2.	Design of Analog CMOS Integrated Circuits by B. Razavi;	2002
	Tata McGraw Hill	
3.	Microelectronics circuits by Sedra ,Smith; Oxford University Press	2015
4.	VLSI Design Techniques for Analog and Digital Circuits by R.L.Geiger,	2013
	P. Allen, Noel R.Strader; Tata McGraw Hill	

Decision: The Academic Council approved for introduction of an additional subject in the list of open elective courses with L T P of 2 0 4.

# Agenda 20.15 : To consider the new proposed M. Tech. scheme of teaching and examination.

It was submitted to the Academic Council that at present, DTU is offering 20 M.Tech. Programmes in its different departments. Earlier, M. Tech. scheme of teaching and examination was revised in 2010. To make more effective the scheme of teaching and examination for M.Tech. Programmes of DTU, a committee was constituted under the chairmanship of Prof. H.C. Taneja, Dean PG to give its recommendations. The constitution of the committee is as under:

1. Prof. H.C. Taneja, Dean (AcadPG) -	Chairman
2. Prof. Pragati Kumar, Electrical Engg	Co-Chairman
3. Prof. Nirender Dev, Civil Engg	Member
4. Dr. Rinku Sharma, App Phy	Member
5. Dr. Neeta Pandey, E&C Engg	Member
6. Dr. R.K. Singh, Mech. Engg	Member
7. Dr. Md. Rizwan, Elec. Engg	Member
8. Dr. Ruchika Malhotra, COE Engg	Member -
9. Mr. Anil Kumar, Dy. Registrar-	Member Secy.

After detailed discussion and going through the scheme of teaching and examination of M. Tech. programmes of various IITs, NITs and other reputed institutes, a new scheme has been drafted with the following salient features which are as under:

- 1. The M. Tech. program will be of two/ three years duration respectively for Full Time / Part Time.
- 2. A student will be awarded the degree of Master of Technology after earning total 58 credits in the end of 4th / 6th semester;
- In each of first and second semester of all M.Tech. programs, there will be two 4 credit core courses, three elective courses (one each of 4 credit, 3 credit, 2 credit respectively);



- 4. For M.Tech Part Time Program student will study Group A (Program Core 1 & 2) in 1st semester, Group C (Program Core 3 & 4) in 2nd semester, Group B (Three electives courses one each of 4,3 and 2 credits) in 3rd Semester, Group D (Three elective courses one each of 4,3 & 2 Credits) in 4<sup>th</sup> semester, Group E in 5<sup>th</sup> semester and Group D in 6<sup>th</sup> semester.
- 5. In second year, there will be two parallel tracks, namely (1) Research Track (2) Coursework track;

**Research Track**: In Research track, the students will be required to publish research paper as per the approved research publication policy of the university. The student will be awarded 24 credits after publishing research paper.

Coursework Track: In Course work track, the students will be required to take 1 core course (major project 1) and three elective courses (one each of 4 credit, 3 credit, 2 credit respectively) in third/ fifth semester. In fourth/ sixth semester, the students will be required to take 1 core course (major project 2).

- 6. A student must earn at least 08 credits from 04 credit elective courses and at least 06 credits from 03 credit elective courses from a basket of electives specific to that program. The remaining elective credits may be earned from electives offered for other programs including MOOCs. In case of MOOCs only 02 credits per MOOC course will be considered;
- 7. In first semester of every M.Tech. Program, a seminar has been offered as a two credit elective course;
- 8. In second semester of every M.Tech. program, a minor project has been offered as a three credit elective course;
- 9. Keeping in view the audit courses in the model PG curriculum of AICTE, 2 credit elective courses under Group B and Group D have been offered. These courses are general in nature and supposed to add value to the M. Tech. program. These courses will be called university electives and coordinated at the level of Dean (Acad-PG). A student may opt any one of these electives against 2 credits elective courses offered under Group B and Group D each;
- 10. The following alphanumeric coding scheme has been adopted:

Core Courses : XXXYMN
Elective Courses : XXXYCMN

XXX abbreviates a particular M. Tech. program, Y – (5 for M. Tech. 1st year, 6 for M. Tech. 2nd year),

C – credit of the course (4/3/2), MN – Subject code (Odd number for odd semester and even number for even semester courses.

11. To facilitate slow and fast learners a student can register minimum 12 credits and maximum 24 credits in a semester; out of these registered credits, core courses being offered in the specific programme must be registered.



## The proposed M. Tech. scheme is given below:

#### 1. M.Tech. Scheme

	Si	EMESTER I		
	COURSES	CREDITS	TYPE	TOTAL CREDITS
Group A	Program Core- 1	4	Core	17
-	Program Core- 2	4	Core	
Group B	Elective 1	4	Elective	
•	Elective 2	3	Elective	
	Elective 3/	2	Elective	
	University Elective I			
	SI	EMESTER II		
	COURSES	CREDITS	TYPE	TOTAL CREDITS
Group C	Program Core- 3	4	Core	17
_	Program Core- 4	4	Core	
Group D	Elective 4	4	Elective	
	Elective 5	3	Elective	
	Elective 6/	2	Elective	
	University Elective II			
	SE	MESTER III	- 3	
Group E	Track 1*		,	12
_	Research Project	12	Core	
	Track 2	V		
	Elective 7	4	Elective	
	Elective 8	3	Elective	
	Elective 9	2	Elective	
	Project-1	3	Core	
	SE	MESTER IV		
Group F	Track 1*			12
-	Research Project	12	Core	
	Track 2			
	Project 2	12	Core	
Total Credi			- 10.	58

# **List of University Electives**

# University Elective I

UEC5201	Entrepreneurship Development
UEC5203	Stress Management by Yoga
UEC5205	Research Writing
UEC5207	Ethics and Human Values
UEC5209	Research Methodology
UEC5211	Engineering Economics
UEC5213	Business communication and presentation skills
UEC5215	Communication skills
UEC5217	Ethics and Technology



#### **University Elective II**

UEC5200	Research Methodology
UEC5202	Financial Data Analytics
UEC5204	Technical Report Writing
UEC5206	Cost management of Engineering Projects
UEC5208	Business Analytics
UEC5210	Intellectual Property Rights
UEC5212	Technical communication
UEC5214	Logical Reasoning and Critical Thinking
UEC5216	Multimedia Tools and Technology
UEC5218	Data Analytics

 Publication in category 1 or category 2 journal publication is mandatory outcome of the Track 1. In second year (i.e III and IV semester) Track 1 option is by research project. Candidate will be finally evaluated at the end of the semester IV out of 24 credits on the basis of his/her publication (Accepted or published in category 1 or 2 journals).

#### 2. COURSE EVALUATION

Evaluation in each course is based on the weights assigned to the various components of the course curriculum. These components are designated as under.

CWS	Class work sessional
MTE	Mid term examination
ETE	End term examination
PRS	Practical Sessional
PRE	Practical Examination

#### **GRADING OF RESEARCH WORK**

The candidate will be at least awarded A+ and A grade if published in category 1 and category 2 (as per the approved research policy of the university) respectively.

The detailed schemes of various departments are placed in *Annexure at* pages 30 to 97.

Decision: Academic Council considered the proposal as above and authorized the Vice Chancellor to accept the recommendations.



Agenda 20.16: To consider the formal registration to following Ph.D. Students upon successful completion of course work and comprehensive examinations and approval of Research Plan by respective DRCs.

It was submitted to the Academic Council that Dean Academic (PG) has forwarded a list of 56 candidates to consider their formal registration for Ph.D. candidature upon successful completion of course work and comprehensive examinations and sought approval for research plan by the respective DRCs. A list of the candidates (department-wise) is placed below:

#### Department of Applied Chemistry

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Ms. Reetu Yadav	2K17/Ph.D/AC/01	23.10.2018
2	Mr. Himansh Goel	2K17/Ph.D/AC/02	22.02.2019
3	Ms. Shikha Rana	2K17/Ph.D/AC/04	02.03.2019

#### Department of Applied Physics

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Ms. Renu Kumari	2K17/Ph.D/AP/08	26.10.2018
2	Mr. Abhishek Bhardwaj	2K16/Ph.D/AP/05	27.12.2018
3	Mr. Rajesh Gupta	2K18/Ph.D/AP/29	27.03.2019
4	Ms. Yasha Tayal	2K16/Ph.D/AP/11	18.03.2019

# Department of Applied Mathematics

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Ms. Shagun Banga	2K17/Ph.D/AM/05	03.12.2018
2	Ms. Priyanka Goel	2K17/Ph.D/AM/09	03.12.2018
3	Mr. Luckshay Batra	2K17/Ph.D/AM/10	21.01.2019
4	Ms. Tanya Malhotra	2K17/Ph.D/AM/03	30.01.2019

# Department of Civil Engineering

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Ms. Archita Goyal	2K16/Ph.D/CE/08	29.12.2018
2	Mr. Saurabh Sah	2K17/Ph.D/CE/02	27.12.2018
3	Ms. Ruchika Dabas	2K17/Ph.D/CE/30	27.12.2018
4	Mr. Ankur Mudgal	2K14/Ph.D/CE/04	25.07.2015
5	Ms. Geeta Devi	2K17/Ph.D/CE/09	21.01.2019

## Department of CSE

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Ms. Geetanjali Garg	2K16/Ph.D/CO/05	23.03.2018

# Department of Delhi School of Management

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Mr. Jitesh Bhardwaj	2K17/Ph.D/DSM/05	14.01.2019
2	Ms. Vaishali Kaushal	2K17/Ph.D/DSM/01	04.02.2019
3	Ms. Niharika	2K17/Ph.D/DSM/02	30.01.2019
4	Mr. Mukesh Kumar Singh	2K17/Ph.D/DSM/07	12.02.2019

# Department of Electronics & Communication Engineering

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Mr. Shashank	2K17/Ph.D/EC/05	04.10.2018
2	Mr. Enock Osoro Omayio	2K17/Ph.D/EC/13	04.10.2018
3	Ms. Lavi Tanwar	2K17/Ph.D/EC/02	24.09.2018
4	Mr. Praveen Kumar	2K17/Ph.D/EC/07	04.12.2018

# Department of Electrical Engineering

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Mr. Manas Taneja	2K17/Ph.D/EE/18	31.10.2018
2	Mr. Saket Gupta	2K17/Ph.D/EE/02	03.12.2018
3	Ms. Snigdha Sharma	2K17/Ph.D/EE/03	19.12.2018
4	Mr. Aakash Kumar Seth	2K17/Ph.D/EE/10	12.01.2019
5.	Mr. Dinanath Prasad	2K16/Ph.D/EE/19	16.01.2019
6.	Mr. Mohd. Bilal	2K17/Ph.D/EE/05	19.02.2019
7.	Mr. Lokesh Rana	2K15/Ph.D/EE/06	05.11.2018
8.	Mr. Mohd Saquib Faraz	2K16/Ph.D/EE/20	05.03.2019
9.	Mr. Atul Varshney	2K17/Ph.D/EE/05	27.03.2019
10.	Ms. Bandana	2K17/Ph.D/EE/11	28.03.2019

# Department of Mechanical Engineering

Sr. No.	Name of the Candidate	Roll No	Date of SRC
1	Ms. Rashi Koul	2K17/Ph.D/ME/17	26.10.2018
2	Mr. S. Lalhriatpuia	2K17/Ph.D/ME/07	26.10.2018
3	Mr. Ankti Tyagi	2K17/Ph.D/ME/39	09.11.2018
4	Mr. Sanjeev Kumar	2K16/Ph.D/ME/44	21.12.2018
5	Mr. Md Nazeem Khan	2K17/Ph.D/ME/08	21.12.2018
6	Ms. Pooja Rani	2K17/Ph.D/ME/58	24.12.2018
7	Mr. Madhukar Chhimwal	2K17/Ph.D/ME/46	11.01.2019
8	Mr. Md. Jamil Akhtar	2K17/Ph.D/ME/05	15.11.2018
9	Mr. Sumit Chawla	2K17/Ph.D/ME/21	12.11.2018

10	Mr. Kumar Raju	2K17/Ph.D/ME/15	26.12.2018
11	Mr. Pradeep Kumar Moruia	2K17/Ph.D/ME/34	12.11.2018
12	Mr. Anshul Kumar	2K17/Ph.D/ME/60	28.01.2019
13	Mr. Hussam Saddique	2K17/Ph.D/ME/03	10.01.2019
14	Mr. Jayanta Ghosh Roy	2K17/Ph.D/ME/37	29.01.2019
15	Mr. Shrikant Vidya	2K17/Ph.D/ME/29	24.01.2019
16	Mr. Hari Shankar	2K17/Ph.D/ME/28	14.02.2019
17	Ms. Ankita Arora	2K17/Ph.D/ME/14	28.01.2019
18	Mr. Rakesh Chander Saini	2K17/Ph.D/ME/26	13.02.2019
19	Ms. Kalpana Gupta	2K15/Ph.D/ME/11	10.12.2018
20	Mr. Lalit Batra	2K17/Ph.D/ME/12	10.04.2019
21	Ms. Khushbu Yadav	2K17/Ph.D/ME/27	24.01.2019

Decision: The Academic Council approved the formal registration and confer their candidacy to 56 candidates for Ph.D. program

Agenda 20.17 : Cancellation/Withdrawal of Admission during Dec'18 to Apr'19 for Ph.D. and M.Tech programs.

It was submitted to the Academic Council that 10 admissions have been withdrawn during the Academic Year 2018-19 for Ph.D. and M.Tech. programs. The list of the students is given below:

	Cancellation/Withdrawn of Ph.D Registration		12	
			Name of the	
Sr. No.	Name of the Candidate	Roll No	Department	
1	Mr. Rajesh Babbar	2K17/Ph.D/ME/50	Mech. Engg	
2	Ms. Kamalika Gupta	2K19/Ph.D/EN/01	Env. Engg	
3	Ms. Divya Khurana	2K19/Ph.D/HU/04	Humanities	
4	Mr. Akash Gandhi	2K19/Ph.D/AP/04	Applied Physics	
5	Ms. Ankita Rai	2K18/Ph.D/BT/03	Biotechnology	
6	Ms. Trasha Gupta	2K18/Ph.D/IT/03	Info. Technology	
7	Mr. Siddharth	2K19/Ph.D/CO/504	CSE	
8	Mr. Rohan Gupta	2K18/Ph.D/BT/05	Biotechnology	
9	Mr. Parveen Kumar	2K18/Ph.D/AP/06	Applied Physics	

	Cancellation /Withdrawn of	M.Tech Registration	Deptt./ Programme
1	Mr. Narendra Kumar	2K18/STE/505	Civil Engg

Decision: The academic council approved the Cancellation/Withdrawal of Admission during Dec'18 to Apr'19 for Ph.D. and M.Tech programs.

Agenda 20.18: Approval for introduction of M.Sc. courses in Applied Mathematics, Applied Physics and Biotechnology departments of DTU from the academic session 2019-20.

It was submitted to the Academic Council that DTU is having full-fledged departments of Applied Mathematics, Applied Physics, Biotechnology and Applied Chemistry which are actively involved in research and teaching at the graduate and post graduate level to engineering students. To boost the teaching and research in sciences as being done by the IITs and NITs, it is proposed that the sciences departments of DTU may also introduce courses at M.Sc. level. This kind of requests have been made by four departments on various occasions and also is included in Strategic Plan 2030 of DTU. The introduction of M.Sc. programs will not only impart strong foundations for the development of sciences but will also provide an exposure to applied areas through various elective courses and laboratory training.

In this regard, a meeting of Head of departments was held with the Dean (PG) and in the meeting, it was decided to submit the formal proposal to introduce M.Sc. courses in the departments of Applied Mathematics, Applied Physics and Department of Biotechnology from the academic session 2019-20. The Applied Chemistry will start M.Sc. program at some later date though the proposal is being submitted.

The details of the proposed M.Sc. programmes are as under:

- In order to develop a strong foundation for the proposed M.Sc. programmes, the CBCS guidelines issued by UGC may be followed wherein the core courses will be given adequate weightage in terms of course content and depth of coverage. It is proposed to provide a Basket of 'Elective' courses as an integral component of curriculum, for catering to the varied interests of the students, so that students can develop 'specialization' in the areas of their interest.
- It is proposed that initially the M.Sc. may be introduced with a minimum of intake of 30 seats in each discipline.
- The eligibility for admission to the M.Sc. programme in Mathematics will be BA/B.Sc (General or Hons.) with 55% marks or equivalent grade with mathematics as one of the subject, and for admission to M.Sc. in Physics, Chemistry and Biotechnology will be B.Sc. (General or Hons.) with 55% marks or equivalent grade with respectively Physics, Chemistry, Biology as one of the subject.
- The admissions to M.Sc. Programme may be made on the basis of screening test conducted by the DTU.
- HoDs of Physics, Maths and Biotechnology have given consent to introduce the M.Sc. programme with the existing infrastructure and in case some additions are required will be done gradually.
- With a proposed intake of 30 students in the M.Sc. programme, the total number of students in 02 years shall be 60 and as per Student: Teacher Ratio of 10:1

(as per UGC), the each programme of M.Sc. needs 06 faculty members. Further considering cadre ratio of 1:2:6, the 06 posts can be divided as follows:

Professor : 0
Associate Professor : 02
Assistant Professor : 04

**Non Teaching Staff:** As per norms, the non-teaching to teaching staff ratio, 1.1:1, 6\*1.1= 7. Further, out of which **04 is Technical** (7\*06=4) and **03 is ministerial** (7\*04=3).

 The fee for the students to be admitted in M.Sc. programme in the academic session 2019-20 will be Rs.28,000/- for the 1<sup>st</sup> year and Rs.32000/- for the 2<sup>nd</sup> year.

 The admission process may be initiated for the academic session 2019-20 for M.Sc. (Physics), M.Sc. (Mathematics) and M.Sc. (Biotechnology).

The detailed schemes of M.Sc. (Physics), M.Sc. (Mathematics) M.Sc. (Biotechnology) and M.Sc. (Chemistry) are *placed in Annexure from 98 to 122 pages*.

Decision: The academic council approved for introduction of M.Sc. courses in Applied Mathematics, Applied Physics and Biotechnology departments of DTU from the academic session 2019-20 as above.

Agenda 20.19: Approval for Sanction of Teaching, Technical and Ministerial Staff for the newly proposed M.Sc. programme in Applied Physics, Applied Mathematics, Applied Chemistry and Biotechnology departments of DTU.

It was submitted to the Academic Council that a proposal has been received for introduction of M.Sc. course in the Applied Physics, Applied Mathematics, Applied Chemistry and Biotechnology departments of DTU with an intake of 30 seats in each department. HoDs of Physics, Maths and Biotechnology have given consent to introduce the M.Sc. programme with the existing infrastructure and in case some additions are required will be done gradually. But, the Applied Chemistry will start the course at later stage. With a proposed intake of 30 students in the M.Sc. programme, the total number of students in 02 years shall be 60 and as per Student: Teacher Ratio of 10:1 (as per UGC), the each programme of M.Sc. needs 06 faculty members. Further considering cadre ratio of 1:2:6, the 06 posts can be divided as follows:

Professors : 0
Associate Professors : 02
Assistant Professors : 04

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**Non Teaching Staff:** As per norms, the non-teaching to teaching staff ratio, 1.1:1, 6\*1.1=7. Further, out of which **04 is Technical** (7\*06=4) and **03 is ministerial** (7\*04=3).

As the requirement of staff (ministerial & technical) which has been calculated/projected above, it is proposed that the ministerial staff posts may be created at the level of Junior Office Assistant (JoA) and as far as technical staff is concerned, the HoD (Physics) & Biotechnology has given their requirement that the technical staff posts may be sanctioned/ created at the level of Junior technical Assistants (JTA). The RRs as proposed by the HoDs are placed in *Annexure at page 123*.

Decision: The Academic Council approved for proposal and recommended to place the matter before the Board of Management.

Agenda 20.20: To introduce the 02 MBA Courses in USME, DTU East Delhi Campus i.e. 1. MBA- Family Business & Entrepreneurship [MBA (FBE)] 2. MBA- Entrepreneurship, Innovation and Venture Development [MBA (EIVD)].

It was submitted to the Academic Council that a proposal has been received from HoD (USME) DTU, East Delhi Campus duly approved by their BOS for approval of the Academic Council. The detailed Syllabus and Scheme of both the programmes are as below:

- Masters of Business Administration Family Business & Entrepreneurship
   (MBA-FBE)
- (i) To offer admissions to the MBA (FBE) in the academic year 2019-2020 with 30 seats.
- (ii) Proposed eligibility of candidates is Graduation in any stream with at least 50% marks with 10% relaxation for SC/ST/PWD.
- (iii) It was accepted that selection will be based on Graduation marks (40% weightage) + Case Study (20%) + Interview (30%) + Gender Diversity (5%) and Academic Diversity (5%). Criteria for marking in interview proposed as-Personal characteristics like creativity, divergent thinking, motivation and passion; General Awareness; Understanding of business and fitment with nature of program (quality of experience if any and understanding of family business issues).
- (iv) Students may choose a total of seven elective courses equivalent to 28 credits. Specialization in Family Business may be made compulsory, and from this stream, three electives of total seven electives required must be chosen by each student. Students may be allowed to choose any of the four electives individually, from any of the other Entrepreneurship elective streams. The courses finally offered from the entrepreneurship elective basket would be determined by minimum number of students subscribing to an elective as per DTU norms.

(v) Given the nature of the program and stress on entrepreneurship, students would be encouraged to take forward their family business. They would also be encouraged and facilitated in their venture development if they wished to start a new venture. The corporate engagement resources would also be available for networking for those wishing to leverage these networks. Given the above they are not expected to seek placement and formal services of T and P department, which may not be required for their aspirations.

# 2. <u>Masters of Business Administration in Entrepreneurship, Innovation and Venture Development – MBA(EIVD)</u>

- (i) To offer admission to the MBA (EIVD) in the academic year 2019-2020 with 30 seats.
- (ii) Proposed eligibility of candidates is Graduation in any stream with at least 50% marks with 10% relaxation for SC/ST/PWD was accepted.
- (iii) Selection will be based Graduation marks (30%); gender diversity (5%); academic diversity (basis the academic background of applicants in each batch; minority academic background would be awarded five percent as grace marks); Essay (10%) + Interview (50% of which 30% marks for business plan/idea and 20% for personal characteristics such as entrepreneurial motivation, passion, degree of engagement, creativity and quality of understanding of innovation, entrepreneurship etc.);
- (iv) The syllabus and programmes' structure would follow the AICTE structure. There will be four semester with modular structure, with 2 modules in each semester. A practicum MBA program, it will require the achievement of outcomes related to formation of enterprise entity, and will be evaluated partly on achieving these outcomes, as detailed.
- (v) Given the nature of the program and stress on entrepreneurship, students would be encouraged to take forward their venture development or find roles in incubation entities, leverage the network provided to establish their positions in some other venture. The corporate engagement resources would also be available for networking for those wishing to leverage these networks. Given the above they are not expected to seek placement and formal services of T and P department would not be required for their aspirations.
- (vi) It was decided that the exact syllabi for each course will be decided by the committee of experts coordinated by the faculty who would deliver the course. This would be put up to the Board of Studies for giving any comments in the subsequent meeting.

The evaluation scheme for theory and projects will follow the DTU norms. For evaluation of outcome based capstone project, the evaluation scheme will be provided by the faculty coordinator after consultation with experts and finalised by the department.

Decision: The Academic Council approved the proposal with some modifications:

"In MBA (FBE) program point number (iv)- "the specialization in family business be replaced with specialization in family business having a GST number firm."

However, other modifications have been incorporated.



# Agenda 20.21 : Approval for extension of last date and revised admission schedule of MBA 2019-21.

It was submitted to the Academic Council that the Common Management Admission Committee (CMAC) 2019 intends to extend the last date of submission of application for admission to MBA programme 2019-21 batch.

The extension of the last date is expected to further increase the total number of applications for the MBA programme of participating institutions.

The University Admission Committee in its 7<sup>th</sup> meeting approved the revised admission schedule of MBA programme 2019-21 which is placed in *Annexure at page 147*.

Decision: The Academic Council approved the proposal as above.

# Agenda 20.22 : Proposal for infrastructural requirement for setting up of laboratory.

It was submitted to the Academic Council that the University has envisaged Strategic Plan 2019-30 indicating different activities in terms of infrastructural growth, man power, research and development of the University.

In view of strategic plan 2019-30, many new laboratories are to be set up. Each laboratory need to be equipped with required machinery/ equipments and other facilities.

In order to standardize the requirement of the laboratories, the following is proposed:-

## 1. Laboratory Infrastructure:

#### A. Equipments:

- Furniture related to requirements of equipments.
- Chairs/ Stools/ any other similar item for students.
- Almirahs & similar storage furniture for equipments, tools & accessories.
- Bulletin Board
- White Board
- Projector/ LCD screen
- Air conditioning, if required
- Exhaust fan, if required
- If there is specific requirement, approval of the Competent Authority is required.



- **B.** Electrical Work: Internet & Wifi, fans, lights and others as per laboratory requirement.
- C. Civil Work:
  - All walls with POP, duly painted with oil bound distemper.
  - Flooring : Kota stone duly polished.
  - False Ceiling will be permitted only if there is a scientific requirement.
  - Partitioning with aluminium & glass.
  - Blinds/ solar films/ curtains.
- 2. Resources for Faculty and Staff:
- A. Research Lab:
  - (i) Faculty:
    - Table::4'X2' / 5'X3'
    - Executive Chair: 01
    - Visitor Chairs: 2 to 4
    - Almirah : Big/ small : 01
    - Notice pinup board: 01
    - White board: 01
  - (ii) Research Scholars:
    - Table : (4' X 2') : 01
    - Chairs: 01 to 03
  - (iii) Technical Staff:
    - Table : (4' X 2'): 01
    - Chairs: 01 to 03
- B. Instruction Laboratories:
  - (i) Lab Incharge:
    - Table: (4' X 2') / (5' X 3'): 01
    - Chairs: 02 to 04
    - Almirah : Big/ Small : 01
  - (ii) Faculty for Lab:
    - Table: (4' X 2'): 01
    - Chair: 02 to 04
  - (iii) Technical Staff:
    - Table : (4' X 2') : 01
    - Chair: 02 to 04
  - (iv) Research Scholar:
    - Table: (4' X 2'): 01
    - Chair: 01 to 03

- 3. Layout of all equipments/ space for faculty and staff in the laboratory should be approved by the Vice Chancellor on the recommendation of the following Committee:
  - (i) HoD:

Chairperson

(ii) Lab Incharge

Member

(iii) Executive Engineer:

Member

(iv) A professor of the Deptt. nominated by the HoD

Member

Decision: The Academic Council approved the proposal for infrastructural requirement for setting up of laboratory as proposed.

Agenda 20.23 : Proposal for infrastructural facility for Dean/HODs and faculty members.

It was submitted to the Academic Council that as envisaged in the Strategic Plan 2019-30, the University has to become a leading university in term of research, training/ learning and outreach & extension and other student activities. Requisite support in terms of infrastructure is to be provided to the faculty mentors/ staff.

The physical infrastructure requirement for Deans/ HoDs has also been standardized and the following is proposed for approval of the Academic Council:

#### 1. Deans/ HoDs:

- (i) Executive Table : (8" X 4' or 6" X 4') : 01 with side table & back unit, table glass
- (ii) Executive chair: 01
- (iii) Visitor chairs: 04 06
- (iv) Sofa: Maximum 07 seater
- (v) Paper shredder
- (vi) Centre table : 01(vii) Corner table : 01
- (viii) Almirah (Big/ Small): 02
- (ix) White board: 01
- (x) Pinup board: 01
- (xi) TV: 01
- (xii) Computer, Printer, UPS : 01 each
- (xiii) Computer table with chair: 01 each
- (xiv) Wall Clock: 01
- (xv) Room Heater: 01
- (xvi) Air Conditioning
- (xvii) Fridge: (Max. 100 ltrs):: 01
- (xviii) Tea/ Coffee vending machine: 01
- (xix) Curtains / blends / solar film

#### 2. Professors / Associate Professors

- (i) Executive Table: (6' X 4') / (5' X 3'): 01 with table glass
- (ii) Executive chair: 01
- (iii) Visitor Chairs: 01 06
- (iv) White Board: 01

(v) Pinup Board: 01

- (vi) Computer Table with chair: 01 each
- (vii) Almirah/ Bookshelf: 01-02
- (viii) Air Conditioning
- (ix) Room Heater: 01
- (x) Wall Clock: 01
- (xi) Curtains / blends / solar film

#### 3. Assistant Professors

- (i) Executive Table : (5' X 3')/(4' X 2') : 01
- (ii) Executive Chair: 01
- (iii) Visiting Chairs: 03 04
- (iv) White board: 01
- (v) Pinup Board: 01
- (vi) Computer table with chair: 01 each
- (vii) Almirah/ Bookshelf: 01-02
- (viii) Room Heater: 01
- (ix) Wall Clock: 01
- (x) Air Conditioning
- (xi) Curtains / blends / solar film

Civil/ Electrical Infrastructure: Rooms of Faculty (Professor/ Associate Professor/ Assistant Professor) shall be painted with OBD after POP finish and fan/ lights/ wifi/ internet connection shall also be provided. Flooring of the room will be made of Kota Stone/ marble.

Decision: The Academic Council approved the proposal for infrastructural facility for Dean/HODs and faculty members as above.

Agenda 20.24 : Approval for Teaching and Examination scheme for 3<sup>rd</sup> and 4<sup>th</sup> year of Bachelor of Design (B.Des) program.

It was submitted to the Academic Council that the Department of Design proposed the teaching and examination scheme for the 3<sup>rd</sup> and 4<sup>th</sup> year of B.Des program which has already been approved by the Board of Studies of the department in its meeting held on 01.03.2019. The teaching and examination scheme for 3<sup>rd</sup> and 4<sup>th</sup> year is placed in *Annexure pages from 148 to 186*.

Decision: The Academic Council approved the Teaching and Examination scheme for 3<sup>rd</sup> and 4<sup>th</sup> year of Bachelor of Design (B.Des) program as proposed.

## Agenda 20.25 : Matter for Ratification:

i. Admission Brochures for the academic year 2019-20 for all different courses.

It was submitted to the Academic Council that the Admission Brochure for the academic year 2019-20 for the following courses were placed before the University Admission Committee in its 7<sup>th</sup> meeting held on 29.03.2019 which approved the brochures with minor modifications:

- A. B.Tech (Full Time)
- B. B.Tech (Lateral Entry)
- C. B.Tech (Evening)
- D. Bachelor of Design
- E. BBA/BA Economics (H)
- F. M.Tech (Full Time/Part Time)
- G. MBA (Full Time)
- H. MBA (Executive)
- I. MBA (Business Analytics)
- J. International Students
- K. Ph.D (Full Time/Part Time)

It has been reported that the modifications have been incorporated in the revised brochures. The copy of the revised brochure was placed before the Academic Council on table.

ii. Admissions in Ph.D programme January' 2019.

It was submitted to the Academic Council that 126 Ph.D. admissions have been made in the month of January 2019.

iii. Annual Fee for all programs for the students taking admission in the Academic Year 2019-20.

It was submitted to the Academic Council that the Competent Authority has approved the Annual Fee structure of the following programs for the students taking admission in the Academic Session 2019-20:

- A. Bachelor of Technology (B.Tech) (Full Time)
- B. Bachelor of Technlogy (B.Tech) (Lateral Entry)
- C. Bachelor of Technology (B.Tech) (Evening)
- D. Bachelor of Design (B.Des)
- E. Bachelor of Business Administration (BBA) & B.A. Economics (H)
- F. Ph.D (Full Time/Part Time)
- G. Master of Technology (M.Tech) (Full Time/Part Time))
- H. Master of Business Administration (MBA) (Full Time)
- I. Executive MBA
- J. DASA Students
- K. International Students
- L. Withdrawal Policy

The notification in respect of fee structure for all above programs is placed as *Annexure at pages 187 to 195.* 

# iv. Seat matrix for B.Tech admissions 2019 in DTU.

It was submitted to the Academic Council that the seat matrix for B.Tech Admissions (DTU) 2019 has been prepared and the same was placed before the University Admission Committee in its 7<sup>th</sup> meeting held on 29.03.2019. The committee after deliberations approved the seat matrix for B.Tech. admissions 2019. The seat matrix is placed as *Annexure at page 196*.

# v. Seat matrix of MBA (Business Analytics) for 2019-21 batch.

It was submitted to the Academic Council that the some modifications in selection criteria and seat matrix of MBA (Business Analytics) for 2019-21 batch has been done. The modified seat matrix and selection criteria was placed as below for consideration and approval. The Seat Matrix is as under:

Category	No. of seats approved for admission 2018 (Same to be used for admission 2019)	Sub- Category	No. of seats approved in admission 2018	No. of seats Proposed for admission 2019
		PWD	0.25 (0)	0.25 (1)
SC	5	Defence	0.25 (1)	0.25 (0)
		PWD	0.10 (0)	0.10 (0)
ST	2	Defence	0.10 (0)	0.10 (0)
		PWD	0.40 (1)	0.40 (0)
OBC	8	Defence	0.40 (0)	0.40 (1)
		PWD	0.75 (1)	0.75 (1)
Gen	15	Defence	0.75 (1)	0.75 (1)
J&K migrant	1	<b>*</b>	-	-
Total	31			

**Note:** In case, sufficient number of eligible candidates from the sub-categories are not available, the vacancies will be treated as reverted to the respective category.

The matter was also placed before the University Admission Committee and the Committee approved the seat matrix of MBA (Business Analytics) for 2019-21 batch.

# vi. Provision of one seat for Kashmiri Migrant in each branch of B.Tech program in DTU.

It was submitted to the Academic Council that Academic Section (UG) received an application regarding extension of seats in each branch of Bachelor of Technology (B.Tech) for Kashmiri Migrant students. Currently only one seat in B.Tech programmes is being offered to Kashmiri Migrant in the Delhi Technological University. The relevant extract of the brochure of year 2018-19 is placed as *Annexure at page 197*.

The applicant requested that one seat in each branch of B.Tech. programmes should be offered to Kashmiri Migrant students.

The matter was also placed before the University Admission Committee which considered and decided that the status-quo shall be maintained.

# vii. Content about DTU for the Brochure of Joint Admission Committee Delhi 2019 being prepared by NSUT.

It was submitted to the Academic Council that the content about DTU for the Joint Admission Committee (JAC) Delhi Brochure 2019 being prepared by NSUT was placed before the University Admission Committee in its 7<sup>th</sup> meeting held on 29.03.2019.

The University Admission Committee (UAC) considered and approved the content about DTU for the JAC Delhi Brochure 2019. A copy of the content about DTU in the brochure is placed as **Annexure at page 198**.

Decision: The Academic Council ratified the above actions of the University.

## Agenda 20.26 : Any other matter with the permission of the Chair.

Under any other item, with the permission of the Chair, Prof. S.K. Garg, ProVice Chancellor, DTU proposed two following items:

#### 1. Rationalization of Ph.D Fellowship

He pointed out that at present DTU has 300 Ph.D fellowships which need to be further increased keeping in view (a) more faculty is/will be available to guide the Ph.D students and (b) to improve the ranking of the University in NIRF and other International rankings, research publications and number of Ph.D scholars has high weightage. It was proposed to the Academic Council to consider creating the Ph.D fellowship in proportion to the Faculty available to guide the Ph.D. It is proposed to create TWO Ph.D Fellowships per faculty available to guide Ph.D.

Decision: The Academic Council considered the item and constituted the following Committee to work out the details and authorised the Vice Chancellor to accept the report for the consideration and approval of Board of Management:

i) Pro Vice Chancellor : Chairperson

ii) Dean, Academic (UG) : Member

iii) Dean, Academic (PG) : Member

iv) Dean (IRD) : Member

# 2. Creation of "Employee Welfare Fund" in Delhi Technological University.

The Competent Authority while considering the request of Sh. Pardeep Rana, Sr. Machanic on contractual basis in the department of Electrical Engineering regarding financial assistance to meet the expenditure incurred due to his treatment of "Right Cervical Lymph Node Excision Biopsy" that leads to Cancer, approved the creation of "Employee Welfare Fund" with the objective to provide relief in case of distress or hardship owing to cronical diseases/accidents, amongst the Academic and Non-Academic Staff of DTU to render such financial assistance or relief as may be deemed necessary to them.

The revenue and expenditure guidelines mentioned as below:

# Revenue and Expenditure:

(a) 5% of remuneration be deducted from examination payment.

(b) 2% of remuneration of PI & his team. The amount be transferred from Consultancy remuneration/honorarium.

(c) Any donation/contribution from any employee, society or any outside agency/organization.

(d) Two Lacs be transferred from NGF: Student Welfare Fund as Loan. This be paid back after having adequate funds in "Employee Welfare Fund".

The "Employee Welfare Fund" has been approved by the Competent Authority.

Decision: The Academic Council recommended the matter to be placed before the Finance Committee and the Board of Management for their approval.

Suppl. Agenda 20.27: Modification in the contents of the course EE-203 Electronics Devices and Circuits (EDC) in 3<sup>rd</sup> semester Electrical Engineering.

(Electronics Devices and Circuits (EDC)) comprises of 6 units. Nine (09) contact hours have been assigned to the last unit entitled **FEEDBACK AMPLIFIERS AND OSCILLATORS**. The other 5 units in this course are very important and students build-up their concepts using the topics covered in these units. Based upon the feedback of the course teachers it has been observed that the 33 contact hours assigned to these topics are not adequate for a detailed coverage. Moreover, the same topic (**FEEDBACK AMPLIFIERS AND OSCILLATORS**) has also been prescribed in another course entitled **EE-202 linear Integrated Circuits (LIC)** which was earlier coming in the 5<sup>th</sup> semester as an elective course but now it will come in

the 4<sup>th</sup> semester w.e.f. the next academic session. It is thus proposed that the 6<sup>th</sup> units namely FEEDBACK AMPLIFIERS AND OSCILLATORS may be deleted from the prescribed syllabus of EE-203 Electronics Devices and Circuits (EDC).

The unit wise revised contact hours in the course EE-203 Electronics Devices and Circuits (EDC) are given below:

Unit 1: Contact Hours 06

Unit 2: Contact Hours 10

Unit 3: Contact Hours 10

Unit 4: Contact Hours 06

Unit 5: Contact Hours 10

Decision: The Academic Council approved the modification in the contents of the course EE-203 Electronics Devices and Circuits (EDC) in 3rd semester Electrical Engineering.

Suppl. Agenda 20.27 : Approval for introduction of an open elective course in and Communication semester of Electronics Engineering.

It was submitted to the Academic Council that for enhancing the skills of the students in using MATLAB based tools for doing good research projects, the department of Electronics and Communication Engineering proposed an open elective course to be introduced in 5th semester. This course is framed with a purpose of giving students an in-depth knowledge of signal generation, processing and its application in computer vision, image and video processing.

1. Subject Code: EC 363 Course Title: Signal Processing and design using MATLAB.

L-1 T-0 P-4 2. Contact Hours:

3. Examination Duration (ETE) (Hrs.): Theory: 3 Practical: 3

4. Relative Weightage: CWS:10 PRS:30 MTE:20 ETE:0 PRE:40

5. Credits:

3

6. Semester:

7. Subject Area !

8. Pre requisite:

Basic knowledge of MATLAB and SIMULINK

9. Objective:

To develop a hands on experience of signal processing, Image

Processing, signals and systems and digital design using MATLAB

and SIMULINK tools.

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# 10. Syllabus:

UNIT	CONTENT	L (contact hours)	P (Contact Hours)
1	MATLAB Basics  Variable commands, vectors and matrices, indexing and modifying arrays, calling functions, plotting data	3	12
2	Signal generation and transformation using MATLAB  Impulse, step and ramp signals, arithmetic operations of signals, convolution of signals, Laplace transform, Discrete Fourier transform, z transform, inverse transforms.	4	16
3	Image processing and computer vision using MATLAB  Image models, Image Noises, Gaussian Filter, Histogram of gradients, Frame differencing, Background subtraction, Feature extraction, Pose estimation, SIFT. Fuzzy and Neural Network Tool Boxes	3	12
4	Virtual instrumentation and Simulation using SIMULINK  Amplitude modulation, frequency modulation, demodulation, low pass filter design, High pass filter design, band pass filter design, Butterworth filter design.	4	16

#### 11. Reference books:

S.No.	Name of books/Authors/Publisher	Year
1;	Getting started with MATLAB, Rudra Pratap.	1996
2.	Signals and Systems with MATLAB, Yang, Won Young, Springer.	2009
3.	MATLAB and SIMULINK for engineers, Agam kumar Tyagi, Oxford publications.	2012
4.	Image processing and Computer vision in MATLAB, Abhishek Pandey, Prof. Neeraj Bhargava, and Ritu Bhargava, Google books.	2016

Decision: The Academic Council approved the proposal as above.



The minutes are issued with the approval of the Chairman for circulation to Hon'ble Members.

(Prof. Samsher)

Registrar

Dated: 21/5/19

No. F.DTU/Org/AC/Meeting/01(1)/10/Vol-IX/831-53

#### Copy to:

- 1. Pr. Secretary to Hon'ble Lt. Governor (Delhi), 6, Raj Niwas, Civil Lines, Delhi.
- 2. PA to V.C. for kind information of the Vice Chancellor, DTU.
- 3. Prof. S. K. Garg, Pro VC, DTU
- 4. All Deans, DTU.
- 5. Prof. Surendra S. Yadav, Professor of Management, IIT, Hauz Khas, Delhi
- 6. Sh. S.G. Deshmukh, Director IIITM, Gwalior
- 7. Sh. Lokesh Mehra, A-166, Ground Floor, Sarita Vihar, Delhi 110076
- 8. Prof. Smriti Srivastava, Head-Division of ICE, NSUT, Delhi
- 9. Prof. Tarun Kumar Das, Prof. of Mathematics & Registrar, University of Delhi
- 10. Dr. Bhim Singh, Dean, Academics, IIT, Hauz Khas, Delhi
- 11.All HODs, DTU.
- 12. Prof. Rakesh Kumar, Civil Engg. Deptt.
- 13. Prof. Narendra Kumar-I, Elec. Engg. Deptt.
- 14. Prof. Naveen Kumar, Mech. Engg. Deptt.
- 15. Sh. Neeraj Kumar Bhagat, Associate Prof.,
- 16. Dr. M. Jayasimhadri, Assistant Prof., Applied Physics
- 17. Controller of Examinations.
- 18. Registrar, DTU
- 19. Prof. M.M. Tripathi, Director, IQAC
- 20. Dr. Manoj Kr. Sharma, CEO (DTU IIF)
- 21. Prof. Amit Mookerji, Head (USME)
- 22. Associate Dean, Acad.(UG)
- 23. Dy. Registrar, Acad.(PG)

(Prof. Samsher) Registrar

# ANNEXURE For Minutes

20<sup>th</sup> Meeting of
Academic Council
DTU

10-05-2019

#### STRATEGIC PLAN 2019-2030

#### **An Illustrious Journey Since 1941**

"We pay our respect to people of Delhi, Hon'ble Chancellor of Delhi Technological University and Government of NCT of Delhi for providing us excellent students, outstanding teachers and human resources, state-of-the-art infrastructure and liberal grants."

Page | 1

### Principals



Prof. W. W. Wood Jan. 1941 to Aug. 1946



Prof. R. G. P. S. Fairbairn Sept. 1946 to Sept. 1949 Sept. 1949 to Dec. 1966



Prof. S.C. Sen



Prof. J. N. Moudgil Feb. 1968 to April 1971



Prof. R. C. Narayanan Feb. 1972 to May 1980



Prof. M. L. Mandal June 1980 to July 1989



Prof. N. L. Sachdeva



Prof. D. Goldar Aug. 1999 to Feb. 2003 Feb. 2003 to Aug. 2003 and Oct. 2006 to Dec. 2007

#### **Principals**



Prof. Ashok Bhattacharyya Jan. 2008 to Aug. 2008



Prof. P.B. Sharma
Dec. 1990 to Aug. 1999
Aug. 2003 to Oct. 2006
Aug. 2008 to July 2009

#### Hon'ble Chancellors



Shri Tejendra Khanna July 2009 to July 2013 PPRI BUA OLDER



Shri Najeeb Jung

July 2013 to Dec. 2016

Shri Anil Baijal

Dec. 2016 to till date



8000 THA STROUGH TWO

#### **Vice Chancellors**



**Prof. P.B. Sharma**July 2009 to July 2014



**Prof. Pradeep Kumar** Aug. 2014 to Sept. 2015



**Prof. Yogesh Singh**September, 2015 to till date



#### 1. Introduction

#### 1.1 About the University

Delhi Technological University (DTU) is a non-affiliating, teaching and research university at Delhi to achieve excellence in Science, Engineering, Technology, Management and Allied areas and matters connected therewith or incidental thereto. The university enables students to face the wide-ranging changes taking place in the fields of Science, Technology, Environment and Management. This includes innovation, design, development, construction, production, managerial and entrepreneurial activities. The university lays great emphasis on assisting students in the development of national character, self-confidence, leadership and fostering an ecosystem for creativity and imagination.

This institution was initially established as Delhi Polytechnic in 1941 to cater to the needs of Indian industries for trained technical manpower with practical experience and sound theoretical knowledge. The same was renamed as Delhi College of Engineering in 1965 and was further reconstituted as Delhi Technological University by the Government of NCT of Delhi in 2009. The university was recognized under Sections 2(f) and 12(b) by University Grants Commission under UGC Act, 1956 on 10.07.2009 and 17.12.2012 respectively. The university was awarded ISO 9001:2015 certification on 27.11.2018. Five B. Tech. Programs (Bio Technology, Computer Engineering, Civil Engineering, Electrical Engineering, and Production and Industrial Engineering) were accredited by National Board of Accreditation (NBA) on 26-07-2017. In the Year 2018, DTU was ranked 5<sup>th</sup> by Times and 7<sup>th</sup> by India Today respectively among all engineering institutions in India. The university, in 2019, has been ranked 34<sup>th</sup>, 47<sup>th</sup> and 71<sup>st</sup> in Engineering, University and Overall Categories respectively by National Institutional Ranking Framework (NIRF), Ministry of Human Resource Development (MHRD), Government of India.

This premier institution is globally well-known for its outstanding education, research, and innovations. The university currently offers various inter-disciplinary and industry relevant-programs in Science, Technology, Management, and Allied areas at both the undergraduate and postgraduate levels. The university has established a strong academia-industry interface and has collaborations with reputed research organizations, industries, and premier institutions.

#### 1.2 Vision

"To be a world class university through Education, Innovation, and Research for the service of humanity."

#### 1.3 Mission

- 1. To establish centres of excellence in emerging areas of Science, Engineering, Technology, Management and Allied areas.
- 2. To foster an ecosystem for incubation, product development, transfer of technology and entrepreneurship.
- 3. To create environment of collaboration, experimentation, imagination and creativity.
- 4. To develop human potential with analytical abilities, ethics and integrity.
- 5. To provide environment friendly, reasonable and sustainable solutions for local and global needs.

#### 1.4 Core Values

- Integrity We do what we say through trust, transparency and honesty.
- Compassion We foster civilized mindset for kindness, consideration, and benevolence.
- Commitment We dedicate ourselves completely to all our Endeavors.
- Creativity We nurture innovation, imagination, and ideation.
- Collaboration We promote team work through togetherness, harmony and acknowledgement.
- Inclusion We embrace diversity with respect, acceptance and affirmation.

#### 1.5 Quality Policy

The university is committed to achieving global standards of excellence in the field of Science, Technology, Management and Allied areas by disseminating knowledge through cutting-edge research, education and innovation. We adopt best practices to maintain high standards in the core and allied functions through continuous evaluation and improvement of our processes.

## AN ILLUSTRIOUS JOURNEY SINCE 1941 Points of Pride



2 Campuses



11,019 students





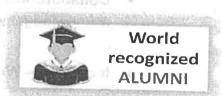




DTU Innovation & Incubation Foundation







#### 2. DTU's Glorious Past

Delhi College of Engineering, (initially established with the name - Delhi Polytechnic) came into existence in the year 1941 to cater to the needs of Indian industries for trained technical manpower with practical experience and sound theoretical knowledge. The institution started its functioning at the historic Kashmere Gate campus as a follow up of the Wood and Abott Committee Report of 1938. It comprised of a multi-disciplinary and multi-level institution offering wide ranging programs in Engineering, Technology, Art and Sculpture, Architecture, Pharmacy and Commerce. The national diploma awarded by the institution was recognized as equivalent to degree level for the purpose of employment. In 1952, the college was affiliated with University of Delhi and started formal Degree level programs. The Department of Architecture later became the School of Planning and Architecture, now a Deemed University and Institution of National importance. The Department of Arts and Sculpture became College of Arts and the Departments of Chemical Technology and Textile Technology were shifted en-block to mark beginning of the IIT Delhi at its new campus at Hauz Khas. The Department of Commerce was later abolished and the faculty of Management studies of the University of Delhi was established by Prof. A. Das Gupta of Delhi College of Engineering (DCE). The institution (DCE) is thus, the mother institution of a number of national projects including Indian Institute of Technology, Delhi (IITD), School of Planning and Architecture (SPA), College of Arts and even the famous Faculty of Management Studies (FMS).

Till 1962, the college was under the direct control of Ministry of Education, Government of India. In 1963, the administration of the college was handed over to Delhi Administration. Delhi College of Engineering was under the administrative control of Department of Training and Technical Education, Govt. of NCT of Delhi. For academic purpose, the college was affiliated to University of Delhi since 1952. From July 2009, the DCE was reconstituted as Delhi Technological University vide Delhi Act 6 of 2009.

The erstwhile DCE functioned from its historic Kashmere Gate Campus for almost 55 years and was shifted to a lush green sprawling campus of 164 Acres at Bawana Road, adjoining Sector – 17, Rohini, Delhi in 1996.



#### 3. DTU at a Glance

DTU has 164 acres of a lush green, tech-savvy main campus, with approximately 1,56,000 square meters of built up area, 15 academic departments, research centres, and residences for students, faculty, and staff. It is a zero discharge campus having Sewage Treatment Plant and Waste to Energy Plant in the campus itself. The University, as on date, has 11,019 students in its undergraduate, postgraduate, and Ph.D. programs. The library is a central place for academic and research activities. It has a well-equipped conference hall, reading rooms, and a rich collection of relevant books and journals. The university has a DTU Studio utilized for recording of lectures, events, and talks and has campus wide networking connecting the computer center, the academic wings, the administrative block and the hostels on a common platform. DTU is a Wi-Fi enabled Campus with state-of-the-art IT Infrastructure with advanced technological facilities. The students have access to high speed internet services round the clock.

The East Delhi Campus of DTU was established in 2017 primarily focusing on Management and Entrepreneurship programs. These programs are very important, as they help the nation in producing skilled managers and leaders thereby promoting innovations and in creating jobs and new ventures. The Campus offers Master of Business Administration (MBA) and MBA Business Analytics, Bachelors of Business Administration (BBA) and B.A. (Hons.) Economics.

The university offers 17 undergraduate, 22 postgraduates and 17 Ph. D. programs. The Engineering programs include conventional disciplines of Mechanical Engineering, Civil Engineering, Electrical Engineering and Applied Engineering disciplines, such as Electronics and Communication Engineering, Computer Engineering, Environmental Engineering, Software Engineering, Mathematics and Computing, Automobile Engineering, Polymer Science, and Chemical Technology. The postgraduate engineering programs cover VLSI design and embedded systems, Software Engineering, Computer Engineering, Microwave and Optical Communication, Polymer Technology, Power Systems, Signal Processing and Digital Design, Geotechnical Engineering, Structural Engineering, Nano Science Technology, and Bioinformatics. The university offers Bachelor of Design (B. Des.), BBA, BA (Economics) Honors, MBA and MBA Business Analytics.

DTU has a policy for recognition of excellence in teaching. Under this scheme, the teachers are awarded with cash prize and citation in teaching excellence. The university encourages teachers to ensure maximum class engagement by the teachers and attendance of students. Rigorous conditions are stipulated for the teachers to declare them eligible for the said award. This award may help teachers towards their promotion and career advancement and would also create more conducive environment for teaching and learning.

The course curricula have been developed with a view to integrate advancements in science and engineering, while also incorporating industry relevant technologies. The curriculum is structured such that it possesses 50 percent of the Core component, 20 percent Foundation Courses (Core and Elective) and covers 30 percent of Electives. Thus, a student will have the freedom to choose, as electives, nearly half the courses that he or she must complete to obtain a degree. A strategy of introducing curricular flexibility is adopted to sustain the interest of all students, both high performers and those with difficulties. The traditional emphasis at Delhi Technological University on hands-on laboratory training has been maintained. Undergraduate labs have been modernized and expanded in the last few years. This is an ongoing process and will continue in future also.

While the core courses define the stream opted for by the student at the time of admission, students can choose from a wide variety of courses for completing their degrees. Core courses address the widest possible audience and will not be specific to niche streams with small enrolment levels. A heterogeneous mix of students from various streams is considered desirable in the classroom. The electives, if properly chosen, define the specific domain knowledge and skills of the graduating student.

Further, the means by which undergraduate students could obtain research-based credits have been introduced in the university recently. These may take the form of hands-on learning and research projects. Undergraduate students may obtain specified credits through research oriented self-learning. Online teaching is used as an aid to classroom teaching. Contact hours in the classroom are not compromised.

There is a continuous focus on seamless integration of first-year (both undergraduate and postgraduate) students entering from diverse backgrounds. Students are assisted proactively in the first year so that they perform well. Postgraduate programs are tailored to enable customisation of job seekers, job providers in industry and future researchers.

The university students are placed in companies of high repute including multinational companies. DTU has strong focus on industry relevance for its education and research programs. DTU prepares students beyond the structured curriculum by encouraging industry interface at various levels through guest lectures, industrial visits, and project work, which bridge the gap between graduating and professional engineers. Some of the companies that have recruited students during the campus placements include Flipkart, Amazon, Microsoft, Google, Goldman Sachs, Texas Instruments, Indian Oil, Maruti, Yahoo, Oracle, Samsung, Deloitte, McKinsey, Adobe, and Larsen and Toubro. The highest annual salary package has gone up to ₹1.25 crores per annum. Students who have graduated from DTU are studying in various prestigious national and international universities such as IIMs, IITs, Carnegie Mellon University, Columbia University, Duke University, Purdue University, and University of California. A major highlight of placements at DTU is that the leading companies not only make job offers to the final year students, but they also offer paid internships to third year students. This enhances the industry interface further, preparing them for the technological challenges of the industries and in turn assure better pre-placement jobs offers for the students.

DTU has provided the nation, as well as the world at large, with some of the best and finest engineering and technology professionals. They have, with distinction, led great enterprises and corporate houses in India and abroad, bringing immense glory to their alma-mater, all the while enhancing the pride of the engineering profession by their distinguished services performed with utmost sincerity and commitment.

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There is a continuous focus on seemless integration of first-year (both undergraduate and postgraduate) students entering from diverse neckgrounds. Students and assistant prescrively in the first wear so that they perform well. Postgraduate programs are tallored to enable customatistic of the sealiers, job providers in mitrary and future researchers.

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#### 3.1 Institutional Profile

Established in	2009, Non-affiliati	ng University	ROSU 7
Departments		15	
Students (On Roll)	To the part of the	11019	
No. of Programs	UG : 17	PG :22	Ph. D : 17
No. of Teaching Staff		273	

#### 3.2 Academic Departments

- Department of Applied Chemistry
- Department of Applied Mathematics
- Department of Applied Physics
- Department of Biotechnology
- · Department of Civil Engineering
- Department of Computer Science and Engineering
- Department of Electronics and Communication Engineering
- Department of Environmental Engineering
- · Department of Electrical Engineering
- Department of Information Technology
- Department of Mechanical Engineering
- Department of Humanities
- Delhi School of Management
- Department of Design
- University School of Management and Entrepreneurship (East Delhi Campus)

#### 3.3 Programs

#### 3.3.1 UG Programs (Main Campus)

1	Mechanical Engineering	8	Computer Engineering
2	Electrical Engineering	9	Civil Engineering
3	Polymer Science and Chemical Technology	10	Electronics and Communication Engineering
4	Software Engineering	11	Environmental Engineering
5	Production and Industrial Engineering	12	Information Technology
6	Engineering Physics	13	Mathematics and Computing
7	Biotechnology	14	Mechanical Engineering with specialisation in Automobile Engineering
15	B. Des. (Bachelor of Design)		

#### 3.3.2 UG Programs (East Campus)

1	Bachelor	of	Business	2	B.A. Economics (Hons.)	
	Administration	(BBA)				

#### 3.3.3 PG Programs (Main Campus)

1	Software Engineering	11	Microwaves and Optical
			Communication
2	Information Systems	12	Computer Science and Engineering
3	Nano-Science and Technology	13	Structural Engineering
4	Bio-Informatics	14	Thermal Engineering
	Recentation Technology	[12]	Inhitaubid has not vicent
5	Polymer Technology	15	Power Systems
6	Environment Engineering	16	Hydraulics and Water Resources
7 Intger	Production Engineering	17	Signal Processing and Digital Design
8	VLSI Design and Embedded System	18	insignatrial Bio: Technology
9	Control and Instrumentation	19	Bio-Medical Engineering
10	Geotechnical Engineering	20	Computational Design
MBA	(Both at Main and East Campuses)		Karthelos of Business

MBA (Business Analytics)

#### 3.3.4 Ph.D. Programs

Ph.D. in Computer Science and	Ph.D. in Civil Engineering
Engineering	
Ph.D. in Electronics and Communication	Ph.D. in Environmental Engineering
Engineering	
Ph.D. in Electrical Engineering	Ph.D. in Information Technology
Ph.D. in Mechanical Engineering	Ph.D. in Applied Chemistry
Ph.D. in Applied Mathematics	Ph.D. in Applied Physics
Ph.D. in Bio-technology	Ph.D. in English
Ph.D. in Economics from Humanities	Ph.D. in Management from Delhi School
Department	of Management
Ph.D. in Economics from University	Ph.D. in Design
School of Management and	
Entrepreneurship	
Ph.D. in Management University School	
of Management and Entrepreneurship	
± 1	

#### 4. Governance, Leadership and Management

Section 19 of DTU Act, 2009 provides for following authorities of the university.

- i. University Court
- ii. Board of Management (BoM)
- iii. Academic Council (AC)
- iv. Planning Board
- v. Finance Committee (FC), and
- vi. Such other authorities as may be declared by the Statutes to be the authorities of the university.

The participation of all stakeholders has been ensured in the constitution of these committees through statutory provisions. In the University Court, which is chaired by the Chancellor/Lt. Governor of NCT of Delhi, in addition to, ex-officio members, persons in the discipline of basic and applied science, engineering, technology and management are there. Representative from University Grants Commission and All India Council for Technical Education are also there. Similarly, in the BoM, which is the principal decision making body of the university there is representation from academia, industry, government, regulatory bodies, teaching and non-teaching employees of the university. All decisions are generally taken with consensus but the DTU Act provides for majority decisions in case a consensus decision is not arrived at. The minutes of the BoM meeting are available in public domain at www.dtu.ac.in.

Academic council (AC) is the principal body in all the matters related to academic affairs of the university. In the Academic Council also the DTU Act provides for representation of all the stakeholders. Apart from external members from academia, industry and regulatory authorities all the HoDs and Deans of the university are members of the AC. In addition, one Associate Professor and One Assistant professor (on rotation basis) are also nominated in Academic Council. University, in its policy of following inclusiveness, has included two student representatives — One each from UG and PG programs as Member of the Council. Starting of new academic programs, changes in the ordinances and regulations related to examinations, approvals of the syllabi of different courses, approval of panel of experts for faculty recruitment, framing of the Recruitment Rules (RRs) for faculty positions and all other matters related to academic affairs of the university are done by the Academic Council.

In addition to above, there are other Committees like Admission Committee, Examination Committee and Board of Studies etc. in the university for different works of the university.

#### 5. Strategic Plan 2019-30

The strategic plan 2019-30 aims to provide a roadmap in form of resolutions, aims and actions in line with the vision and mission of the university. This is a policy document that provides direction, dedication and discipline to every stakeholder of the university. It focuses on important pillars of the university such as education, research, innovation, entrepreneurship, faculty, staff, infrastructure and finance. The plan intends to guide the university leaders in their decision making and also pursue them to strategize the allocation of resources for the fulfilments of stated resolutions. Every resolution is a promise and commitment that will inspire, influence, ignite and intrigue to work hard and take every action as expected and specified.

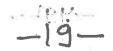
#### 5.1 Education

DTU will continue to provide quality education with continuous improvement in teaching pedagogy. We do understand the challenges and importance of imparting quality education comparable to the best in the world and will take necessary steps to address such challenges. Education is the most effective and powerful tool to empower students with values, skills, knowledge and wisdom. We will strive hard to produce such students who will prove to be an asset for society, nation and entire planet. Our students will inculcate our core values (integrity, compassion, commitment, creativity, collaboration, inclusion) and contribute with their knowledge and skills for the service of humanity.

Resolution 1: To admit students from diverse backgrounds and countries through a competitive system and nurture their potential and capabilities.

We will continue to admit students through a transparent and competitive system of examination. We will encourage diversity, gender equality and inclusion through policy initiatives. We will provide world class teaching and learning environment with a focus on research, innovation and entrepreneurship. We will strengthen and enhance outreach and extension activities. We will promote and encourage every student to be a part of student societies to enhance communication, collaboration, cooperation and coordination.

Resolution 2: To improve teaching learning processes and provide open platforms for creativity and experimentation.



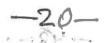
We will continue to keep pace with the fast changing world and provide technologically enabled learning environment to energize, encourage and inspire faculty, students and staff of the university. We will provide various choices in curriculum to nurture creativity and experimentation, keeping students as the building block of every initiative. We will further enhance the flexibility in the curriculum. We will keep on promoting online education through MOOCs platforms like Edx, Coursera, Swayam and so on. We will facilitate students to learn beyond classrooms as part of their curriculum. We will further strengthen research, product and entrepreneurship tracks to promote innovation and research culture in the university.

#### Actions

#### DTU aims

- To increase student strength from 11000 to 20000 by 2030. Number of postgraduate and Ph.D. students will be increased gradually to 30% of the total students' strength. The ratio of undergraduate, postgraduate and Ph.D. students will be 70%, 15% and 15% respectively.
- 2. To increase undergraduate programs from 17 to 25 by 2030 in important areas including Architecture, Fashion Technology, Medical Engineering and Social Work.
- 3. To increase postgraduate programs from 22 to 40 by 2030 in important areas including Physics, Chemistry, Mathematics, Economics, Biotechnology, Design, Artificial Intelligence, Mathematics and Computing and MBA in Family Business and Entrepreneurship and MBA in Innovation, Entrepreneurship, Venture Development, Psychology, Transportation Engineering, Power Electronics, Electrical Energy System, Energy Studies, Advanced Communication Systems (5G), Earthquake Engineering, Construction Technology & Management, Internet of Things (IoT), and Flexible Electronics.
- Strength of students will also be increased in the existing programs like Computer Engineering, Information Technology, Electronics and Communication Engineering, Software Engineering and Mathematics and Computing.
- To increase DTU Ph.D. fellowships from 300 to 1000 by 2030. Efforts shall also be made to admit more number of Ph.D. students with fellowships funded by external agencies (like CSIR, UGC, DST-Inspire), sponsored projects and industry/alumni funded fellowships.
  - 6. To increase, by 2030, the students' societies from 70 to 100 as per societal needs and expectations.
  - 7. To increase university student internships from 200 to 1000 by 2030 to facilitate students to actively involve themselves in outreach and extension activities. This will

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strengthen scheme of teaching in government schools, helping the unprivileged in the neighborhood.

- 8. To develop at least 10% courses for MOOCs platforms by 2030. Students shall also be encouraged to take 10% courses through such platforms.
- 9. To increase female students from 15% to 30% by 2030.
- 10. To increase foreign students from 2% to 10% by 2030.
- 11.To enhance fee waiver scheme from ₹4 crores each year to ₹25 crores each year by 2030.
- 12. To provide large number of choices to students and to implement total flexibility in the curriculum which will lead to minor and major specializations as decided by students by 2030.
- 13.To increase the number of classroom/laboratory on wheels for outreach and extension activities from 1 to 10 by 2030 to impart education to the under privileged children of nearby villages.

#### 5.2 Research

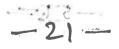
DTU focuses on research in the emerging areas of technology, science, management and other related and/or interdisciplinary areas. It has enabling research environment to create knowledge for the service of humanity. We will continue to work hard to make DTU as a favorite destination for best minds to do research in their chosen areas. We would like to create centres of excellence in areas with potentially large societal impact. We also would like to increase number of intellectual properties including patents and publications. We would like to promote and facilitate every research initiative.

Resolution 1: To establish centres for excellence in emerging areas to promote research.

Technology has provided solutions to many problems in past and will continue to do so in future also. Our research culture and research centres will play significant role to create future technologies and scientific advancements. We will produce world class research and researchers for solving problems using science and technology.

Resolution 2: To attract best minds to enrich research.

We will continue to provide encouraging and enabling research environment to attract and nurture best minds of the world. State-of-the-art research infrastructure, facilities and support will be provided. More funding avenues will be explored from government agencies, private industries, alumni and society for this purpose.



#### **Actions**

#### DTU aims:

- To establish ten new centres of excellence by 2030 in the areas of clean energy technologies, storage technologies, artificial intelligence and machine learning, cyber security, VLSI, Internet of Things (IoT), medical engineering, advanced analytics and space and atmospheric sciences.
- 2. To have a research laboratory and research project(s) for every faculty by 2030.
- 3. To have all faculty with Ph.D. degree and involve them in research by 2030.
- 4. To award 750 Ph.D. degrees to the scholars per year by 2030.
- 5. To produce 50 Intellectual Properties every year and 3000 publications every year in reputed Journals by 2030.
- 6. To achieve "h Index" of DTU "200" by 2030.
- 7. To produce at least 50 commercially sustainable products by 2030.
- 8. To invest 25% of revenue on research (including human resource, equipment, library, ICT and physical infrastructure) every year by 2030.
- 9. To establish 10 research laboratories by 2030 with support from industries. 10. To have 100 sponsored research projects from outside funding agencies.
- 11. To have 100 active Memoranda of Understanding (MoUs) with International and National Institutions and organizations.

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DTU promotes innovation and entrepreneurship through policies and regulations. These innovation and entrepreneurship have become essential ingredients of academic and research life in DTU. We have a Technology Business Incubator (TBI), an independent entity of DTU and managed by DTU – Innovation and Incubation Foundation (IIF) (A non-profit Company, meant for promoting education in Science, Research etc. under Section 8 of Companies Act 2013). We also have a very active Entrepreneurship Development Cell (EDC) to inspire and energise students towards entrepreneurial path. We encourage faculty and students to take innovative projects and support them in the process.

Resolution 1: To work towards a comprehensive engagement by innovative projects.

The curriculum has many provisions for innovative projects. We will encourage students to take advantage of such provisions and take such projects which are full of challenges and ideas. The projects may be associated with industry/university or any other organization.

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#### Resolution 2: To establish a Technology Park.

We would like to establish a Technology Park in addition to Technology Business Incubator. Both entities will provide numerous opportunities for students, scholars and faculty to experiment new ideas and will get exposure to advancement of science and technology.

Resolution 3: To provide positive environment for consultancy and sponsored projects.

We will continue to encourage faculty for consultancy and sponsored projects through policy and regulation.

#### **Actions**

DTU aims:

 To increase number of start-up companies in Technology Business Incubator from 19 to 100 by 2030.

2. To establish a Technology Park of 50 companies by 2030.

3. To increase consultancy income from ₹10 crores to ₹50 crores by 2030.

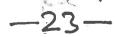
- 4. To invest in innovative projects from ₹1 crore per year to ₹10 crores per year by 2030.
- 5. To have 10 successful companies from Incubator by 2030.

#### 5.4 Faculty and Staff

DTU continuously strives for the quality of the faculty and staff. In order to become a world-class institution, it is necessary to continue attracting highly qualified and talented professionals and provide a healthy and encouraging environment that allows the faculty and staff to learn and grow. The university policies and frameworks are designed and developed to support and provide a wide range of opportunities to faculty and staff for professional and personal development.

Resolution 1: To attract and retain best minds to enrich education, research and innovation.

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We will continue to recruit and retain the very best minds to ensure that the university remains world-leading. We will ensure that our recognitions and reward systems are strong, competitive and transparent. We will continue to ensure the wellbeing and welfare of our people in order to make them feel valued and respected.

Resolution 2: To improve personal and professional development of faculty and staff.

We will encourage faculty and staff in all possible ways to participate in personal and professional development programs, conferences, workshops, and seminars, regardless of the status of their employment. We will continue to support faculty and staff in their early career with grants and incentives and organize specialized capability enhancing programs for those having managerial and leadership responsibilities. We will keep the faculty and staff motivated to learn and adapt to new and changing technologies.

#### **Actions**

DTU aims:

1. To enhance faculty upto 1200 and staff upto 1300 by 2030.

2. To increase 10% of budget to support faculty projects and development programs by 2030.

3. To engage 5% international faculty by 2030.

4. To send 5% faculty for higher education and postdoctoral fellowships in the best institutions of the world by 2030.

5. To send 5% faculty every year to the industry by 2030.

6. To send 5% of the technical staff to industry/academia for training, skill development and higher education.

7. To send 5% of the ministerial staff for administrative enrichment.

#### 5.5 Infrastructure

DTU has well-equipped and state-of-art classrooms, laboratories and research facilities. DTU has aesthetically designed centrally air-conditioned, Wi-Fi enabled library building and provides excellent ICT facilities. The Stage 1, Phase-II construction of DTU is under progress and is likely to be completed by 2021. DTU will continue to improve and maintain the infrastructure to provide an encouraging environment for teaching and learning.

Resolution 1: To provide a world-class environment for enabling education, research and innovation.

We will continue to build, develop and maintain the infrastructure of the university with improved space utilization and minimum impact on environment. Additional administrative building, classrooms, hostels and residential accommodation will be constructed in the campus as per requirement from time to time. In addition, a separate complex for providing various amenities like shopping complex, multi-storied parking, health centre, bank and post offices etc. will also be constructed.

#### Resolution 2: To enhance the library resources.

We have a three storied centrally air-conditioned building spread over and area of 5000 square meters, it is a central place for academic and research activities. The Library has a very rich collection of print as well as electronic books and journals satisfying the information needs of the students, staff and faculty. We will continue to enhance the library resources and infrastructure in the university.

#### Resolution 3: To improve the ICT enabled services.

We provide state-of-the-art computing facilities along with other devices, sufficient bandwidth so as to have uninterrupted connectivity and content delivery. To further supplement it we may deploy virtual lecture facility by providing high speed data networks. The students can interact with the experts across the world. We would like that more and more teachers act as subject experts/principal investigators to prepare the video lectures. In this regard, we would like to strengthen the DTU studio where recording of video lectures could be done so that the students across the country and world over can be benefitted. We will continue to enrich the content sharing and collaborations in research and development activities in house and through National Knowledge Network (NKN) would like to share across all higher education institutions to provide access of the high-quality content to all the students.

#### **Actions**

#### DTU aims:

- 1. To complete Phase-II, Stage-II construction of ₹1000 crores by 2030.
- 2. To invest in IT infrastructure from ₹1 crore to ₹10 crores every year by 2030.
- 3. To provide 100% ICT enabled services by 2030.
- 4. To invest ₹15 crores every year for library resources including electronic databases and digital books by 2030.
- 5. To construct 60 more ICT- enabled classrooms by 2030.
- 6. To increase the opportunities for students, faculty and staff to travel by eco-friendly mode of transport for benefiting the environment and strengthening the Green campus mission of the university.
- 7. To construct multi-storied parking by 2030.
- 8. To construct 15 bedded university health center by 2030.
- 9. To construct shopping complex in university premises.

#### 5.6 Finance

DTU is financially strong and effectively manages both its income and expenditure. DTU funding mostly comes from Grant-in-Aid (GIA) from the Govt. of NCT of Delhi and University Generated Fund (UGF). In addition, some funds are also generated from contributions of the alumni of the university and sponsored and consultancy projects. The Phase-II, Stage-I construction of DTU has begun and Govt. of NCT of Delhi has separately provided funds for construction to the tune of ₹292 crores. There is approximately 1,56,000 square meters built up area in the university as on today. Another, approximately 60,000 square meters of built up area is being proposed in Phase-II, Stage-I. It is expected that there will be requirement of another approximately 75,000 square meters of the built up area by 2030. We will continue to manage funds to make the university ready and sustainable for the future.

#### Resolution 1: To arrange funds for enhancing academic and research ambience.

We will ensure that the talented students and faculty are well funded in their innovative, research, entrepreneurial and societal activities. We will continue to raise funds for creation of new resources and infrastructure.

## Resolution 2: To strengthen the audit system to ensure transparency and discipline in the management of finances

We have three stages of audit system in the university. We will continue to strengthen the three stage audit process (1st stage audit by internal auditor, 2nd stage audit by Local Fund Audit team of Directorate of Audit, Government of NCT of Delhi, 3rd stage audit by Comptroller and Auditor General of India) and also introduce pre audit system in the university. We also will work very hard to adhere to provisions, rules and regulations during implementation of every process. This transparent and disciplined system will reduce the audit paras.

#### **Actions**

#### DTU aims:

- To get ₹1000 crores grant from government of NCT of Delhi for Stage-II, Phase –II construction by 2030.
- 2. To increase the annual recurring expenditure on account of salary from ₹80 crores to ₹300 crores by 2030.

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3. To increase the other annual recurring expenditure from 60 crores per annum to ₹180 crores by 2030.

4. To increase the annual expenditure of the university excluding non-recurring

expenditure to ₹500 crores by 2030.

5. To implement pre-audit system in the university by 2030.

6. To maintain the expenditure (recurring) ratio i.e. 80% from University Generated Fund (UGF) and 20% from Grant-in-Aid (GIA).

7. To increase the contribution from alumni from ₹7 crores to ₹100 crores by 2030.

#### Department of Information Technology Delhi Technological University, Delhi

Annexure-I

1. Subject Code: IT323

Course Title: Machine Learning

2. Contact Hours: L: 3 T: 0 P: 2

3. Examination Duration (ETE) (Hrs.): Theory 3 Hrs

Practical 0

4. Relative Weightage: CWS 15

**PRS 25** 

MTE 20

ETE 40

5. Credits: 4

6. Semester: V

7. Subject Area: DEC

8. Pre-requisite: Mathematics/Algorithm Design

9. Objective: The student should be able to understand the different supervised, unsupervised and reinforcement learning algorithms and choose the appropriate machine learning tool for different real world examples.

#### 10. Details of Course

S.No.	Contents	Contact Hours
l.	Introduction to Machine Learning: Overview of different tasks: classification, regression, clustering, control, Concept learning, information theory and decision trees, data representation, diversity of data, data table, form of learning, Basic Linear Algebra in machine learning techniques.	8
11.	Supervised Learning: Decision trees, nearest neighbours, linear classifiers and kernels, neural networks, linear regression, logistic regression, Support Vector Machines.	
III.	Unsupervised Learning: Clustering, Expectation Maximization, K-Mean clustering, Dimensionality Reduction, Feature Selection, PCA, factor analysis, manifold learning.	10
IV.	Reinforcement Learning: Element of Reinforcement learning, Basic of Dynamic Programming; fining optimal policies, value iteration; policy iteration; TD learning; Q learning; actor-critic.	
V.	Recent applications & Research Topics: Applications in the fields of web and data mining, text recognition, speech recognition, finance.	4
	Total Contact Hours	42

#### 11.Suggested Books

#### S.No. Name of Books / Authors/ Publishers/ Year of Publication/Reprint Text Books

- I. Introduction to Machine Learning, Alpaydin, E., MIT Press, 2004
- II. Machine Learning, Tom Mitchell, McGraw Hill, 1997.
- III. Elements of Machine Learning, Pat Langley Morgan Kaufmann Publishers, Inc. 1995. ISBN 1-55860-301-8

#### Reference Book

The elements of statistical learning, Friedman, Jerome, Trevor Hastie, and Robert Tibshirani.
 Vol. 1. Springer, Berlin: Springer series in statistics, 2001.

#### Department of Information Technology Delhi Technological University, Delhi

Annexure-II

1. Subject Code: IT324

Course Title: Deep Learning

2. Contact Hours: L: 3 T: 1 P: 0

3. Examination Duration (ETE) (Hrs.): Theory 3 Hrs

Practical 0

4. Relative Weightage: CWS 25

PRS 0

MTE 25

ETE 50

PR 0

5. Credits: 4

6. Semester: VI

7. Subject Area: DEC

8. Pre-requisite: Algorithm Design/ Machine Learning

Objective: The student should be able to understand the different deep learning algorithms and choose the appropriate deep learning tool for different real world examples.

10. Details of Course

S.No.	Contents	Contact Hours
1.	Introduction: Basics of deep learning, Importance of deep learning, Feature engineering, Overview of deep learning framework.	8
II,	Machine Learning Basics: Supervised learning algorithms, Hyper parameters and validation sets, overfitting, under fitting, Unsupervised learning algorithms, Stochastic Gradient Descent, Challenges motivating Deep Learning.	8
111.	Deep feed forward network: Artificial Neural Network, activation function, multi-layer neural network, Training Neural Network: Risk minimization, loss function, backpropagation, regularization, model selection, and optimization, Data Augmentation, Dropout.	8
-IV.	Convolutional Networks (CNN): Motivation, The Convolution Operation, Pooling, Structured outputs, Kernels.	6
V.	Recurrent and Recursive Nets: Recurrent Neural Networks (RNN), Bidirectional RNNs, Deep Recurrent Networks, Recursive Neural Networks, Long-Term Dependencies, Long-Short Term Memory, Gated RNNs.	8
VI.	Applications: Large scale deep learning, Computer vision, Speech Recognition, Natural Language Processing, Other applications, Deep Learning Tools and Libraries: Caffe, Theano, Keras.	6

OAL	Name of Books/Authors/Publisher
SNo -	
1	Goodfellow, I., Bengio, Y., and Courville, A., Deep Learning, MIT Press,
	2016.
2	Chao Pan, Deep Learning Fundamentals: An Introduction for Beginners, Al
	Sciences, 2018
3	Steven Cooper, Deep Learning for Beginners, data science, 2018
4	Python Deep Learning, by Valentino Zocca, Gianmario Spacagna, Daniel
	Slater, and Peter Roelants, Packt Publishing Ltd, 2017.
5	Satish Kumar, Neural Networks: A Classroom Approach, Tata McGraw-Hill
	Education, 2004.

# DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN POLYMER TECHNOLOGY (PTE)

Group A         1 PTESO1         Course Code         Course Code         Corres Code         4         3         C         1         FNS         MTS         RTB				Se	Semester-I					٨		1			
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		50		Semester-IV										
	S.No.	S.No. Course Code	Course Name	Type/Area		Cr L	H	ď	CWS	PRS	MTE	ETE	PRE	P CWS PRS MTE ETE PRE Total Credits
	Track 1	1												
2	-	PTE652	Research Project	Core	12						40	09		
dioup r	Track 2	2		T III X O									T	12
	-	PTE602	Major Project II	Core	12					-	40	09		

# List of Elective Courses

LIST OF ELECTIVES:	TIVES:				-								
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	1	F	_	CWS	PRS	MTE	T.T.	PRE
	П	PTE5401	Plastic Technology		4	е	0	-	15	25	202	9	
	2	PTE5403	Rubber Technology		4	m	0	2	15	7.	2 02	A CA	i.
Elective 1	m	PTE5405	Fibre Technology	Elective	4	m	0	7	15	25	20	40	
	4	PTE5407	Resin Technology		4	е	0	2	15	25	20	40	p. 18
	S.No.	Course Code	Course Name	Type/Area	Ċ	'n	£	۵	CWS	PRS	MTE	RTE	PRE
		PTE5301	Polymer Degradation		е	2	0	2	15	25	20	40	
	7	PTE5303	Polymer Recycling		m	m	0	0	12		30	20	
Elective 2	m	PTE5305	Environmental Impact Assessment of Polymers	Elective	m	m	0	0	0 20		2 %	S G	
	4	PTE5307	Green Polymers			м	0	0	0 20		30	50	
								В					
	S.No.	Course Code	Course Name	Type/Area	ů	Г	Т	Ы	CWS	PRS	MTE	ETE	PRE
		PTE5201	SEMINAR		7	7	0	0	2	Ж	100		i ix
	2	PTE5203	Engineering Concepts in Polymers (for Science students)		2	7	0	0	20		30	20	i
Elective 3	т	PTE5205	Chemical Concepts in Polymers (for Engineering Students)	Elective	2	7	0	0	20	ж	30	50	i i
	S.No.	Course Code	Course Name	Type/Area	ů	L	E	P.	CWS	PRS	MTE	ETE	PRE
	1	PTE5402	Polymer Blends and Composites		4	4	0	0	20		30	50	
	2	PTE5404	Membrane Technology	45 1312120	4	4	0	0	20	9	30	50	
Elective 4	m	PTE5406	Adhesives and Coating Technology	Elective	4	4	0	0	20	74	30	50	
		PTE5408	Tyre Technology		4	4	0	0	20		30	50	٠
	ιΩ	PTE5410	Paint Technology	ALL THE TANK	4	4	0	0	20	9	30	50	

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PRE	9	,		,	100	LARE	¥.	943		1	PRE	0	•:		*		PRE	×	*.	41			PRE	Ē		1
ETE P	,	ř			-	य या प्र				-		40	40	40	40	-	TE	20	20	50	20	-	E	20	50	20
MTE E		22	20	20	_	MIE	20	20	S		G)	20	70	70	20	-	TE					1	MTE			12
-		30	30	30	+	-	30	30	30	$\rightarrow$	-	+	-	+	25	-+	PRS N	98	30	30	90	1	PRS N	8	90	30
PRS	40			- 1	_	PKS		100	10	_	-	+	$\dashv$	+	+	-	_					-	_	+		
CWS	ī	20	20	0 20	į	S S	0 20	0 20	0 20		CWS	15	15	15	15	15	CWS	0 20	0 20	0 20	0 20		CWS	0 20	0 20	0 20
Ь	4	0	0	0	6	24	0	U			۵,	7	2	7	7	7	Δ.						ы			
Т	0	0	0	0		н	0	0	0		Ŀ	0	0	0	0	0	Т	0	0	0	0		ı	0	0	0
L	0				1	اد	2	2	2		7	m	е	m	m	т	Ľ	m	m	23	3		L	2	2	2
ڻ ن	3	E E	м	3		ئ	2	2	2		ථ	4	4	4	4	4	Ċ	м	m	ĸ	8		Cr	2	2	2
Type/Area			i	Fiective		Type/Area		Elective			Type/Area			Elective			Type/Area			Elective			Type/Area			Elective
Course Name	MINOR PROJECT	Packaging Technology	Biomedical Applications of Polymers	Polymers in Food and Healthcare		Course Name	Commercialization of Polymers and Chemical Technology Products	Engineering economics and Entrepreneurship	Statistical Quality control		Course Name	Rheology	Polymer product and Die Design	Additives and Compounding	Extrusion and Injection Molding	Nonwoven Technology	Course Name	Specialty Polymers	Application of nanomaterials in Polymers	Inorganic polymers	Biosensors	30	Course Name	Practical Training in Industry*	Research Exploration	Special Lectures in Polymers and Industrial Visits
S.No.  Course Code	PTF5302	PTE5304	PTE6306	PTE6308		Course Code	PTE5202	Anceard	PTE5206		Course Code	PTE6401	PTE6403	PTE6405	PTE6407	PTE6409		PTE6301	DTEGRADA	PTE6305	PTE6307		Course Code		PTE6203	PTE6205
S.No.	-	. 7				S.No.	-	, ,	7 m	,	S.No.	1	2	m	4	2	S.No.	4~4	,	4 6	4		S.No.	1	2	m
				Elective 5				Elective 6						Elective 7						Elective 8						Elective 9

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN THERMAL ENGINEERING (THE)

			200	Semester-1										
	S.No.	S.No. Course Code	Course Name	Type/Area	స	r	Ţ	Ы	CWS	PRS	MTE	ETE	PRE	Total Credits
Group A	1	THE501	Thermodynamics and Gas Dynamics   Core	Core	4	m	0	2	15	25	20	40	15	
	7	THE503	Heat Transfer & Fluid Mechanics	Core	4	м	0	2	15	25	20	40	15	
	3	THE5401/5403/	Elective 1	Elective	4	3/4	0	2/0	15/20	1	20/30	4	Į. ii	17
Group B	4	THE5301/5303/	Elective 2	Elective	3	EC.	0	0	20		30	O.S.	0.	
	5	THE5201/5203//	Elective 3/University Elective 1	Elective	2	2	0	0	20		30	3 62	0	
			Se	Semester-II										
	S.No.	S.No. Course Code	Course Name	Type/Area	ر د	J	H	Ы	CWS	PRS	MTE	ETE	PRE	Total Credits
Group	-	THE502	Energy Systems	Core	4	m	0	2	15	25	20	40		
	7	THE504	Turbomachines	Core	4	3	0	2	15	25	20	40	*	
	2	THE5402/5404/	Elective 4	Elective	4	3/4	0	2/0	15/20	25/0	0	4	i	17
Group D	4	THE5302/5304/	Elective 5	Elective	3	. 6	0	0	20	1.0	30	20		
	5	THE5202/5204//	Elective 6/ University Elective II	Elective	2	2	0	0	20	y.	30	20	3	
			Sen	Semester-III										
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	٦	.E	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
T	Track 1													
	1	THE651	Research Project	Core	12	0	0	12	0	(0)	0	100	()	
T	Track 2													Č.
T and a	-	THE601	Major Project I	Core	3						40	09		12
a decide	2	THE6401/6403/	Elective 7	Elective	4	3/4	0	2/0	15/20	25/0	20/30	40/50		
	m	THE6301/6303/	Elective 8	Elective	3	m	0	0	20	4	30	20		
	4	THE6201/6203/	Elective 9	Elective	2	2	0	0	20		30	20	•	

			Ser	Semester-IV										
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr L	7	L	Д	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credits
	Track 1	1												
,	-	THE652	Research Project	Core	12	12 0	0	12	0		0	100	316	12
Group r	Track 2	2												1
	1	THE602	Major Project II	Core	12	12 0 0 12 0	0	12		я	0	100	10	

List of Elective Courses

LIST OF ELECTIVES	IVES:	0.					1							
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE	
	₩	THE5401	Advanced Refrigeration Systems		4	3/4	0	2/0	15/20	25/0	20/30	40/50	60	
	2	THE5403	Advanced I C Engines		4	3/4	0	2/0	15/20	25/0	20/30	40/50	a.	
Elective 1	m	THE5405	Power Plant Engg.	Elective	4	3/4	0	2/0	15/20	25/0	20/30	40/50		
		2												
	S.No.	Course Code	Course Name	Type/Area	Ç	r	Т	٨	CWS	PRS	MTE	ETE	PRE	
	н	THE5301	Computational Methods in Thermal & Fluid Engineering		n	m	0	0	20	:40	30	50	9	
	2	THE5303	Optimization Techniques	:	m	20	0	0	20		30	50	æ	
Elective 2	m	THE5305	Finite Element Methods	Elective	m	3	0	0	20	0.0	30	20	×	
	S.No.	S.No. Course Code	Course Name	Type/Area	ņ	L	E	Ь	CWS	PRS	MTE	ETE	PRE	
	н	THE5201	SEMINAR		2	2	0	0	2	í.	100	×		
	7	THE5203	Renewable & Non-Conventional Energy Sources		2	2	0	0	20	114	30	S		
Elective 3	m	THE5205	Measurement & Control Techniques	Elective	2	2	0	0	20	34	30	20	I.	
								5.						
	S.No.	Course Code	Course Name	Type/Area	ů	IJ	L	Ы	CWS	PRS	MTE	ETE	PRE	
	1	THE5402	Advanced Heat Transfer		4	3/4	0	2/0	15/20	25/0	20/30	40/50	Ė	
	2	THE5404	Advanced Fluid Dynamics		4	3/4	0	2/0	15/20	25/0	20/30	40/20	2	
Elective 4	m	THE5406	Advanced Air Conditioning Systems	Elective	4	3/4	0	2/0	15/20	25/0.	20/30	40/50	¥	
			*											

	S.No.	S.No. Course Code	Course Name	Type/Area	ථ	ר	Ţ	Д	CWS		PRS MTE	ETE	PRE
	П	THE5302	MINOR PROJECT		Э	0	0			40	,		09
i de la companya de l	7	THE5304	Solar Engineering Thermal Processes		m	m	o	0	20	(14	30	20	11.
c ecuse a	m	THE5306	Thermal Energy Conservation	Elective	8	m	0	0	20		30	50	8.
	S.No.	Course Code	Course Name	Type/Area	Ċ	1	H	A	CWS	PRS	MTE	ETE	PRE
	1	THE5202	Steam and Gas Turbines		2	2	0	0	20		30	5X	
	2	THE5204	Combustion & Emissions	8	2	2	0	0	20		30	20	
Elective 6	m	THE5206	Advanced Cryogenic systems	Elective	2	2	0	0	20		30	50	
1-0				1									
	S.No.	Course Code	Course Name	Type/Area	ර්	L	T	Ь	CWS	PRS	MTE	ETE	PRE
	Н	THE6401	Advanced Power Generation Systems		4	3/4	0	2/0	15/20	25/0	20/30	40/50	19
Flootive 7	7	THE6403	Micro / Nano scale Heat Transfer	i	4	3/4	0	2/0	15/20		20/30	40/50	
	ю	THE6405	Combustion Modeling	riective	4	3/4	0	2/0	15/20	25/0	20/30	40/50	
				Ī									
	S.No.	Course Code	Course Name	Type/Area	ċ	L	H	Ч	CWS	PRS	MTE	ETE	PRE
	ч	THE6301	Advanced Heating Ventilation & Air Conditioning		m	m	0	0	20		30	20	
	2	THE6303	Two Phase Flow Heat Transfer		3	3	0	0	20		30	52	
Efective 8	ET.	THE6305	Exergy Analysis of Thermal Systems	Elective	6	m	0	0	20	:4:	30	20	
	S.No.	S.No. Course Code	Course Name	Type/Area	ప	-7	[ex	4	CWS	PRS	MTE	ETE	PRE
	7	THE6201	Advanced Energy Systems		2	24	0	0	-	-	8	52	ï
Plactice 9	2	THE6203	Dynamics and Control of Mechanical Systems	ī	2	2	0	0	20	ij.	30	20	į#
	3	THE6205	Alternative Fuels	Elective	2	2	0	0	20		30	50	12
							p. c						

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN VISI DESIGN & EMBEDDED SYSTEM (VLS)

			Š	Semester-I										
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	Ţ	T	Ы	CWS	PRS	MTE	ETE	PRE	Total Credits
	-	VLS501	Analog IC Design	Core	4	ю	0	2	15	25	20	40	•	
or out a	2	VLS503	Digital CMOS IC design	Core	4	m	0	2	15	25	20	40		
	М	VLS5401/5403/	Elective 1	Elective	4	m	0	7	15	25	50	40		17
Group B	4	VLS5301/5303/	Elective 2	Elective	3	m	0	0	20	×	30	20	44	
	5	VLS5201/5203//	Elective 3/ University Elective I	Elective	2	2	0	0	20	80	30	50	+	
			Se	Semester-II										
	S,No.	Course Code	Course Name	Type/Area	Ü	1	Т	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
0	-	VLS502	Embedded System Design	Core	4	E)	0	2	15	25	20	40	r	
Croup C	2	VLS504	Low power VLSI Design	Core	4	m	0	2	15	25	20	40	*	
	3	VLS5402/5404/	Elective 4	Elective	4	m	0	7	15	25	20	40	a	17
Group D	4	VLS5302/5304/	Elective 5	Elective	E.	m	0	0	20	æ	30	20	(4)	
	2	VLSS202/5204//	Elective 6/ University Elective II	Elective	2	2	0	0	20		30	20	W	
			Se	Semester-III									ĺ	
	S.No.	S.No. Course Code	Соигзе Name	Type/Area	ပ်	1	H	ы	CWS	PRS	MTE	ETE	PRE	Total Credits
	Track 1	-												
2	-	VLS651	Research Project	Core	12	0	0	12	0	9	0	100	0	
	Track 2	2												
,	-	VLS601	Major Project I	Core	3						40	09		12
Group E	2	VĹS6401/6403/	Elective 7	Elective	4	m	0	2	15	25	20	40	×	
	2	VLS6301/6303/	Elective 8	Elective	м	ю	o	0	20	•	30	50	*	
	4	VLS6201/6203/	Elective 9	Elective	2	2	0	0	20	12	30	50	*0	
			Se	Semester-IV										
	S.No.	S.No. Course Code	Course Name	Type/Area	ర	7	⊢	д	CWS	PRS	MTE	ETE	PRE	Total Credits
	Track 1	1												
7	-	VLS652	Research Project	Core	12	0	0	12	0	*	0	100	0	12
Or out p	Track 2	2												
	-	VLS602	Major Project II	Core	12	0	0	12	0	ĸ	0	100	0	

List of Elective Courses

Elective Includes         Course Code         Course Name         Type/Area         Cr. 1         T         P         CVNS         FRS         MTP         ET         PRS           Elective Includes         2         1455401         Dejain Design Processing         Elective Includes         4         3         0         2         15         25         20         0         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         25         20         40         2         15         20         40         2         15         20         40         2         15         2         2         2         20         40         2         15 <th>LIST OF ELECTIVES</th> <th>:TIVES :</th> <th>7.0</th> <th></th>	LIST OF ELECTIVES	:TIVES :	7.0											
1   1,155401   Digital Design with FIDL (Verlige)   Efective   4   3   0   2   15   25   20   40     3   VLS5403   Digital Signal Processing   Sinh Computing   Efective   4   3   0   2   15   25   20   40     4   VLS5403   Sinh Course Code   Course Name   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   1     1   VLS5301   Device modelling   Sinh Course Code   Course Name   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     3   VLS5302   Hartwane codesign   Efective   3   3   0   0   2   0   2   30   50     4   VLS5303   Hartwane codesign   Sinh Course Code   Course Name   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     5   VLS5203   Hartwane codesign   Sinh Name   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     6   VLS5203   Hartwane codesign   Sinh Name   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     7   VLS5203   Hartwane codesign   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     8   VLS5203   Maicro and Nanoelectronics   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     9   VLS5203   Maicro and Nanoelectronics   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     1   VLS5203   Maicro and Nanoelectronics   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     1   VLS5204   Arabid File Design   Thermet crabled ante-old devices   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   ETE   2     2   VLS5408   CAD for VLS   Systems   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   TE   2     3   VLS5408   CAD for VLS   Systems   Type/Area   Cr.   L   T   P   CWS   RRS   MTE   TE   2     4   VLS5408   CAD for VLS   Systems   Type/Area   Cr.   L   T   P   CWS   RRS   TE   TE   TE   TE   TE   TE   TE   T		S.No.	. Course Code	Course Name	Type/Area	ڻ	1	Н	Ъ	CWS	_	+		PRE
2   Missago   Digital Signal Processing   Elective   4   3   0   2   15   25   20   40     4   Vissago   Course Code   Course Name   Course Code   Course Name   Course Code   Course Name   Course Code   Course Code   Course Name   Course Code   Course Code   Course Code   Course Name   Course Code   Course Name   Course Code   Course		н	VLS5401	Digital Design with HDL (Verilog)		4	m	0	2	15	_	-		7.5
3   Vissoo	Flooring 1	~	VLS5403	Digital Signal Processing		4	m	0	2	15	25	20	40	
A		m	VLS5405	Soft Computing	Elective	4	ю	0	2	15	25	20	9	
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         CWS         FRS         MTE         ETE           1         VISS301         Device modeling         3         3         0         0         20         -         30         50           2         VISS303         Reconfigurable Computing         3         3         0         0         20         -         30         50           3         VISS305         Hardware software codelign         3         3         0         0         20         -         30         50           5.No.         Course Code         Hardware software codelign         Type/Area         Cr         L         T         P         CWS         PRS         MTE         50 <t< td=""><td></td><td>4</td><td>VLS5407</td><td>IC technology</td><td>(CL-1)</td><td>4</td><td>ю</td><td>0</td><td>2</td><td>15</td><td>25</td><td>20</td><td>40</td><td></td></t<>		4	VLS5407	IC technology	(CL-1)	4	ю	0	2	15	25	20	40	
1   VisSaga   Reconfigurable Computing   Signature and S		S.No.	Course Code	Course Name	Tono/Area	5	-	٤	6	Si E	-	-		1
2         Missage         Reconfigurable Computing         Elective         3         3         3         0         0         20         20         3         50           3         1         VISS303         Hardware software codesign         Elective         3         3         0         0         20         2         3         50           S.No.         Course Code         Organic and Flexible Electronics         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           2         S.No.         Course Code         SEMINAR         T         T         P         CWS         PRS         MTE         ETE           3         VISS203         Milcro and Manoelectronics         Z         2         2         0         0         20         2         3         0         0         0         20         2         0         0         20         0         0         20         0		-	VLS5301	Device modelling	an word fu	; ,	,		1	CWS	-	-		LE
3 No. 153305         Hardware software codesign         Elective         3         3         0         0         20         0         20         0         0         20         0         0         20         0         3         50         50           S.No.         Course Code         Organic and Flexible Electronics         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           1         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         20         -         30         50           3         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         20         -         30         50           3         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         20         2         2         0         0         20         3         50         50         50         50         50         50         50         50         50         50         50         50         50         50         50         50         50         50         50		2	VLS5303	Reconfigurable Computing		n n	n c	0	0	20 20		8 8	200	
4 N.55307         Organic and Flexible Electronics         Type/Area         Cr         L         T         P         CWS         PRS         MTD         STO           S.No.         Course Code         SEMINAR         Type/Area         Cr         L         T         P         CWS         PRS         MTD         EFE           2         VISS203         Micro and Nanoelectronics         C         2         2         0         0         2         3         30         50           3         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         2         3         30         50           4         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         2         3         30         50           4         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         2         3         0         2         4         3         0         2         1         0         0         0         0         0         0         0         0         0         0         0         0         0         <	Elective 2	m	VLS5305	Hardware software codesign	Elective	m	n	0	0	20 20	ě se	8 8	2 2	4.
S.No.         Course Code         SEMINAR         Type/Area         Cr         L         T         P         CWS         RRS         MTE         ETE           2         VLSS201         SEMINAR         SEMINAR         L         2         2         2         0         0         2         0         0         2         0		4	VLS5307	Organic and Flexible Electronics	i i	m	60	0	0	20		30	50	, a
1         VISS203         SEMINAR         SEMINAR         Type/Area         CT         L         T         CWS         FRS         MILE         TIRE         EIR           2         VISS203         Milero and Nanoclabrication         Ejective         2         2         0         0         20         -         30         50           4         VISS205         Milero and Nanoclabrication         Ejective         2         2         0         0         20         -         30         50           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         FT           1         VISS402         Analog Filter Design         Type/Area         T         T         T         P         CWS         PRS         MTE         T         T         A         3         0         2         1         4         4         3         0         2         1         4         4         4         3         0         2         1         0         0         1         0         0         0         0         0         0         0         0         0         <		S.No.			Tuno/A see	3		E	F	9,100	_			
2         VISS203         Micro and Nanoelectronics         Elective         2         2         0         0         2         100         50           3         VISS205         Micro and Nanoelectronics         Elective         2         2         0         0         20         0         50         30         50           5.No.         Lourse Code         Course Name         Type/Area         Cr.         L.         T         P         CWS         PRS         MTE         FTE           1         VISS402         Analog Filter Design         Type/Area         Cr.         L.         T         P         CWS         PRS         MTE         FTE           2         VISS402         Analog Filter Design         Flective         4         3         0         2         15         2         0         0         4         0         0         4         0 <t< td=""><td></td><td>1</td><td>VLS5201</td><td>SEMINA8</td><td>na taradir</td><td>,</td><td>1 0</td><td></td><td>4 0</td><td>CW2</td><td>_</td><td>MIL</td><td>212</td><td>KE</td></t<>		1	VLS5201	SEMINA8	na taradir	,	1 0		4 0	CW2	_	MIL	212	KE
3 VISSZOS         Micro and Nanofabrication         Elective         2         2         0         0         20         30         50           4 VISSZO7         Field Programmable Analog Arrays         Elective         2         2         0         0         20         0         50         30         50		2	VLS5203	Micro and Nanoelectronics		2	,			7 5		307	. [	
4 VLSS207         Field Programmable Analog Arrays         Flective         2         2         0         0         20         0	Floctive 3	6	VLS5205	Micro and Nanofabrication		,	, ,	-	0	2 00		200	2 2	
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETF           1         VLSS402         Analog Filter Design         4         3         0         2         15         25         20         40           2         VLSS406         CAD for VLSI Systems         4         3         0         2         15         25         20         40           4         VLSS406         CAD for VLSI Systems         4         3         0         2         15         25         20         40           5.No.         CWISS R Circuit Design         CMOS R Circuit Design         T         4         3         0         2         15         2         2         4           5.No.         Course Code         Course Name         T         T         T         P         CWS         PRS         MR         T           5.No.         Course Code         Course Name         T         T         T         P         CWS         PRS         MR         T           1         VLSS304         FPGA based Digital System         Flective         3         0         0		4	VLS5207	Field Programmable Analog Arrays	FIECTIVE	7	2	0	0	20	8	30	20 05	
S.No. Course Code         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         FRS         MTE         ETF           1         VLSS402         Analog Filter Design         4         3         0         2         15         25         20         40           2         VLSS404         Internet enabled embedded devices         Elective         4         3         0         2         15         25         20         40           3         VLSS406         CAD for VLSI Systems         4         3         0         2         15         25         20         40           S.No.         Course Code         CAD for VLSI Systems         Elective         4         3         0         2         15         2         2         4           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         RR         RTE         T           1         VLS5304         FPGA based Digital Signal Processing         T         1         4         3         0         0         2         1         4         0         0         0         0					SALES SECTION AND ADDRESS.									
1         VLSS402         Analog Filter Design         4         3         0         2         15         25         20         40           2         VLSS404         Internet enabled embedded devices         Elective         4         3         0         2         15         25         20         40           3         VLSS406         CAD for VLSI Systems         4         3         0         2         15         25         20         40           S.No.         Course Code         CAD for VLSI Systems         Internet enabled embedded devices         Type/Area         Cr         L         T         P         25         25         20         40           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MR         T           1         VLS5302         MINOR PROJECT         3         0		S.No.	Course Code	Course Name	Type/Area	ů	7	T	Ь	CWS	_	MTE	ETE	PRE
2         VLSS404         Internet enabled embedded dev/cess         Elective         4         3         0         2         15         25         20         40           3         VLSS406         CAD for VLSI Systems         CAD for VLSI Systems         4         3         0         2         15         25         20         40           S.No.         Course Code         CMOS R- Circuit Design         Type/Area         Cr         L         T         P         CWS         RR         ATC         AD           1         VLSS302         MINOR PROJECT         3         0         0         2         1         4         AD         AD <td></td> <td>п</td> <td>VLS5402</td> <td>Analog Filter Design</td> <td></td> <td>4</td> <td>m</td> <td>0</td> <td>2</td> <td>15</td> <td>25</td> <td>20</td> <td>40</td> <td>(4)</td>		п	VLS5402	Analog Filter Design		4	m	0	2	15	25	20	40	(4)
3 VLSS406         CAD for VLSI Systems         Elective         4         3         0         2         15         25         20         40           4 VLSS408         CMOS RF Circuit Design         CMOS RF Circuit Design         T         1         <	9 00 190	2	VLSS404	Internet enabled embedded devices	Special Control of the Control of th	4	m	0	7	15	25	20	40	1
4 VLSS408         CMOS RF Circuit Design         4         3         0         2         15         25         20         40           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETT           1         VLS5302         MINOR PROJECT         3         0	Elective 4	6	VLS5406	CAD for VLSI Systems	Elective	4	23	0	2	15	25	20	40	
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         RRS         MTE         ETE           1         VLSS302         MiNOR PROJECT         3         0		4	VLS5408	CMOS RF Circuit Design		4	e	0	2	15	25	20	40	
1         VLSS302         MiNOR PROJECT         3         0         0         40         7         40         7           2         VLSS304         FPGA based Digital Signal Processing         3         3         0         0         20         30         50           3         VLSS306         Design and Testing         3         3         0         0         20         30         50		S.No.	Course Code	Course Name	Type/Area	ర్	1	F	Ь	CWS	PRS	MTE	ETE	PRE
2         VLSS304         FPGA based Digital Signal Processing         3         3         3         0         0         20         30         50           3         VLSS306         Design         A VLSS308         Memory Design and Testing         3         3         3         0         0         20         30         50		1	VLS5302	MINOR PROJECT	ATTERNATION OF	3	0	0			40		34	9
3 VLSS306         Testing and Diagnosis of Digital System         Elective         3         3         3         0         0         20         30         50           4 VLSS308         Memory Design and Testing         3         3         0         0         20         30         50		2	VLS5304	FPGA based Digital Signal Processing	ABINSTRICT.	m	m	0	0	20	×	30	20	è
VLS5308 Memory Design and Testing 3 3 0 0 20 30 30	Elective 5	м	VLS5306	Testing and Diagnosis of Digital System Design	Elective	е	m	0	0	20	Ĭ.	30	20	
-			VLS5308	Memory Design and Testing	1,0867	В	8	0	0	20	9	30	20	
					1				V		E			

CMOS nano neuromorphic circuits   Elective   Elective   Elective   Advanced Computer Architecture		S.No.	S.No.   Course Code	Course Name	Type/Area	స	Г	Т	Ъ	CWS PRS		MTE	ETE	PRE
2         v.155204         Real Time Operating Systems         Elective         2         2         0         0         20           3         v.15206         Clock Tree Synthesis         Elective         2         2         0         0         20           4         v.15208         Layout design and skills with analog perspective         Type/Area         Cr         L         7         0         0         4         2           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         v.156401         Mixed Signal Design         Embedded Signal Processing         4         3         0         2         15           2         v.156407         Embedded Signal Processing         Elective         4         3         0         2         15           3         v.156407         Fault Tolerant computing         Flective         4         3         0         2         15           5.No. Course Code         Course Name         Course Name         Type/Area         Cr         L         T         P         CWS           6         v.156309         Embedded Software         Elective         3         3		-	VLS5202			2	2	0	0	20		30	20	æ
3   VLSS206		2	VLS5204	Real Time Operating Systems		2	2	0	0	20	*	30	22	×
4         VLSS208         Layout design and skills with analog         Type/Area         Cr         L         T         P         CWS           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6403         Embedded Signal Processing         4         3         0         2         15           2         VLS6403         Embedded Signal Processing         4         3         0         2         15           3         VLS6403         Embedded Signal Processing         4         3         0         2         15           4         VLS6403         Fault Tolerant computing         4         3         0         2         15           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           3         VLS6303         Embedded Automotive systems         3         3         0         0         2         1           4         VLS6304         Embedded Automotive systems         3         3         0         0         2         0         0         2         0         0         0         0	9 0014001	m	VLS5206	Clock Tree Synthesis	Elective	2	2	0	0	20		30	20	: 0
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VISGA01         Mixed Signal Design         4         3         0         2         15           2         VISGA03         Embedded Signal Processing         Elective         4         3         0         2         15           3         VISGA05         Blomedical Circuits         Elective         4         3         0         2         15           4         VISGA07         Fault Tolerant computing         4         3         0         2         15           S.No.         Course Code         Course Mame         Type/Area         Cr         L         T         T         P         CWS           1         VISG304         Embedded Automotive systems         3         3         3         0         0         20         0         20         0         0         20         0         0         20         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td>a eculve o</td> <td>4</td> <td>VLS5208</td> <td>Layout design and skills with analog perspective</td> <td></td> <td>7</td> <td>0</td> <td>0</td> <td>4</td> <td></td> <td>04</td> <td>*</td> <td></td> <td>9</td>	a eculve o	4	VLS5208	Layout design and skills with analog perspective		7	0	0	4		04	*		9
1         VLS6403         Embedded Signal Doesign         Felective         4         3         0         2         15           2         VLS6403         Embedded Signal Processing         4         3         0         2         15           3         VLS6405         Biomedical Circuits         4         3         0         2         15           4         VLS6407         Fault Tolerant computing         4         3         0         2         15           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         T         R           2         VLS6303         Enbedded Automotive systems         3         3         3         0         0         20           3         VLS6304         Machine Learning         3         3         3         0         0         20           4         VLS6305         Machine Learning         3         3         3         0         0         20           5         VLS6309         Embedded Software         Elective         3         3         0         0         0         20           6         VLS6309         Embedded Software         T		S.No.	Course Code	Course Name	Type/Area	Ü	Г	Т	٦	CWS	PRS	MTE	ETE	PRE
2         VLSG403         Embedded Signal Processing         Flective         4         3         0         2         15           3         VLSG405         Biomedical Circuits         4         3         0         2         15           4         VLSG407         Fault Tolerant computing         4         3         0         2         15           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         R         CWS           1         VLSG303         Embedded Automotive systems         3         3         3         0         0         20           3         VLSG303         Machine Learning         3         3         3         0         0         20           4         VLSG304         Advanced Computer Architecture         3         3         0         0         20           5         VLSG309         Embedded Software         Elective         3         3         0         0         20           6         VLSG311         Phase Locked Loop Design         T         2         0         0         0         0         20           8         VLSG203         FPGA based soft computing </td <td></td> <td></td> <td>VLS6401</td> <td>Mixed Signal Design</td> <td></td> <td>4</td> <td>m</td> <td>0</td> <td>7</td> <td>15</td> <td>25</td> <td>20</td> <td>40</td> <td>*</td>			VLS6401	Mixed Signal Design		4	m	0	7	15	25	20	40	*
3         VLS6405         Biomedical Circuits         Flective         4         3         0         2         15           A         VLS6407         Fault Tolerant computing         Type/Area         Cr         L         T         P         2         15           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         R         CWS           1         VLS6303         Enbedded Automotive systems         3         3         3         0         0         20           3         VLS6304         Machine Learning         3         3         3         0         0         20           4         VLS6305         Machine Learning         3         3         3         0         0         20           5         VLS6309         Embedded Software         Elective         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         T         1         T         T         T         C           8         VLS6309         Embedded Software         C         1         T         T         T         C           9         VLS6301 <td></td> <td>,</td> <td>VI S6403</td> <td>Embedded Signal Processing</td> <td></td> <td>4</td> <td>m</td> <td>O</td> <td>2</td> <td>15</td> <td>25</td> <td>20</td> <td>40</td> <td>3</td>		,	VI S6403	Embedded Signal Processing		4	m	O	2	15	25	20	40	3
4         VLS6407         Fault Tolerant computing         4         3         0         2         15           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6301         Speech Processing         3         3         3         0         0         20           2         VLS6303         Machine Learning         3         3         3         0         0         20           4         VLS6309         Embedded Automotive systems         Advanced Computer Architecture         3         3         0         0         20           5         VLS6309         Embedded Software         Elective         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           6         VLS631         Phase Locked Loop Design         Type/Area         Cr         L         T         T         P           8.No. Course Code         Course Name         FPGA based soft computing         2         2         0         0         0         0         0           1	Elective 7	ď	VI \$6405	Blomedical Circuits	Elective	4	m	0	2	15	25	20	40	Ť
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6301         Speech Processing         3         3         3         0         0         20           2         VLS6303         Embedded Automotive systems         3         3         3         0         0         20           3         VLS6305         Machine Learning         3         3         0         0         20           4         VLS6307         Advanced Computer Architecture         Embedded Software         3         3         0         0         20           5         VLS6309         Embedded Software         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           5         VLS6201         VLS6201         VLS1 signal processing architecture         2         2         0         0         20           7         VLS6203         FPGA based soft computing         Elective         2         0         0         0         0         0         0         0         0         0         0		4	VI.S6407	Fault Tolerant computing		4	8	0	2	15	25	20	40	Ĩ
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6301         Speech Processing         3         3         3         3         0         0         20           2         VLS6303         Embedded Automotive systems         3         3         3         0         0         20           3         VLS6305         Machine Learning         3         3         0         0         20           5         VLS6309         Embedded Software         Embedded Software         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           6         VLS6301         VLS6201         VLS1 signal processing architecture         2         2         0         0         20           7         VLS6203         FPGA based soft computing         Elective         2         2         0         0         0         0         0         0         0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>														
1         VLS6301         Speech Processing         3         3         3         0         0         20           2         VLS6303         Embedded Automotive systems         3         3         3         0         0         20           3         VLS6305         Machine Learning         3         3         3         0         0         20           5         VLS6307         Embedded Software         Embedded Software         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           7         VLS631         VLS6201         VLS6201         VLS6201         VLS6201         T         T         T         T           7         VLS6203         FPGA based soft computing         Elective         2         2         0         0         0         20           8         VLS6203         Selected topics in embedded systems         Elective         2         2         0         0         0         0         0         0 </td <td></td> <td>S.No.</td> <td></td> <td>Course Name</td> <td>Type/Area</td> <td>C</td> <td>L</td> <td>Н</td> <td>P</td> <td>CWS</td> <td>PRS</td> <td>MTE</td> <td>ETE</td> <td>PRE</td>		S.No.		Course Name	Type/Area	C	L	Н	P	CWS	PRS	MTE	ETE	PRE
2         VLSG303         Embedded Auromotive systems         3         3         3         0         0         20           3         VLSG305         Machine Learning         3         3         3         0         0         20           5         VLSG307         Advanced Computer Architecture         S         3         3         0         0         20           6         VLSG311         Phase Locked Loop Design         3         3         0         0         20           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P           1         VLSG201         VLSI signal processing architecture         2         2         0         0         20           2         VLSG203         FPGA based soft computing         Elective         2         2         0         0         20           3         VLSG203         Selected topics in embedded systems         Elective         2         0		1	VLS6301	Speech Processing		m	М	0	0	20	16	8	20	ř
3         VLSG305         Machine Learning         3         3         3         0         0         20           4         VLSG307         Advanced Computer Architecture         3         3         3         0         0         20           5         VLSG310         Embedded Software         3         3         3         0         0         20           6         VLSG311         Phase Locked Loop Design         3         3         3         0         0         20           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6201         VLSI signal processing architecture         2         2         0         0         20           2         VLS6203         FPGA based soft computing         Elective         2         2         0         0         2           3         VLS6205         Selected topics in embedded systems         Elective         2         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td></td> <td>2</td> <td>VLS6303</td> <td>Embedded Automotive systems</td> <td></td> <td>е</td> <td>е</td> <td>0</td> <td>0</td> <td>20</td> <td>R3</td> <td>30</td> <td>20</td> <td></td>		2	VLS6303	Embedded Automotive systems		е	е	0	0	20	R3	30	20	
4 VLS6307         Advanced Computer Architecture         Elective         3         3         0         0         20           5 VLS6309         Embedded Software         3         3         0         0         20           6 VLS6311         Phase Locked Loop Design         3         3         3         0         0         20           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1 VLS6201         VLS1 signal processing architecture         2         2         0         0         20           2 VLS6203         FPGA based soft computing         Elective         2         2         0         0         20           3 VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20		m	VI S6305	Machine Learning		m	m	0	0	20	7.	30	20	•
5         VLSG309         Embedded Software         3         3         3         0         0         20           6         VLSG311         Phase Locked Loop Design         3         3         3         0         0         20           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6203         FPGA based soft computing         2         2         0         0         20           2         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20		4	VLS6307	Advanced Computer Architecture	1	E	3	0	0	20	*	30	20	ě.
6         VLS6311         Phase Locked Loop Design         3         3         0         0         20           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6201         VLSI signal processing architecture         2         2         2         0         0         20           2         VLS6203         FPGA based soft computing         Elective         2         2         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20	Elective 8	20	VLS6309	Embedded Software	Elective	8	m	0	0	20	*:	30	20	*
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6201         VLSI signal processing architecture         2         2         2         0         0         20           2         VLS6203         FPGA based soft computing         2         2         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20		٥	VLS6311	Phase Locked Loop Design		3	m	0	0	20		30	20	ů.
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6201         VLS1 signal processing architecture         2         2         2         0         0         20           2         VLS6203         FPGA based soft computing         2         2         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20														
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         VLS6201         VLS1 signal processing architecture         2         2         2         0         0         0         20           2         VLS6203         FPGA based soft computing         2         2         0         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         0         20														72
1         VLS6201         VLS1 signal processing architecture         2         2         0         0         20           2         VLS6203         FPQA based soft computing         2         2         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20		S.No.	Course Code	Course Name	Type/Area	ů	ы	T	А	CWS	PRS	MTE	ETE	PRE
2         VLS6203         FPGA based soft computing         2         2         2         0         0         20           3         VLS6205         Selected topics in embedded systems         Elective         2         2         0         0         20		1	VLS6201	VLSI signal processing architecture		2	2	0	0	20	ï	30	20	,
3 VLS6205 Selected topics in embedded systems Elective 2 2 0 0 20		2	VLS6203	FPGA based soft computing		2	2	0	0	20	iii	30	20	Ž.
	Elective 9	m	VLS6205	Selected topics in embedded systems	Elective	2	2	0	0	20	#	30	22	*
VLS6207 Selected topics in VLS		4	VLS6207	Selected topics in VLSI		2	2	0	0	20		30	20	1

DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASWER OF TECHNOLOGY IN SOFTWARE ENGINEERING (SWE)

				Semester-I	I									
	SNo	S.No. Course Code	Course Name	Type/Area	ڻ	F	٦	Ы	CWS	PRS	MTE	ETE	PRE	Total Credits
	-	SWE501	Software Requirement	Core	4	m	0	2	15	25	20	40	3	
Group A	7	SWE503	Object Oriented Software Engineering	Core	4	m	0	2	15	25	30	40		
	Б	SWES401/5403/	Elective 1	Elective	4	m	0	101	15	25	20	40	98	17(yoga)
Group B	4	SWE5301/5303/	Elective 2	Elective	3	m	0	0	20		30	50		
	2	SWES201/5203//	Elective 3/ University Elective I	Elective	2	2	0	0	20	. 3	30	20	(0.	
				Semester-II	I									
	S.No.	S.No. Course Code	Course Name	Type/Area	ċ	1	H	۵	CWS	PRS	MTE	ETE	PRE	Total Credits
Group C	-	SWE502	Software Testing	Core	4	m	0	2	15	25	20	40	18	
	7	SWE504	Empirical Software Engineering	Core	4	æ	0	2	15	25	50	40		
	m	SWE5402/5404/	Elective 4	Elective	4	m	0	2	15	25	20	40	10	17
Group D	4	SWE5302/5304/	Elective 5	Elective	3	60	0	0	20	:3	30	20	9	
	2	SWE5202/5204/ 1 IFC 5202/5204/	Hective 6/ University Elective II.	Elective	2	2	0	0	20		30	20		
			S	Semester-III	I									
	S.No.	S.No. Course Code	Соштие Name	Type/Area	ò	٦	Ţ	e.	CWS	PRS	MTE	ETE	PRE	Total Credits
	Track 1			PA									Ī	
	1	SWE651	Research Project	Core	12						40	09		c
	Track 2		70,000										ĺ	
T current		SWE601	Major Project I	Core							40	09		12
2	7	SWE6401/6403/	Blective 7	Blective	4	60	0	2	10	15	25	50		
	23	SWE6301/6303/	Elective 8	Elective	3	Э	0	0	20	- 4	30	20	+	
	4	SWE6201/6203/	Elective 9	Blective	7	2/0	0	0/4	20/0	0/40	30/0	50/0	09/0	

				Semester-IV	1							H	ı	
	S.No.	S.No. Course Code	Course Name	Туре/Алея	Cr. L	1	۲	ы	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credits
	Track 1	1												
	~	SWE652	Research Project	Core	12	0	0	12	12 0	*	0	100	0	17
Group F	Track 2	2					y				1			
	-	SWE602	Major Project II	Core	12						40	09		

LIST OF ELECTIVES	:TIVES :								1	-			
	S.No.	S.No. Course Code	Course Name	Type/Area	ڻ	ы	H	Ω,	CWS	PRS	MTE	ETE	PRE
	-	SWE5401	Advanced Database Management Systems		4	m	0	2	15	25	20	40	×
	2	SWE5403	Programming Languages	i	4	3	0	2	15	25	20	40	•
Elective 1	m	SWE5405	Advanced Operating System	Elective	4	e.	0	2	15	25	20	40	
	4	SWE5407	Advanced Data Structures		4	m	0	2	15	25	20	40	*
	5	SWE5409	Data Warehousing Data Mining		4	m	0	2	15	25	20	40	34
	S.No.	S.No. Course Code	Course Name	Type/Area	ბ	L	T	М	CWS	PRS	MTE	ETE	PRE
	-	SWE5301	Project Work		en	0	0		ď	40			9
	2	SWE5303	Artificial Intelligence		3	3	0	0	20		30	20	
Elective 2	m	SWE5305	Information Retrieval	Elective	'n.	В	0	0	20	,	30	20	*
	4	SWE5307	Fuzzy Logic and Neural Networks	3	9	8	0	0	20		30	20	31
	Ľ	SWE5309	Software Project Management		m	m	0	0	20	ě	30	20	*
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	7	Т	Д	CWS	PRS	MTE	ETE	PRE
	7	SWE5201	SEMINAR	north of n	2	2	0	0	2		100		•
Elective 3	2	SWE5203	Probability and Statistics	FIEGUA	2	2	0	0	20	٠	30	50	•
	S.No.		Course Name	Type/Area	Ç	ı	T	a.	CWS	PRS	MTE	ETE	PRE
	7	SWE5402	Software Design Patterns		4	п	0	2	15	25	20	40	,
	2	SWE5404	Soft Computing		4	m	0	2	.15	25	20	40	¥
Elective 4	m	SWE5406	Machine Learning	Elective	4	9	a	2	15	25	20	40	•
	4	SWE5408	Blg Data Analytics		4	3	0	2	15	22	20	40	Ē
		CWFSAIO	Wireless and Mobile Computing		4	cn	0	7	15	25	20	40	B

	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	7	'n	Д	CWS		PRS   NITE	ETE	PRE
	7	SWE5302	MINOR PROJECT		9	0	0			40			9
	7	SWE5304	Optimization Techniques		m	3	0	0	20		8	20	
Elective 5	m	SWE5306	Pattern Recognition	Elective	m	m	0	0	20		98	55	1.0
	4	SWE5308	Distributed Systems		m	m	0	0	20		30	20	
	S	SWE5310	Natural Language Processing		6	3	0	0	20	,	30	3	
	S.No.	Course Code	Course Name	Type/Area	ర	7	H	۵,	CWS	PRS	MTE	ETE	PRE
	H	SWE5202	Research Methodology		2	2	0	0	20		ç	S	
Elective 6	2	SWE5204	Predictive Modelling	Elective	2	2	0	0	20	,	8	205	
	m	SWE5206	Operational Research		2	7	0	0	20		98	200	
	S.No.	S.No. Course Code	Course Name	Type/Area	ď	T	Т	Д	CWS	PRS	MITE	ETE	PRE
	н	SWE6401	Advances in Software Engineering		4	m	0	~	ñ	ĸ	20	40	
Florelivo 7	2	SWE6403	Cloud Computing	;	4	6		,	15	X	8	AD A	
	9	SWE6405	Things of the internet	Flective	4	m		7	135	25	20	40	
	4	SWE6407	Multimedia Applications		4	e	0	2	13	25	20	40	
	S	SWE6409	Information Theory and Coding		4	8	0	2	15	25	20	40	
	S.No.	Course Code	Course Name	Type/Area	ů	ı	E	Д	CWS	PRS	NTE	ETE	PRE
	٦	SWE6301	Agile Methods		3	е	0	0	20		30	95	
	2	SWE6303	Software Reliability		e	6	0	a	20		30	200	54
Elective 8	m	SWE6305	Cluster and Grid Computing	Florthro	м	8	0	0	20		30	05	
	4	SWE6307	Software Quality & Metrics		m	9	0	0	20		30	205	
	'n	SWE6309	Swarm and Evolutionary Computing		m	m	0	0	20		30	05	ñã
	S.No.	Course Code	Course Name	Type/Area	Cr	7	F	4	CWS	PRS	NTE	ETE	PRE
	1	SWE6201	Data Security & Privacy		2	2	0	0	20		30	50	
Elective 9	м	SWE6203	Bio Informatics	Efective	2	2	0	0	20	7	30	20	١,
	L	SWE6205	Statistical Tools		2 0		c	,		00	-		1

DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN STRUCTURAL ENGINEERING (STE)

			Se	Semester-1					Ì	ŧ				
S	No.	S.No.  Course Code	Course Name	Type/Area	ů	٦	н	Q.	CWS	PRS	MTE	ETE	PRE	Total Credits
	-	STE501	Structural Dynamics	Core	4	m	0	2	15	25	20	40	70	
Group A	2	STE503	Computational Methods in Structural Core	Core	4	m	0	2	15	25	20	40	**	Ę
	6	STE5401/5403/	Elective 1	Elective	4	т	0	2	15	25	20	40		Ì
Group B	4	STE5301/5303/	Elective 2	Elective	3	6	0	2	15	25	20	40	į.	
1	5	STES201/5203//	Elective 3/University Elective I	Elective	2	2/1	0	0/2	20/15	0/25	30/20 50/40	50/40		
			Se	Semester-II										
S	S.No.	Course Code	Course Name	Type/Area	ప	ı	Т	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
	-	STE502	Advanced Theory of Structures	Core	4	3	0	2	15	25	20	40		
Group C	7	STE504	Finite Element Method of Structural Analysis	Core	4	er.	0	2	15	25	20	40	13	0
	6	STE5402/5404/	Elective 4	Elective	4	ю	٥	2	15	25	20	40	•	17
Group D	4	STE5302/5304/	Elective 5	Elective	3	3	0	0	20	0	30	20		
1	'n	STE5202/5204/	Elective 6	Elective	2	2/1	0	0/2	20/15	0/25	30/20 50/40	50/40	6	
			Se	Semester-II										
Ŋ	S.No.	S.No. Course Code	Course Name	Type/Area	ప	T	F	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
T	Track 1													
	-	STE651	Research Project	Core	12	0	0	12	0	÷	0	100	0	
Ţ	Track 2	2												
	-	STE601	Major Project I	Core	6	0	0	9	0	4	0	100	0	12
Group E	7	STE6401/6403/	Elective 7	Elective	4	m	0	7	15	25	20	40	ē	
	6	STE6301/6303/	Elective 8	Elective	3	3/2	0	2/0	20/15	0/25	30/20	30/20 50/40	ě	
	4	STE6201/6203/	Elective 9	Elective	2	2	0		0 20	iit.	30	20	×	

				Semester-IN	N			1						
	S.No.	S.No. Course Code	Course Name	Type/Area		Cr L	4	Ъ	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credits
	Track													
2000	-	STE652+B20	Research Project	Core	12	0	0	12	0		0	100	c	
Group r	Track 2	2												12
	-	STE602	Major Project II	Core	12						40 60	09		• 1

LIS	LIST OF ELECTIVES:	TIVES												
		S.No.	Course Code	Course Name	Type/Area	ប៉	1,	H	d,	CWS	PRS	MTE	ETE	PRE
		1	STE5401	Design of Advanced Reinforced Concrete Structures		4	m	0	2	15		20	40	¥
		7	STE5403	Design of Advanced Steel Structures	T	4	m	0	2	15	25	20	40	
	Elective 1	г	STE5405	Prestressed Concrete Design	Elective	4	m	0	2	15	25	20	40	
1.		4	STE5407	Cyclone Risk and Hazard Assessment		4	В	0	2	15	25	20	40	19
		S.No.	S.No. Course Code	Course Name	Type/Area	ò		E	۵	SW.C	PRC	MTE	מעים	500
4.7		1	STE5301	Theory of Plates & Shells	S S S S S S S S S S S S S S S S S S S	m	m	0	0	20	0	30	2 22	
		2	STE5303	Theory of Elasticity & Plasticity		m	м	0	0	20	0	30	25	
ш	Elective 2	m	STE5305	Stability Analysis of Structures	Elective.	23	8	0	0	20	0	30	52	
		4	STE5307	Advanced Building Construction and Management		m	m	0	0	50	. 0	30	20	ř
		S.No.	S.No. Course Code	Course Name	Type/Area	ప	7	E	0.	CWS	PRS	MTE	RTR	PRF
		7	STE5201	Seminar		2	0	0	2	34	100		2	
		2	STE5203	Advanced Concrete Technology	1	2	2	0	0	20	0	30	82	
ш	Elective 3	m	STE5205	Design of Fibre Reinforced Composite Structures	Elective	2	н	0	2	15	25	20	40	
		4	STE5207	Low Cost Housing	I	2	2	0	0	20	0	30	50	
		S.No.	Course Code	Course Name	Type/Area	ប៉	1	H	Д.	CWS	PRS	MTE	RTR	PRE
		1	STE5402	Analysis and Design of Bridges		4	т	0	2	15	25	70	40	,
		2	STES404	Design of Tall Buildings	100	4	m	0	2	15	25	20	40	
ш	Elective 4	m	STE5406	Wind Engineering	011	4	ю	0	2	15	25	20	40	
		4	STE5408	Earthquake Resistant Design of Structures	واجدأنهم	4	60	0	2	15	25	20	40	3.65
		ιν	STE5410	Reliability Analysis of Structures		4	e e	0	2	15	25	20	40	

				The second secon		1			İ		İ		
	-	STE5302	MINOR PROJECT		en	0	0	99	*	40			9
	2	STE5304	Soil Structure Interaction		Э	ю	0	0	20	0	30	20	
Elective 5	ď	STE5306	Design of Masoury Structures	Elective	m	Ю	0	0	20	0	30	20	15
	2 4	STE5308	Disaster Mitigation and Management		6	3	0	0	20	0	30	20	٠
		STE5310	Random Vibration		9	3	0	0	20	0	30	20	÷
	S.No.	Course Code	Course Name	Type/Area	Cr	Г	Т	Ь	CWS	PRS	MTE	ETE	PRE
	-	STE5202	Durability of Concrete Structures		2	1	0	2	15	25	20	40	•
	,	STE5204	Building Services		2	2	0	0	20	0	30	20	ě
Eloctive &	m	STE5206	Waste to Energy	Elective	2	2	0	0	20	0	30	20	*
	4	STE5208	Blast Resistant Design of Structures		2	2	0	0	20	0	30	50	1
	S.No.	Course Code	Course Name	Type/Area	Ç	L	1	Ь	CWS	PRS	MTE	ETE	PRE
	-	STE6401	Design of Hydraulic Structures		4	3	0	2	15	25	20	40	*
	7	STE6403	Soil Dynamics		4	m	0	2	15	25	20	40	r:
Elective 7	"	STE6405	Seismic Hazard and Risk Assessment	Elective	4	m	0	7	15	25	20	40	40
	4	STE6407	Retrofitting of Structures		4	3	0	2	15	25	20	40	:42
			3	Y								1	
	S.No.	Course Code	Course Name	Type/Area	స	r	Т	P	CWS	PRS	MTE	ETE	PRE
	-		Instrumentation and Rehabilitation of Structures		m	ю	0	0	20	0	30	20	ň
	2	STE6303	Structural Vibration Control		8	3	0	0	20	0	30	20	e.
Elective 8	m	STE6305	Ground Improvement Techniques	Elective	æ	3	0	0	20	0	30	20	
	4	STE6307	Probability & Statistical Methods in Engineering		m	2	0	7	15	25	20	40	
	S.No.	Course Code	Course Name	Type/Area	Ç	L	۳	4	CWS	PRS	MTE	ETE	PRE
	н	STE6201	Sustainable Building Technologies	c	7	2	٥	٥	50	0	30	20	9
i	7	STE6203	Pre-Fabricated Structures	Flortive	2	2	0	0	20	0	8	22	ì
Elective 9	m	STE6205	Form Work for Concrete Structures		2	7	0	0	20	٥	30	22	

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN SIGNAL PROCESSING & DIGITAL DESIGN (SPD)

				Semester-I										
	S.No.	o. Course Code	Course Name	Type/Area	Cr	T	T	d	CWS	PRS	MTE	ETE	PRE	Total Credits
Groun A	н	SPD501	Advanced Digital Signal Processing	Core	4	c	0	2	15	25	20	40	15	3
	7	SPD503	Image Analysis and Processing	Core	4	m	0	2	15	25	20	40	15	
	m	SPD5401/5403/	Elective 1	Elective	4	т	0	0	15	25	20	40	15	17
Group B	4	SPD5301/5303/	Elective 2	Elective	3	E	0	0	15	25	20	40	â	
	5	SPD5201/5203//	Elective 3/University Elective I	Elective	2	2/0	0	0/4	20/0	0/40	30/0	50/0	09/0	
			Š	Semester-II										
	S.No.	. Course Code	Course Name	Type/Area	Ċ	7	H	P	CAVS	PRS	MTE	ETE	PRE	Total Credits
Groun		SPD502	Pattern Analysis and Machine	Core	4	m	0	2	15	25	20	40	15	
)	2	SPD504	Embedded System	Core	4	ĸ	0	2	15	25	20	40	15	
	m	SPD5402/5404/	Elective 4	Elective	4	m	0	7	15	25	20	40	ı	7
Group D	4	SPD5302/5304/	Elective 5	Elective	3	m	0	0	20	74	30	50	:-	
	5	SPD5202/5204//	Elective 6/University Elective II	Elective	2	2	0	0	20	. (0)	30	50	i i	
			Se	Semester-III										
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	٦	H	24	CWS	PRS	MTE	ETE	PRE	Total Credits
	Track 1	1	7			ų.								
	-	SPD651	Research Project	Core	12	0	0	12	0		0	100	0	
	Track 2	2												
Group F	1	SPD601	Major Project I	Core	3	I			4		40	09		12
	2	SPD6401/6403/	Elective 7	Elective	4	Э	0	2	15	25	20	40	34	
	60	SPD6301/6303/	Elective 8	Elective	3	3	. 0	0	20	_,	30	50		
	4	SPD6201/6203/	Elective 9	Elective	7	2	c	c	20		22	Ę,	,	

			Sei	Semester-IV			0.				İ		Ī	
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr L	Т	Ţ	ė.	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credits
	Track 1	1	**											
	7	1 SPD652	Research Project	Core	12	0	0	12	0	E	0 100	100	0	12
Group F	Track 2	2												4
	-	I SPD602	Major Project II	Core	12	0	0	12	0	(4)	0	100	0	

LIST OF ELECTIVES	L V LUG .					-							
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	7	Т	Д	CWS	PRS	MTE	ETE	PRE
	-	SPD5401	Wireless communication		4	м	0	2	10	15	25	20	ñ
1	2	SPD5403	Advanced Digital System Design+ (concepts of Fault Tolerance)	i	4	м	0	2	10	15	25	20	٠
Elective 1	3	SPD5405	Analog Signal Processing	Elective	4	æ	0	2	10	15	25	20	•
4	4	SPD5407	Soft Computing		4	9	0	2	10	15	25	20	90)
4													
	S.No.	Course Code	Course Name	Type/Area	Cr	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	-	SPD5301	Digital Watermarking		3	m	0	0	20	ř	30	20	£
to-	2	SPD5303	Wavelets in Signal Processing		3	Ж	0	0	20		30	20	8
Elective 2	60	SPD5305	Advanced Computer Architecture	Elective	3	m	0	0	20	٠	30	20	ě
-	4	SPD5307	Network Security & Cryptography		3	3	0	0	20	į	30	20	¥
	S.No.	Course Code	Course Name	Type/Area	Ċ	L	T.	Ъ	CWS	PRS	MTE	ETE	PRE
	-	SPD5201	SEMINAR		2	0	0	2	i i	100	Œ.	×	
	7	SPD5203	Language Lab		7	0	0	4	20/0	0/40	30/0	20/0	09/0
	m	SPD5205	Statistical Signal Processing		2	2	0	0	20	91	30	20	(i
Elective 3	4	SPD5207	Wireless sensor networks	Elective	2	2	0	0	20	4	30	20	0.
•	2	SPD5209	Real Time Operating Systems		2	7	0	0	20		30	20	•
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	r	T	Ъ	CWS	PRS	MTE	ETE	PRE
	-	SPD5402	Computer Vision		4	e	0	2	15	25	70	40	÷4
	2	SPD5404	IOT & Applications		4	е	0	2	15	25	20	40	
Elective 4	9	SPD5406	Speech Processing	Elective	4	3	0	2	15	25	70	40	ix.
A .	4	SPD5408	Fractional Delay Filters		4	т	0	2	15	25	20	40	

PRE	09			,	9	į.	PRE			PRE			٠	1)	PRE	1.5	,	1		PRE	ÿ.		
ETE	3	20	20	20	20	20	ETE	20	20	ETE	05	50	50	50	ETE	50	20	20	50	ETE	20	50	
MTE		30	30	30	30	30	MTE	30	30	MTE	75	25	25	25	MTE	30	30	30	30	MTE	30	30	
PRS	40	1	,	Į,	į		PRS			PRS	15	15	15	15	PRS		3340		¥3	PRS	X	Ť	
CWS		70	20	50	20	20	CWS	20	20	CWS	10	10	10	10	CWS	20	20	20	20	CWS	- 02	20	
4	•	0	0	0	0	0	a,	0	0	P.	2/4	2/4	2/4	2/4	Р	0	0	0	0	Ы	0	0	
T	0	0	0	0	0	0	H	0	0	H	0/0	0/0	0/0	0/0	Т	0	0	0	0	T	0	0	
ı	0	c	m	ю	8	m	r	2	2	1	3/2	3/2	3/2	3/2	T	м	ന	m	3	L	2	2	
Ċ	3	3	n	3	e.	3	ప	2	2	ڻ ت	4	4	4	4	C	3	3	3	3	ڻ	2	2	
Type/Area			Flooting	FIECUVE	120000000000000000000000000000000000000		Type/Area	i	Elective	Type/Area		į	Elective		Type/Area			Elective		Type/Area		Elective	
Course Name	MINOR PROJECT	Biomedical Signal Modelling	Object Tracking	Optimization Techniques	Artificial Intelligence	Reconfigurable Computing	Course Name	Research Methodology & Report writing	VLSI Signal processing Architecture	Course Name	Multispectral signal Analysis	Testing and Diagnosis of Digital system design	Detection and estimation theory	Digital Design and verification	Course Name	Data Analytics	SOC Design testing and verification	FPGA Based System Design	Biomedical Signal & image processing	Course Name	Operation Research	Multirate signal processing	
S.No. Course Code	SPD5302	SPD5304	SPD5306	SPD5308	SPD5310	SPD5312	S.No. Course Code	SPD5202	SPD5208	Course Code	SPD6401	SPD6403	SPD6405	SPD6407	Course Code	SPD6301	SPD6303	SPD6305	SPD6307	Course Code	SPD6201	SPD6203	
S.No.	-	2	С	4	5	9	S.No.	-	4	S.No.	1	2	03	4	S.No.	-	2	ю	4	S.No.	1	7	
			Elective 5					) and a	o akirang		17	F	racense /					Elective 8				Elective 9	

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DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN RENEWABLE ENERGY TECHNOLOGY (RET.)

			Semester-I	Semester-I									
	S.No.	Course Code	Course Name	Type/Area	Ċ	l I	T	P CWS	S PRS	MTE	ETE	PRE	<b>Fotal</b> Credits
	-			Core	4								
Group A	2	RET503		Core	4								
	60	RET5401/5403/	Elective 1	Elective	4								17
Group B	4	RET5301/5303/	Elective 2	Elective	3			-					
	5	RETS201/5203/	Elective 3	Elective	2								
			Se	Semester-II		ŀ	-						
	S.No.	. Course Code	Course Name	Type/Area	Ċ	Г	Т	P CV	CWS PRS	MTE	ETE	PRE	Total Credits
	-	RET502		Core	4			-					
Group C	7	RET504		Core	4								
	m	RET5402/5404/	Elective 4	Elective	4			-					17
Group D	4	RET5302/5304/	Elective 5	Elective	т								
	'n	RET5202/5204/	Elective 6	Elective	2								
			Se	Semester-II			-	-					
	S.No	S.No. Course Code	Course Name	Type/Area	Ċ	J.	H	P C	CWS PRS	MTE	ETE	PRE	Total Credits
	Track 1	11					ŀ						
	-	RET650	Research Project	Core	12								
	Track 2	د2				7-		10					
	-	RET601	Major Project I	Core	3								12
Group E	7	RET6401/6403/	Elective 7	Elective	4								r
	Е	RET6301/6303/	Elective 8	Elective	8			+	-				
	4	RET6201/6203/	Elective 9	Elective	2		-	-			_		

			S	Semester-IV	7	+								
	S.No.	S.No. Course Code	Course Name	Type/Area	స	r	L	ط	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credits
	Track 1										4			
,	1	1 RET650	Research Project	Core	12									,
Group r	Track 2													12
	1	1 RET602	Major Project II	Core	12									

List of Elective Courses

Flective 1   S.No.   Course Code   Course Name   Type/Area   Cr   L   T   P   CWS   PRS   MTE   ETE	OH IL LO LOI I	O Li Villa		20126 10300	1.5 SCHOOL									
S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr. 1         T         T <td< td=""><td>LISI OF ELEC</td><td>IIVES</td><td></td><td></td><td></td><td>100</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	LISI OF ELEC	IIVES				100								
S.No. Course Code  Course Name  Type/Area  Cr L T P CWS PRS MTE  Elective  Elective  S.No. Course Code  Course Name  Type/Area  Cr L T P CWS PRS MTE  Type/Area  Cr L T P CWS PRS MTE  Elective  Elective  Elective  S.No. Course Code  Course Name  Type/Area  Cr L T P CWS PRS MTE  Type/Area  Cr L T P CWS PRS MTE  Type/Area  Cr L T P CWS PRS MTE  Elective  Elective  Elective  Elective		S.No.	. Course Code	Course Name	Type/Area	C	L	T	Ъ	CWS	PRS	MTE	ETE	PRE
S.No. Course Code  Course Name  Type/Area  Cr L T P CWS PRS MTE  Elective  S.No. Course Code  Course Name  Type/Area  Cr L T P CWS PRS MTE  Elective  Elective  Elective  Elective  Cr L T P CWS PRS MTE  Type/Area  Cr L T P CWS PRS MTE  Elective  E			3,4	A STATE OF THE PARTY OF THE PAR	Winds.									
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           1 RET5201         SELF STUDY OPEN AREA SEMINAR         Elective         2         T         P         CWS         PRS         MTE           S.No. Course Code         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE	Elective 1			The state of the s	Elective									
S.No. Course Code         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           Elective         T         T         T         P         CWS         PRS         MTE				12/49/14	PHETING									
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE														
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE		S.No.		Course Name	Type/Area	ů	T	Т	Ъ	CWS	PRS	MTE	ETE	PRE
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           1         RET5201         SELF STUDY OPEN AREA SEMINAR         2         L         T         P         CWS         PRS         MTE           1         RET5201         SELF STUDY OPEN AREA SEMINAR         Elective         2         C         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           S.No.         Course Code         Course Name         Elective         C         L         T         P         CWS         PRS         MTE					188									
S.No. Course Code       Course Name       Type/Area       Cr       L       T       P       CwS       PRS       MTE         1 RET5201       SELF STUDY OPEN AREA SEMINAR       Elective       2       C	Elective 2			Angaleton (A) 4	Elective									
S.No. Course Code         Course Name         Type/Area         Cr. L T P CWS PRS MTE           1 RET5201         SELF STUDY OPEN AREA SEMINAR         2         PRS MTE           Elective         Elective         Course Code         Course Name         Type/Area         Cr L T P CWS PRS MTE           S.No. Course Code         Course Name         Type/Area         Cr L T P CWS PRS MTE					A Thiratel 1									
1 RETS201   SELF STUDY OPEN AREA SEMINAR   2   2   2   2   2   2   2   2   2		S.No.	Course Code	Course Name	Type/Area	ů	T	T	P	CWS	PRS	MTE	ETE	PRE
S.No. Course Code         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           Elective         El			1 RET5201	SELF STUDY OPEN AREA SEMINAR		2								
S.No. Course Code Course Name Type/Area Cr L T P CWS PRS MTE Elective	Elective 3				Elective									
Elective Course trained a publication of the public		S S	opol salo	Course Name	Tyne/Aren	ځ		E	۵	OW.	900	MTE	D.L.D.	200
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	Type/Area	Elective	E	1 ype/Area	Elective	Type/Area	Elective		Type/Area	R .	Elective	Tvne/Area	36	0,140		
	Course Name MINOR PROJECT		;	Course Name		Course Name			Course Name			Course Name				
	S.No. Course Code 1 RET5302			S.No. Course Code		S.No. Course Code			S.No. Course Code			S No Course Code				
	91	Elective 5			Elective 6	72	Elective 7	ı			Elective 8			i	Elective 3	

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN POWER SYSTEM ( PSY )

183	TotalkGredits			117		Shirt.		TotallCredits	W.		M7	100		10 OF 1	TotaliGredits	L <sub>n</sub>			112			
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	ETE	40	4	8	050	S		ETE	40	40	40	50	20		ETE		100		09	04	20	ü
	MTE	20	20	20	30	98		MTE	. 20	20	20	30	30		MTE	,	0		40	20	30	20
	PRS	25	25	25		E		PRS	25	25	25	O.	<b>9</b> 0		PRS					25	ě	- 10
	CWS	15	15	15	20	20		CWS	15	15	15	20	20		CWS		0			15	20	20
	Ъ	2	2	2	0	0		-P	2	2	2	0	0		4		12		0	7	0	
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Semester-I	Type/Area	Core	Core	Elective	Elective	Elective	Semester-D	Type/Area	Core	Core	Elective	Elective	Elective	Semester-III	Type/Area		Core		Core	Elective	Elective	Elective
Š	Course Name	Advanced Power Electronics	Advanced Power System Analysis	Elective 1	Elective 2	Elective 3/University Elective I	Se	Course Name	Advanced Power System Protection	Power System Operation and Control	Elective 4	Elective 5	Elective 6/University Elective II	Ser	Course Name		Research Project		Major Project I	Elective 7	Elective 8	Elective 9
	S.No. Course Code	PSY501	PSY503	PSY5401/5403/	PSY5301/5303/	PSY5201/5203//		Course Code	PSY502	PSY504	PSY5402/5404/	PSY5302/5304/	PSYS202/5204// IEC5202/5204/		S.No. Course Code		PSY651		PSY601	PSY6401/6403/	PSY6301/6303/	PSY6201/6203/
	S.No.	-	2	60	4	5		S.No.	-	2	3	4	5 1	İ	S.No.	Track 1	1	Track 2	1 P	2 P	3 Ъ	4 P
		7.011n			Group B				Group C			Group D							1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- I		

-51-

				Semester-IV	>									
	S.No.	S.No. Course Code	Course Name	Type/Area		Cr L	H	Д	CWS PRS MTE ETE	PRS	MTE	ETE	PRE	Total Credits
	Track 1	1		5										
	-	1 PSY652+B22	Research Project	Core	12	0	0	12	0	ě	0	100	0	12
Group F	Track 2	2								Ī			-	ļ
	-	1 PSY602	Major Project II	Core	12								fi	

PSY5403 PSY5403 PSY5403 PSY5403 PSY5405 PSY5407 PSY5301 PSY5303 PSY5303 PSY5303 PSY5307 PSY5307 PSY5201 PSY5207 PSY5404 PSY5404 PSY5406 PSY5406 PSY5406							1				
1 PSY5401 2 PSY5403 3 PSY5403 4 PSY5405 4 PSY5407 5.No. Course Code 1 PSY5301 2 PSY5303 4 PSY5303 4 PSY5307 5.No. Course Code 1 PSY5201 2 PSY5203 4 PSY5203 5 PSY5404 5 PSY5404 5 PSY5406 6 PSY5406	Course Name	Type/Area	Ċ	Г	Ţ	д	CWS	PRS	MTE	ETE	PRE
2 PSY5403 3 PSY5403 4 PSY5405 4 PSY5407  S.No. Course Code 1 PSY5301 2 PSY5303 4 PSY5305 4 PSY5307 2 PSY5201 2 PSY5201 2 PSY5203 4 PSY5203 4 PSY5204 2 PSY5404 5 PSY5404 1 PSY5404 1 PSY5404 1 PSY5404 1 PSY5406	Power System Dynamics & Stability		4	3	0	7	15	25	20	40	
3 PSYS405 4 PSYS407  S.No. Course Code 1 PSYS301 2 PSYS303 4 PSYS305 4 PSYS307  S.No. Course Code 1 PSYS201 2 PSYS203 4 PSYS203 3 PSYS203 4 PSYS203 2 PSYS204 2 PSYS404 1 PSYS404 1 PSYS404 1 PSYS404 1 PSYS406	Advanced Control Systems		4	3	0	2	15	25	20	40	
S.No. Course Code  1	Modelling of Electrical Machines	Elective	4	3	0	2	15	25	20	40	
S.No. Course Code  1	Soft Computing Techniques		4	3	0	2	15	25	20	40	
S.No. Course Code  1 PSY5301 2 PSY5303 3 PSY5303 4 PSY5305 4 PSY5307 S.No. Course Code 1 PSY5201 2 PSY5203 3 PSY5203 4 PSY5203 2 PSY5404 5 PSY5404 3 PSY5406		1									
1 PSY5301 2 PSY5303 3 PSY5303 4 PSY5305 4 PSY5307 1 PSY5201 2 PSY5201 2 PSY5203 3 PSY5205 4 PSY5207 2 PSY5404 5 PSY5404 5 PSY5404 5 PSY5406	Course Name	Type/Area	Ç	r	H	Ъ	CWS	PRS	MTE	ETE	PRE
2 PSY5303 3 PSY5305 4 PSY5305 4 PSY5307 1 PSY5201 2 PSY5203 3 PSY5205 4 PSY5205 4 PSY5207 2 PSY5404 2 PSY5404 3 PSY5406	Power System Instrumentation		n	3	0	0	20	•	30	20	
3 PSY5305 4 PSY5307 S.No. Course Code 1 PSY5203 2 PSY5203 3 PSY5205 4 PSY5205 4 PSY5205 2 PSY5404 2 PSY5404 3 PSY5406	Flexible AC Transmission systems		е	m	0	0	20	10	30	20	Ē
S.No. Course Code  1	Optimization Techniques for Power Systems	Elective	m	m	0	0	20		30	- 09	Ť)
S.No. Course Code  1	Applied Mathematics		m	3	0	0	20		30	20	X
S.No. Course Code  1											
1 PSY5201 2 PSY5203 3 PSY5205 4 PSY5207 4 PSY5207 5.No. Course Code 1 PSY5402 2 PSY5404 3 PSY5406	Course Name	Type/Area	ڻ	Г	Т	P	CWS	PRS	MTE	ETE	PRE
2 PSY5203 3 PSY5205 4 PSY5207 4 PSY5207 5.No. Course Code 1 PSY5402 2 PSY5404 3 PSY5406	SEMINAR		2	0	0	2	9.	100	31	٠,	A
3 PSY5205 4 PSY5207 5.No. Course Code 1 PSY5402 2 PSY5404 3 PSY5406	Nuclear Energy and Power		2	2	0	0	20	20	30	20	
4 PSY5207 S.No. Course Code 1 PSY5402 2 PSY5404 3 PSY5406	Forecasting Techniques in Power Systems	Elective	2	7	0	0	20		30	20	- 12
S.No. Course Code  1 PSY5402  2 PSY5404  3 PSY5406	Switched Mode Power Supplies		7	2	0	0	20	•	30	20	1
S.No. Course Code  1 PSY5402  2 PSY5404  3 PSY5406											
1 PSY5402 2 PSY5404 3 PSY5406	Course Name	Type/Area	Cr	T	Ħ	P	CWS	PRS	MTE	ETE	PRE
2 PSY5404 3 PSY5406	Renewable Energy Systems		4	т	0	2	15	25	20	40	17
3 PSY5406	High Voltage Engineering		4	С	0	2	15	25	20	40	3
	Power Quality	Elective	4	3	0	7	15	25	20	40	٠
4 17575408	Advanced Digital Signal Processing		4	m	0	2	15	25	20	40	
5 PSY5410 H	HVDC Transmission		4	3	o	2	15	25	20	40	7.6

		(32)	Elective 5						Elective 6						Elective 7					19	Elective 8		3			14	Elective 9		
S.No.	н	2	м	4	2	S.No.	П	2	m	4	S	S.No.	2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4					S.No.	7	2	m	4	2	S.No.	1	2	3	4	L
Course Code	PSY5302	PSY5304	PSY5306	PSY5308	PSY5310	Course Code	PSY5202	PSY5204	PSY5206	PSY5208	PSY5210	Course Code							PSY6301	PSY6303	PSY6305	PSY6307	PSY6309	Course Code	PSY6201	PSY6203	PSY6205	PSY6207	
Course Name	MINOR PROJECT	Analog Filter Design	Intelligent Control Techniques	<b>Dynamics</b> of Synchronous Machines	Smart Grid	Course Name	Restructured Power Systems	Power System Planning	Machine learning	PMU and Advanced Metering	EHV AC Transmission	Course Name	SCADA & Energy Management	Computer Aided Power System Analysis	Microcontroller & Embedded Systems	Advanced Electric Drives	The state of the s	Course Name	Power System Reliability	Translents in Power Systems	Advanced Distribution Systems	Grid and Sub-Station Planning and Technologies	Modern Electric Traction System	Course Name	Energy Auditing and Conservation	Electricity Market and Regulations	Digital Communication	Energy, Ecology and Environment	
Type/Area		-	Elective		SALES CARREST	Type/Area		T.C.	Elective			Type/Area			Elective		TABOURNE	Type/Area		The state of	Elective	S. Stenorical		Type/Area			Elective		
ڻ ا	е	3	3	3	3	Cr	2	2	2	2	3	Cr	4	4	4	4	10	ů	e	m	m	n	3	Cr	2	2	2	2	
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CWS	1	20	20	20	20	CWS	20	20	20	20	20	CWS	15	15	15	15	3	CWS	20	20	20	20	20	CWS ]	20	20	20	20	
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MTE		30	30	30	30	MTE	30	30	30	30	30	MTE	20	20	20	20		MTE	30	30	30	30	30	MTE	30	30	30	30	
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DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN PRODUCTION ENGINEERING (PIE)

	Total Credits			17				Total Credits		1	12				Total Credits				21			
	PRE	afi	18	1	8	٠		PRE	ŧ.	34			•		PRE		0				3	1
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	MTE	20	20	20/30	30	30		MTE	20/30	20	20	30	30		MTE		0			20/30	30	Č
	PRS	25	25	25/0	ê	0.0		PRS	25/0	25	25		*		PRS		(10)			25/0	1	
	CWS	15	15	15/20	20	20		CWS	15/20	. 15	15	20	20		CWS		0			15/20	20	4
	Ь	7	7	2/0	0	0	Ī	Ъ	2/0	7	7	0	0		ы		12			2/0	0	
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LIGIN BILL	Cr	4	4	4	3	2		Ċ	4	4	4	ю	2		Ċ		12		3	4	3	
Semester-I	Type/Area	Core	Core	Elective	Elective	Elective	Semester-II	Type/Area	Core	Core	Elective	Elective	Elective	Semester-II	Type/Area		Core		Core	Elective	Elective	Dispersions
MASTER OF TECHNOLOGY IN PRODUCTION ENGINEERING (THE	Course Name	Theory of Metal Cutting	Welding Processes & Metallurgy	Elective 1	Elective 2	Elective 3/University Elective I	S	Course Name	Plasticity & Metal Forming	Casting Technology	Elective 4	Elective 5	Elective 6/University Elective II	Se	Course Name		Research Project		Major Project I	Elective 7	Elective 8	
	S No Course Code		PIE503	PIE5401/5403/	PIE5301/5303/	PIE5201/5203//		Course Code	PIE502	PIE504	PIE5402/5404/	PIE5302/5304/	PIES202/5204//		S.No. Course Code		PIE651		PIE601	PIE6401/6403/	PIE6301/6303/	* F-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
	SNo	-	2	3	4	S		S.No.	-	2	3	4	0		S.No.	Track 1	-	Track 2	-	2	3	
			Group A		Group B					Group C	. se	Group D	N.						3	Group E		

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			S	Semester-IV	Λ		-							-
	S.No.	S.No. Course Code	Course Name	Type/Area	స	Cr L	T		CWS	PRS	MTE	ETE	PRE	P CWS PRS MTE ETE PRE Total Credits
I	Track 1													
<u></u>		PIE652	Research Project	Core	12	0	12 0 0 12 0	12	0		0	100	0	
A dance	Frack 2													12
	F	PIE602	Major Project II	Core	12	0	0	12	0	7	0	100 0	0	

LIST OF ELECTIVES:	TIVES:												
	S.No.	. Course Code	Course Name	Type/Area	Ç	T	H	P.	CWS	PRS	MTE	ETE	PRE
	н	PIE5401	CAD/CAM		4	3/4	0	2/0	15/20	25/0	20/30	40/50	į
Flective 1	2	PE5403	Computer Integrated Manufacturing Systems		4	3/4	0	2/0	15/20	25/0		40/50	(6
	m	PIE5405	Mechatronics	richine.	4	3/4	0	2/0	15/20	25/0	20/30	40/50	
								E					
	S.No.	S.No. Course Code	Course Name	Type/Area	ភ	T	Н	Ь	CWS	PRS	MTE	ETE	PRE
	Н	PIE5301	Principles of Machine Tools		3	3	0	0	20		30	50	(4
	2	PIE5303	Automation in Manufacturing		3	3	0	0	20	99	30	20	
Elective 2	m	PIE5305	Process Engineering	Elective	6	3	0	0	20	le,	30	50	
1 X			The state of table at America.				=						
	S.No.	S.No. Course Code	Course Name	Type/Area	C	T	H	d	CWS	PRS	MTE	ETE	PRE
	1	PIE5201	SEMINAR	S STOREGE S	2	0	0	7		100			a.
	2	PIE5205	Operation Research		2	2	0	0	20	7.	30	20	,
Elective 3	m	PIE5203	Optimization Techniques	Elective	2	2	0	0	20		30	50	
					24				s				
	2		;		A	H							
	D.INO.	DANO. Course Code	Course Name	Type/Area	ڻ	7	H	<b>a</b> ,	CWS	PRS	MTE	ETE.	PRE
	74	PIE5402	Metrology		4	m	0	7	15	25	20	40	31
	2	PIE5404	Methods Engineering and Ergonomics		4	m	0	2	51	25	70	40	
Elective 4	СП	PIE5406	Composite Materials and Processing	Elective	4	m	0	2	15	25	20	40	- 4
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Course Name	Minor Project	Maintenance Management	Managerial Concept & Organizational Behaviour	Course Name	Industrial Quality Control	Supply Chain Management	Production & Operation Management		Course Name	Advanced Machining Processes	Precision Engineering	Surface Engineering		Course Name	Robotics	Design for Manufacturing and Assembly	Reliability Engineering		Course Name	IT in manufacturing Enterprise	Materials Management	Project Management	
S.No.   Course Code	PIE5302	PIE5304	PIE5306	Course Code	PIE5202	PIE5204	PIE5206		Course Code	PIE640	PIE6403	PIF6405		. Course Code	PIE6301	PIE6303	PIE6305		. Course Code	PIE6201	PIE6203	PIE6205	
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DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN NANO SCIENCE AND TECHNOLOGY (NST)

SNO.   Course Code   Course Name   Cree   4   3   0   2   15   75   70   40   17   17   18   18   18   18   18   18			70		Semester-I									
1 NST501   NST501   Physics of Planomaterials   Core   4   3   0   2   15   25   20   40       2 NST5301/53037		S.No.	Course Code	Course Name	Type/Area	Ċ	T	-	CWS	-	MTE	FTF	PRE	Total Cradite
2   NST501/57034  Elective 1   Elective 2   Elective 3   3   5   5   5   5   5   5   5   5	Group A	-	NST501	Physics of Nanomaterials	Core		1	0	-					Total Credits
3   NST5401/5403/   Elective 1   Elective 2   Elective 2   Elective 3   3   3   0   0   0   0   0   0   0		7	NST503	Chemistry of Nanomaterials	Core			0 0	-					
S.No.   NST3201/32034   Elective 2   Elective 2   Elective 3   Elective 5   Elective 5   Elective 5   Elective 5   Elective 5   Elective 6   Elective 5   Elective 6   Elective 6   Elective 5   Elective 6   Elective		2	NST5401/5403/	Elective 1	Elective.			000	30				,	17
S.No.   Course Code	Group B	4	NST5301/5303/		Elective									
S.No.         Course Code         Course Code         Course Code         Core.         4         3         0         1         RTB         RTB         RTB         RTB         RTB         RTB         PRB           2         NST502         Analytical Techniques         Core.         4         3         0         2         15         25         20         40         -           3         NST5402/5404/         Elective 4         Elective 4         Elective 4         4         0         20         15         25         20         40         -           4         NST5402/5404/         Elective 4         Elective 4         Elective 6         4         4         0         20         15         15         25         0         0         20         20         0         20         0         20         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 </td <td></td> <td>5</td> <td>NST5201/5203//</td> <td></td> <td>Elective</td> <td></td> <td></td> <td>&gt;</td> <td>20</td> <td>- 29</td> <td>3</td> <td>6</td> <td></td> <td></td>		5	NST5201/5203//		Elective			>	20	- 29	3	6		
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1 NST502   Analytical Techniques		S.No.		Course Name		Ċ	T		CWS	PRS	MTE	ETE	PRE	Total Credits
2 NST504   Design and Synthesis of Nanostructures   Core   4   3   0   2   15   25   20   40   - 15   15   25   20   40   - 15   15   25   20   40   - 15   25   20   20   20   20   20   20   2	Group C	-	NST502	Analytical Techniques	Core.		-	0 2	7,		20	ç		
3 NSTS402/5404/   Elective 4   Elective 4   Elective 5   Elective 5   Elective 5   Elective 5   Elective 5   Elective 5   Elective 5   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University Elective III   Elective 6/University		7	NST504	Design and Synthesis of Nanostructures	Core			0 2	15		2 6	4		
4         NST5302/S304/         Elective 5         Elective 5         Elective 6/University Elective II         S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         FRE           1         NST651         Research Project I         Core         3         3         3         0         20         20         0         20         0         0         20         0		3	NST5402/5404/	Elective 4	Elective		125	00	20		30	2		17
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1         NST651         Research Project         Core         12         1         40         60         80           Track 2         NST6401/6403/         Major Project I         Core         3         4         4         60         20         3         6           3         NST6201/6203/         Elective 9         Elective         2         2         0         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         20         0         0         20         0         20         0         20         0         0         20         0         0         20         0         0         20         0		Track 1												
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List of Elective Courses

LIST OF ELECTIVES:	TIVES:							$\forall$	_	-			
	S.No.	S.No.   Course Code	Course Name	Type/Area	Ċ	ľ	<u>-</u>	Ы	CWS	PRS	MTE	H.E.	35.
	,	NSTSAO1	Computational Physics and Programmine		4	4	0		20	0	30	20	i K
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	2	NST5303	Functional Materials and Devices		3	m	0 0		15	25	20	40	
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	,	N 15404	Spectroscopic Techniques for Nanomaterials		4	4	0		20	0	30	50	v
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Molecular Spectroscopy	Course Name	MINOR PROJECT	Renewable Energy Technology	Structural Nanomaterials Analysis	The second secon	Course Name	Nano-Electronics and Devices	Nanocomposites	Carrieria estada at apticego	Course Name	Nanobiotechnology	Nanosensors and Devices	Microelectromechanical Systems (MEMS)		Course Name	Nanolithography and Device Fabrication	Plasma <b>Technology</b>	Nanotechnology for Medical	Adams and and and and and and and and and and		Course Name	Spintronic	Biophotonics	
NST5406	Course Code	NST5302	NST5304	NST5306		Course Code	NST5202	NST5204		Course Code	NST6401	NST6403	NST6405		Course Code	NST6301	NST6303	NST6305			Course Code	NST6201	NST6203	
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DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN NUCLEAR SCIENCE & ENGINEERING (NSE)

Cr				2013	Semester-I	Semester-I					l	l f	-		1
1         NSES01         Core         4         A			S.No.	Course Code	Name	Type/Area	Ċ	r	T	T	/S PRS	MTE	ETE	PRE	Total Credits
2         NSES03         Core         4         0         6         6         6         6         6         7         8         9         8         9         9         9         9         8         9			-	NSE501		Core	4								
3   NSES401/5403/   Elective 1   Elective 2   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 4   Elective 4   Elective 4   Elective 4   Elective 4   Elective 4   Elective 5   Elective 5   Elective 6   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 7   Elective 8   Elective 7   Elective 7   Elective 8   Elective 8   Elective 6   Elective 6   Elective 7   Elective 7   Elective 8   Elective 7   Elective 7   Elective 7   Elective 7   Elective 8   Elective 7   Elective 7   Elective 7   Elective 8   Elective 7   Elective 7   Elective 7   Elective 8   Elective 7   Elective 7   Elective 7   Elective 8   Elective 7   Elective 7   Elective 7   Elective 7   Elective 8   Elective 7   El	Ş	A dno	2	NSE503		Core	4								
4   NSE5201/53037   Elective 2   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 3   Elective 4   Type/Area   Core 4   Type/Area   Core 5   A   Core 5			3	NSE5401/5403/		Elective	4								17
S.No.   Course Code   Course Name   Elective A   Type/Area   Cr	Gre	a dno	4	NSE5301/5303/	Elective 2	Elective	3								
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1         NSES02         4         4         6         4         8 <td></td> <td></td> <td>S.No.</td> <td></td> <td>Course Name</td> <td>Type/Area</td> <td>C</td> <td>J</td> <td></td> <td>-</td> <td></td> <td>_</td> <td></td> <td>PRE</td> <td>Total Credits</td>			S.No.		Course Name	Type/Area	C	J		-		_		PRE	Total Credits
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4         NSE5302/5304/         Elective 5         Elective 5         Elective         3         Rective         3         Rective         3         Rective         3         Rective         3         Research Project         ATE			3	NSE5402/5404/	Elective 4	Elective	4								17
5         NSE5202/5204/         Elective 6         Elective 6         Dective 6         Elective 6         Dective 6	Ğ	O dno	4	NSE5302/5304/	Elective 5	Elective	3								
Semester-III           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           Track 1         NSE650         Research Project         Core         12         1         N         N         1         N			5	1	Elective 6	Elective	7								
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE           Track 1         NSE650         Research Project         Core         12         n         <					Se	mester-II	_								
Track I           I         NSE650         Research Project         Core           Track 2         Asjor Project I         Core           2         NSE6401/6403/         Elective 7         Elective           3         NSE6301/6303/         Elective 8         Elective           4         NSE6201/6203/         Elective 9         Elective			S.No.	Course Code	Course Name	Type/Area	Cr	ı			_			PRE	Total Credits
1         NSE650         Research Project         Core           Track 2         Agjor Project I         Core           2         NSE6401/6403/         Elective 7         Elective           3         NSE6301/6303/         Elective 8         Elective           4         NSE6201/6203/         Elective 9         Elective			Track	1											
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List of Elective Courses

LIST OF ELECTIVES:	TIVES						l						
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DELHI TECHNOLOGICAL UNIVERSITY

SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN MICROWAVE & OPTICAL COMMUNICATION ( MOC.)

ETE | PRE | Total Credits Total Credits Total Credits 17 17 12 09/0 PRE PRE 20/0 ETE 100 ETE 40 40 40 20 40 40 40 20 20 9 40 20 20 PRS MTE MTE 30/0 MTE 20 20 20 30 20 20 20 30 30 0 40 20 30 30 0/40 PRS PRS 25 25 25 25 25 25 25 CWS CWS 20/02 CWS 15 15 15 20 12 15 15 20 20 15 20 20 0 Ы 0/4 4 12 0 0 Щ 0 0 0 0 0 H 0 0 0 0 0 H 0 0 0 0 2/0 П 7 0 Ċ Ü Ċ 12 Semester-III Semester-I Semester-II Type/Area Type/Area Type/Area Elective Elective Elective Elective Elective Elective Elective Elective Elective Advance Electromagnetic Theory Core Core Optical Communication Systems Core Digital Microwave Engineering Core Core Core Elective 6/University Elective II Elective 3/University Elective I Optical Networks Research Project Course Name Course Name Major Project I Course Name Elective 1 Elective 2 Elective 5 MOC5402/5404/..... Elective 4 Elective 7 Elective 8 Elective 9 MOC5401/5403/..... MOC5301/5303/..... MOC5302/5304/..... MOC5201/5203/..... MOC6301/6303/..... MOC5202/5204/... MOC6401/6403/. MOC6201/6203/. Course Code Course Code Course Code MOC504 MOC503 MOC502 MOC501 MOC651 MOC601 S.No. Track 2 S.No. Track 1 S.No. 7 4 ν 7 4 2 4 Group B Group A Group D Group C Group E

				Semester-IV	r-IV									
	S.No.	S.No. Course Code	Course Name	Type/Area	r Cr	Cr	×	P4		CWS PRS MTE ETE	MTE	ETE	PRE	PRE   Total Credits
	Track 1										ti			
ſ	-	MOC652	Research Project	Core	17	0	12 0 0 12 0	12	0	3	0	100	100 0	12
Group F	Track 2													
	-	MOC602	Major Project II	Core	12	61					40	09		

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	S.No.	S.No. Course Code	Course Name	Type/Area	ڻ	2	ī	4	CWS	PKS	MIE	717	Z.K.E.
	,	MOC5401	Advanced Microwave Devices & Circuits		4	n	0	2	15	25	20	40	0
	2	MOC5403	Photonic switching & Networks		4	3	0	2	15	25	20	40	٠,
Elective 1	1 (1	MOC5405	Wireless Communications	Elective	4	3	0	2	15	25	20	40	
	9 4	MOC5407	Optics & Lasers	-	4	3	0	2	15	25	20	40	
	ľ	MOC5409	Quantum Computing		4	3	0	2	15	25	20	40	
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	Г	Т	Ы	CWS	PRS	MTE	ETE	PRE
	7	MOC5301	Communication Networks		3	3	0	0	20	а	30	20	*
	7	MOC5303	RF Microwave & Millimeter circuits		m	m	0	0	20		30	20	A
Elective 2	ı m	MOC5305	Nano photonics &Plasmonics	Elective	m	m	0	0	20	54	30	20	
	4	MOC5307	Optical Electronics		ю	3	0	0	20		30	20	×
	· ·	MOC5309	Soft Computing in Microwave Engineering		Э	m	0	0	20		30	50	ű
	S.No.	S.No. Course Code	Course Name	Туре/Агеа	Cr	Г	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	-	MOC5201	SEMINAR		2	0	0	2	ų.	100	.,4	•	ě
	2	MOC5203	Optical Interconnects		2	2	0	0	20	.4	30	20	ě
Elective 3	1 10	MOC5205	Radar Engineering	Elective	2	2	0	0	20	9	30	22	
	4	MOC5207	Information Theory	11	2	2	0	0	20	×	30	20	
	Ľ	MOC5209	Language Lab		2	0	0	4	¥	40	2	ě	9
	S.No.	S.No. Course Code	Course Name	Type/Area	C	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	1	MOC5402	Antenna Design		4	ю	0	2	15	25	70	40	5
	7	MOC5404	Communication Protocol Design		4	м	0	2	15	25	20	40	177
Elective 4	m	MOC5406	Optoelectronic Devices and Circuits	Elective	4	ю	0	2	15	25	20	40	9
	4	MOC5408	Optical Sensors		4	3	0	2	15	25	70	40	æ
	и	MOC\$410	Satellite Communications	_	A	ď	c	۲	1,5	25	20	40	i.

S.No. Course Code	1 MOC5302	2 MOC5304	Elective 5 3 MOC5306	4 MOC5308	MOC5310	S.No. Course Code		2 MOC5204	Elective 6 3 MOC5206	S.No. Course Code	1 MOC6401	2 MOC6403	3 MOC6405	Elective 7 MOC6407	5 MOC6309		S.No. Course Code	1 MOC6301		3	Elective 8 4 MOC6307	5 MOC6309	6 MOC6311	S.No. Course Code	1 MOC6201	MOC6203	Elective 9 MOC6205	1000
Course Name	Minor Project	Numerical Techniques in Electromagnetics	EMI/EMC	Radar Signal Processing	Radiating Systems in RF Communications	Course Name	Photo voltaics	Bio-Photonics	MIMO Wireless Communication	Course Name	Smart Antenna	Fiber optic Components	Wireless Optical Communication	Biological Effects of Electromagnetic Fields	Broadband Communication Systems	Land Married Control of the Control	Course Name	Statistical Mathematics	Integrated Optics	Quantum Electronics	Optical Computing	Optical Signal Processing	Spread Spectrum Communication	Course Name	Wireless Sensor Networks	Special Topics on Optical Communications	Special Topics on Microwave communication	1
Type/Area			Elective		Statement of the	Type/Area			Elective	Type/Area		100		Elective	Topological Control		Type/Area	2000 0000			Elective			Type/Area		ř	Elective	
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ľ	0	m	m	m	m	Г	2	2	7	17	m	en en	m	m	m		r	3	n	т	m	3	m	L	2	2	7	
T	0	0	0	0	0	Т	0	0	0	F	0	0	0	0	0		Т	0	0	0	0	0	0	T	0	0	0	
P C		0	0	0	0	PC	0 2	0 2	0 2	D a			2 1	2 1	2 1		P CV	0 2	0 2	0 2	0 2	0 2	0 2	P CWS	0 20	0 20		
CWS PF	4	20	20 -	20	20	CWS PRS	20	20	20	CWS PRS	15 25	H	15 25	15 25	15 25		CWS PRS	20	20 -	20	20	20	20	VS PRS	0	0		
PRS MTE	40	30	30	30	30	S MTE	30	30	30	S MTE	5 20		5 20	20	20		S MTE	30	30	30	30	30	30	S MTE	30	30	30	
E ETE	ž	20	20	20	52	E ETE	20	20	50	ETE	40	40	40	49	40		ETE	20	50	50	20	50	20	ETE	20	20	20	
PRE	09	**	*	E #	(4	PRE	ī.	•	9/	PRE		<b>2</b>		31	Ε,		PRE	٠	٠	×	) <b>y</b> .	*	,	PRE	*	Ŷ	- ,	

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN INFORMATION SYSTEMS ( ISY )
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	14t	Se	Semester-1						- 1		-	- 1	
S.No.	S.No. Course Code	Course Name	Type/Area	Ċ	-1	<u>-</u>	а	CWS	PRS	MTE	ETE	PRE	Total Credits
	ISY501	Linear Algebra and Probability	Core	4	ю	0	2	15	25	20	40		
Group A	ISY503	Data Structure and Algorithm	Core	4	ю	0	2	15	25	20	40		
ю	ISY5401/5403/	Elective 1	Elective	4	m	0	7	15	25	20	40		1
Group B 4	ISY5301/5303/	Elective 2	Elective	m	3/2	0	. 2/0	20/15	0/25	30/20	50/40		
5	1SY5201/5203//	Elective 3/University Elective I	Elective	2	2	0	0	20		30	20	9	et a la
		Se	Semester-II			Ī						Ī	
S.No.	Course Code	Course Name	Type/Area	Ċ	ı	1	Ы	CWS	PRS	MTE	ETE	PRE	Total Credits
-	ISY502	High Performance Computing system Core	Core	4		0	2	15	25	20	40	15	Maria de la casa de la
Group C	1SY504	Computer Network and Application	Core	4	ю	0	2	15	25	20	40	15	2
ю	ISY5402/5404/	Elective 4	Elective	4	ю	0	2	15	25	20	40	6	
Group D 4	ISY5302/5304/	Elective 5	Elective	3	3/2	0	0/2	20/15	0/25	30/20	50/40	•	
5	ISY5202/5204//	Elective 6/University Elective II	Elective	2	2	0	0	20	*	33	20	¥2	-
		Se	Semester-III										773
S.No.	S.No. Course Code	Course Name	Type/Area	Ç	Г	H	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
Track 1													
-	ISY651	Research Project	Core	12	0	0	12	0	æ	0	100	0	1075
Track 2	2			ē									
	ISY601	Major Project I	Care	3						40	09		12
Group E	ISY6401/6403/	Elective 7	Elective	4	m	0	2	15	25	20	40	ÿ	54,710
м	ISY6301/6303/	Elective 8	Elective	3	3/2	٥	0/2	20/15	0/25	30/20	50/40	i.	ti essa
4	ISY6201/6203/	Elective 9	Elective	2	7	0	0	20	36	30	20	18	ers.

			<b>9</b> 2	Semester-IV	\ \ \									
	S.No.	S.No. Course Code	Course Name	Type/Area Cr L	ప	J	T	Ъ	CWS	PRS	MTE	ETE	PRE	P CWS PRS MTE ETE PRE Total Credits
	Track 1	1												
		18Y652	Research Project	Core	12	0	0	12	0		0	001	0	
Group r	Track 2	2												12
	1	1SY602	Major Project II	Core	12						40 60	09		

LIST OF ELECTIVES	TIVES:												
	S.No.	S.No. Course Code	Course Name	Type/Area	చ	L	T	ď	CWS	PRS	MTE	ETE	PRE
	1	ISY5401	Advanced Computer Graphics		4	m	0	2	15	25	20	40	x
	2	ISY5403	Artificial Neural network	ř	4	6	0	2	15	25	20	40	
	6	ISY5405	Big Data Analytics		4	n	0	7	15	25	20	40	:•
	4	ISY5407	Data System Implementation		4	m	0	2	15	25	20	40	ж
Elective 1	2	ISY5409	Image Analysis	Elective	4	т	0	2	15	25	20	40	÷
	9	1SY5411	Privacy and Security in Online Social Media	Special Control	4	ю	0	7	21	25	20	40	26
	7	ISY5413	Embedded System	2007	4	т	0	2	15	25	20	40	Ŷ
	∞	ISY5415	Digital and Cyber Forensics		4	3	0	2	15	25	20	40	47)
										7	ST	i.	
	S.No.	Course Code	Course Name	Type/Area	ů	1	T	Ы	CWS	PRS	MTE	ETE	PRE
	н	ISY5301	Artificial Intelligence		3	3	0	0	20	0	30	20	
	2	ISY5303	Pattern analysis		е	2	0	2	15	25	20	40	¥
	m	ISY5305	Business Intelligence and data warehousing		3	m	0	0	20	0	30	20	24
	4	ISY5307	Edge computing	1	3	3	0	0	20	0	30	20	8
	2	ISY5309	Financial data analytics	1	3	3	0	0	20	0	30	20	¥
	9	ISY5311	Foundation to computer security		3	3	0	0	20	0	30	20	
	7	ISY5313	Information Audit		3	6	0	0	20	0	30	20	Ä
	00	18Y5315	Information Integration and Data Analylics	ī	m	7	0	7	15	25	70	40	32
Z aklical	6	ISY5317	Linear Optimization	Elective	e	6	0	0	20	0	30	20	v
	10	ISY5319	Management Information System		m	m	0	0	20	0	30	20	7
	11	ISY5321	Multi agent system		3	æ	0	0	20	0	30	20	
	12	ISY5323	Privacy in location based services		m	m	0	0	20	0	30	50	
	13	ISY5325	Probabilistic Graphical Models	1	3	2	0	2	15	25	20	40	
	14	ISY5327	Software Engineering		m	2	0	2	15	25	20	40	×
	15	ISY5329	Theory of modern cryptography		m	2	0	2	15	25	20	40	ñ
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	CNO	Course Code	Course Name	Type/Area	כֿ	_	-	_	CWS	CN7	21 m	717	
		Course Cours			2	0	0	2	•	100	. •		ø
	1	1575203	Latest Research in Information		,	,	-	-	20	c	30	20	
Elective 3		131377	technology Ontrinsition tools	Elective	7 6	1 ~		0	20	0	30	20	
דוברווגב	3	15Y5205	Opuringation tools	-	,	,			20	c	30	05	
	4	ISY5207	Technical communication		7	7	0		07		3	3	
				Tvno/Area	ċ	د	F	4	CWS	PRS	MTE	ETE	PRE
	S.No.			and the state of the		,	c	,	15	25	20	40	9
	1	ISY 5402	Advanced operating system			,	,	1		L	6	ç	
	2	1SY5404	Cloud computing and vii tualization		4	6		2	15	57	07	04	
		ISY5406	Foundation of information theory and coding		4	m	0	2	15	25	20	40	
		ICVEADO	Internet security and privacy	Flortive	4	6	0	2	15	25	20	40	ě
Elective 4	1 L	1515408	Machine learning	,	4	ю	0	2	15	25	20	40	10
	n '	VITTE OF	Mobile application		4	3	0	2	15	25	20	40	ā
	ו	1575412	Semantic web	•	4	9	0	2	15	25	20	40	4
		+1+C1O1	Smart sensing for Internet of things		4	m	-	2	15	25	20	40	83
	× Z	Course Code	Course Name	Type/Area	ర్	1	T	Ь	CWS	PRS	MTE	ETE	PRE
	,				е	0	0	80	45	40	•	į	99
	-( (	1512502	Advanced committer vision		ю	m	0	0	20	0	30	50	
	7 .	+DCC I CI	ADhoc wireless network		m	m	0	0	20	0	30	20	*8
	n	1675308	Advanced topic In mobile computing		m	ю	0	0	20	0	30	20	×
	4	20000101	A II A		m	m	0	٥	70	0	30	20	80
	2	ISY5310	Applied ciypoglapity		.,	"	c	0	20	0	30	50	
	9	ISY5312	Collaborative mrenny		, ,	, "	Ç	c	20	0	30	20	
Elective 5	_	ISY5314	Cyber secunty and law	Elective	, "	, ,	, ,	, ,	. 5	25	20	40	::1:
	00	01573510	Digital watermarking and Steganalysis	i.	60	n 6	0	0	20	0	30	20	
	מ י	0100101	Dietributed Data Minima		m	m	0	0	20	0	30	20	Ť
	3	0255151	Second Theory		m	ю	0	0	20	0	30	20	Ť
	=	1575322	Motivate annually and privacy		ď	9	0	0	20	0	30	20	*0
	12	1S Y 5 5 2 4	Network andrymny and privacy			,	6	c	2	c	30	5	()
	13	15Y5326	Topics in computer security		m	7	2		07		3	3	
	S. C.	Course Code	Course Name	Type/Area	Cr	T	Т	Ы	CWS	PRS	MTE	ETE	PRE
	-		Research problem formulation		2	0	0	4	*	30		r	22
Elective 6	2	ISY5204	Laboratory on advanced topics	Elective	2	0	0	4	٠	30	A	*	70
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ETE	W	40	2	90	9	40	40		ELE	20 20	2 2	2 2	202	52	40	40	40	40	40	40	202	Q Q	22	02	202		au.a	-				
CWS   PRS   MTE	20	30	2 2	30	20	200	20	The state of the s	MIE	200	2 6	8 8	30	30	20	20	20	20	20	20	30	2	30	e e	8 8		ACTUE	_	<u> </u>			
PRS	25	7,	25	25.	×	25	25	000	L CK		0	0	0	0	25	25	25	25	25	25	0	25	0	c	0		ppc	-			,	
CWS	i,	15	ħ	15	15	51	15	0,110	CWS	02 65	2 2	202	20	20	15	15	15	15	15	15	20	15	20	20	2		CWC	_				
Д	2	2	2	2	2	2	2	F	4 0	0	0	0	0	0	2	2	0	2	2	2	0	7	0	0	0		Д					
Т	0	0	0	0	0	0	0	E	-	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0		E	0				
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Type/Area				1	כוברוואב			Tyne/Area	war water									Elective					1000				Tvpe/Area		e de la companya de l			
Course Name	Biometrics Systems	Natural Language Processing	Network security	Robotics	Ethical Hacking	Secure Coding	Mobile Computing.	Course Name	Bioinformatics	Data Mining	Data Warehousing	Dev-Ops	Evolutionary computing	GPU computing	Information Retrieval	Intelligent system and interface	Introduction to cognitive science	Introduction to spatial computing	Malware Analysis	Real time operating system	Soft computing	Statistical machine learning	Web Intelligence and big data analytics	Quantum computing	Intrusion detection and prevention	- 01410	Course Name	Open Area Research Seminar				
Course Code	ISY640J	ISY6403	ISY6405	ISY6407	ISY6409	ISY6411	ISY6413	Course Code	ISY6301	ISY6303	ISY6305	ISY6307	ISY6309	ISY6311	ISY6313	ISY6315	ISY6317	ISY6319	ISY6321	ISY6323	ISY6325	ISY6327	ISY6329	ISY6331	ISY6333			ISY6201				
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				Elective 7														Elective 8									24	Elective 9				

DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION

SCHEME OF EXAMINATION	MASTER OF TECHNOLOGY IN GEOTECHNICAL ENGINEERING (GTE)
	MASTER OF TECH

	PRE offotel Credits			. LL.7:	2.5			PRESIGNATE CREEK			The The			10.2	TRAIL Gredits				19312			**
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	MTE	20	20	70	30	30		MTE	20	20	20	30	30		MTE		0		40	20	30	30/0
	PRS	25	25	25	,	, ĝ		PRS	25	25	25	× £	9		PRS		((●),			25	-30	0/30
	CWS	15	15	15	20	20	Ī	CWS	15	15	15	20	20		CWS		0			15	20	20/0
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	Ċ	4	4	4	3	2		Cr	4	4	4	3	2		Cr		12		3	4	3	2
Semester-I	Type/Area	Core	Core	Elective	Elective	Elective	Semester-II	Type/Area	Core	Core	Elective	Elective	Elective	Semester-II	Type/Area		Core		Core	Elective	Elective	Elective
Sen	Course Name	Advanced Soil mechanics	Advance Foundation Engineering	Elective 1	Elective 2	Elective 3/University Elective I	Sen	Course Name	Rock Mechanics	Soil dynamics and machine foundation	Elective 4	Elective 5	Elective 6/University Elective II	Sem	Course Name		Research Project		Major Project I	Elective 7	Elective 8	Elective 9
	Course Code	GTE501	GTE503	GTE5401/5403/	GTE5301/5303/	GTE5201/5203//		Course Code	GTE502	GTE504	GTE5402/5404/	GTE5302/5304/	GTE5202/5204//		S.No. Course Code		GTE651		GTE601	GTE6401/6403/	GTE6301/6303/	GTE6201/6203/
	S.No.	1	2 (	3	4	5		S.No.	-	7	м	4	S		S.No.	Track 1	1	Track 2	-	2	3	4
			Group A		Group B					Group C		Group D	2:					-		Group E		

				Semester-IV	1									
	S.No.	S.No. Course Code	Course Name	Type/Area Cr L	Cr	_	H	Δ.	CWS	PRS	MTE.	ETE	PRE	P CWS PRS MTE ETE PRE Total Credits
	Track 1	1	STATE	illocate.									-	
in in	-	GTE652+C21	Research Project	Core	12	12 0	0 12	12	0	E,	0	100	0	
d dno io	Track 2	2		y										12
	-	GTE602	Major Project II	Core	12	0	0	12	0		0	100	0	

LIST OF ELECTIVES:	TIVES.												
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	7	T	ď	CWS	PRS	MTE	KTE	PRE
5	Н	GTE5401	Geo-environmental Engineering		4	m	0	7	15	25	20	40	*
	2	GTE5403	Geotechnical Exploration		4	m	0	2	15	25	20	40	1
Elective 1	ო	GTE5405	Application of remote sensing and GIS in Geotechnical Engineering	Elective	4	m	0	2	15	25	20	40	
	4	GTE5407	Cost Management of Engineering Proj		4	т	0	2	15	25	20	40	
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	1	F	Ь	CWS	PRS	MTE	ETE	PRE
		GTE5301	Geotechnical Earthquake Engineering		m	м	0	0	20	0	200	20	
	7	GTE5303	Stability Analysis of Slopes		m	m	0	0	20	0	30	20	
Elective 2	m	GTE5305	Earth Pressure & Samp; Earth Retaining Stre	Elective	ю	m	0	0	20	0	30	20	,
	4	GTE5307	Pavement analysis and Design		m	ю	0	0	20	0	30	20	
	12												
	2.No.	S.No. Course Code	Course Name	Type/Area	ů	r	T	Ь	CWS	PRS	MTE	ETE	PRE
	F	GTE5201	Seminar		2	0	0	2		100	į	,	1
	2	GTE5203	FEM in Geotechnical Engineering		2	2	0	0	20	0	30	20	
Elective 3	m	GTE5205	Offshore Geotechnical Engineering	Elective	2	2	0	0	20	0	30	20	1
	4	GTE5207	Composite Material		2	2	0	0	20	0	30	20	

1   GTE5402   1	Theoretical Soll Mechanics Unsaturated Soil Mechanics Critical State Soil Mechanics Operational Research		-								
2 GTE5404 3 GTE5406 4 GTE5408 6 4 GTE5302 1 GTE5304 3 GTE5304 3 GTE5306 4 GTE5308 1 GTE5202 2 GTE5204 2 GTE5204 3 GTE5208 4 GTE5208 4 GTE5208 5.No. Course Code 7 GTE5403 3 GTE6403 3 GTE6403 3 GTE6403 4 GTE6303 4 GTE6303 5.No. Course Code 7 GTE6303 7 GTE6303 7 GTE6303 7 GTE6303 7 GTE6305 7 GTE6305 7 GTE6305 7 GTE6307 8 GTE6305 7 GTE6307 8 GTE6307 8 GTE6307	Unsaturated Soil Mechanics Critical State Soil Mechanics Operational Research		4	m	0	2	15	25	20	40	15
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S.No. Course Code  1 GTE5202  2 GTE5204  3 GTE5204  3 GTE5206  4 GTE5208  1 GTE6401  2 GTE6403  3 GTE6405  4 GTE6405  4 GTE6301  2 GTE6303  3 GTE6303  3 GTE6304  5.No. Course Code  1 GTE6307  8.No. Course Code  1 GTE6305  4 GTE6305  8.No. Course Code	Uncertainties, risk and reliability in Geote		6	m	0	0	20	0	30	20	.00
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S.No. Course Code  1 GTE6401  2 GTE6403  3 GTE6405  4 GTE6407  S.No. Course Code  1 GTE6301  2 GTE6303  3 GTE6305  4 GTE6307  Course Code  S.No. Course Code	Numerical and Analytical Method in Geon	Elective	2	2	0	0	70	0	30	20	÷
S.No. Course Code  1 GTE6401  2 GTE6403  3 GTE6405  4 GTE6407  S.No. Course Code  1 GTE6301  2 GTE6303  4 GTE6305  4 GTE6307  S.No. Course Code	Waste to Energy		2	7	0	0	20	0	30	20	ý
S.No. Course Code  1 GTE6401  2 GTE6403  3 GTE6405  4 GTE6407  S.No. Course Code  1 GTE6301  2 GTE6303  4 GTE6305  4 GTE6307  S.No. Course Code											
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2 GTE6403 3 GTE6405 4 GTE6407 S.No. Course Code 1 GTE6301 2 GTE6303 4 GTE6307 5.No. Course Code	Plasticity & Fracture Mechanics in Rock St		4	е	0	7	15	25	20	40	
3 GTE6405 4 GTE6407  S.No. Course Code  1 GTE6301 2 GTE6303 3 GTE6305 4 GTE6307 S.No. Course Code	Theory of Elasticity and Plasticity in Geom		4	3	0	2	15	25	20	40	9
4 GTE6407 S.No. Course Code 1 GTE6301 2 GTE6303 4 GTE6307 A GTE6307 S.No. Course Code	Design of Underground/Sub Structures	Elective	4	3	0	2	15	25	20	40	b)
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2 GTE6303 3 GTE6305 4 GTE6307 S.No. Course Code	Geosynthetics		3	m	0	0	20	q	30	20	
3 GTE6305 4 GTE6307 S.No. Course Code	Ground Improvement Techniques		6	m	0	0	20	0	90	20	v
GTE6307 - Course Code	Excavation Technology	Elective	æ	m	0	0	20	٥	30	20	ï
Course Code	Probability and Statistical Methods in Eng		Э	m	0	0	20	0	93	20	¥
Course Code											
7	Course Name	Type/Area	Ċ	L	H	Ы	CWS	PRS	MTE	ETE	PRE
2 GTE6201	Design of Underground Excavations		7	2	0	0	20	Q	30	20	0
GTE6203	Foundations on Weak Rocks		2	2	0	0	20	0	30	20	0
	Geotechnical Design Studio	!	7	0	0	4	Ü	8		×	9

DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION

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	Course Name	Bioenergy	Industrial Plant Biotechnology	Elective 1	Elective 2	Elective 3/University Elective I	S DUMPNING HOLDER	Course Name	Funtional Genomics and proteomics	Bioprocess engineering and reactor design	Elective 4	Elective 5	Elective 6/University Elective II	S	Course Name		Research Project	The state of the s	Major Project I	Elective 7	Elective 8	Elective 9
	S.No. Course Code	IBT501	IBT503	IBT5401/5403/	IBT5301/5303/	IBT5201/5203//		S.No. Course Code	IBT502	IBT504	IBT5402/5404/	IBT5302/5304/	IBT5202/5204/ IIEC5202/5204/		Course Code		IBT651		BT601	IBT6401/6403/	IBT6301/6303/	IBT6201/6203/
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LIST OF ELECTIVES:	IIVES:				-	-	ŀ	t	Ļ	₽	L	-	300
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	-	IBT5401	Bioinstrumentation		4 3		0 2		15	25	20	40	S)
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Elective 1	1 (1	IBT5405		Elective	4 4		00		20		30	20	
	4	IBT5407	Recombinant DNA Technology		4 4		00		20		30	20	Z -
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	S.No.	Course Code	Course Name	Type/Area	ඊ	L	H	Ы	CWS	PRS N	MTE	ETE	PRE
	н	1815301	Industrial Microbiology and Fermentation Technology		3		0	0	20	7	8	20	eria.
	2	1BT5303	Food Engineering & Biotechnology		8		0	0	20		30	20	924
Elective 2	m	IBT5305	Green Energy	Elective	9		0	0	20		30	20	200
	4	1875307	Medical Biotechnology and Health Care		3 3		0	0	20		30	20	
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	2	IBT5203	Nutritional biochemistry		2	2	0	0	20		30	20	304
Elective 3	m	IBT5205	Algal Biotechnology	Elective	2	2	0	0	20	50	30	20	0
	4	IBT5207	Applied molecular biology and genetics engineering		7	2	0	0	20	e e	30	22	
	S.N.	Course Code	Course Name	Type/Area	ż	ī	T	P	CWS ]	PRS 1	MTE	ETE	PRE
4	H	_	Advanced Genetic Engineering		4	m	0 2		15	25	20	40	四
	2	IBT5404	Biopolymer Technology		4	4	0 0		20	0.451	30	20	, State
Elective 4	m	IBT5406	Quality Management	Elective	4	4	0		20	6	30	20	24
	4	IBT5408	Plant Molecular Farming		4	4	0		20		30	20	50.00
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Course Name Nanobiotechnology Biosensor Technology Advanced Computational Genomics Food Microbiology Course Name Enzyme Technology and Industrial Applications Typ						nal Genomics d Industrial Applications vanced Biochemistry treatment	ology hnology hnology hnology and udustrial Applications ology Advanced Biochemistry chemistry te water treatment shology	nal Genomics d Industrial Applications lvanced Biochemistry treatment	nal Genomics d Industrial Applications lvanced Biochemistry treatment	nal Genomics d Industrial Applications vanced Biochemistry treatment	nal Genomics d Industrial Applications vanced Biochemistry treatment	al Genomics Industrial Applications reatment IPR
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BT5208 BT5208 Course Code	BT5206   BT5208   Course Code   BT6401	BT5206   BT5208   Course Code   BT6401   BT6403	BT5206   BT5208   Course Code   BT6401   BT6403   BT6407	BT5206   BT5208   Course Code   BT6401   BT6403   BT6407   BT6407	BT5206   BT5208   Course Code   BT6401   BT6407   BT6407   BT6407   BT6407   BT6301   BT630	BT5206   BT5208   BT5208   BT6401   BT6401   BT6405   BT6407   BT6407   BT6301   BT6303   B	BT5206   BT5208   BT5208   BT6401   BT6403   BT6407   BT6407   BT6407   BT6301   BT6303   BT6303   BT6303   BT6305   B	BT5206   BT5208   BT5208   BT6401   BT6401   BT6403   BT6407   BT6407   BT6301   BT6303   BT6303   BT6307   BT6307   BT6307	BT5206   BT5208   BT5208   Course Code   BT6401   BT6405   BT6405   BT6405   BT6301   BT6301   BT6303   BT6303   BT6303   BT6305   BT6307	BT5206   BT5208   BT5208   BT5208   BT6401   BT6403   BT6405   BT6405   BT6407   BT6303   BT6303   BT6305   BT6305   BT6305   BT6305   BT6201   B	BT5206   BT5208   BT5208   BT5208   BT6401   BT6403   BT6405   BT6407   BT6301   BT6302   BT6307   BT6307   BT6203   B	BT5206   BT5208   BT5208   BT5208   BT5208   BT6401   BT6403   BT6405   BT6405   BT6301   BT6301   BT6302   BT6307   BT6201   BT6203   BT6203   BT6203   BT6203   BT6203   BT6205   B
BT5208   Course Code  BT6401	BT5208   Course Code  BT6401	IBT5208  Course Code IBT6401 IBT6403 IBT6405	BT5208  Course Code	BT5208   Course Code	BT5208   Course Code	IBT5208  Course Code IBT6401 IBT6403 IBT6405 IBT6405 IBT6407 Course Code IBT6301 IBT6303	BT5208   Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   Course Code   BT6301   BT6303   BT6303   BT6303   BT6303   BT6305	BT5208   Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   BT6301   BT6303   BT6303   BT6307   BT6307   BT6307   BT6307	BT5208   Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   Course Code   BT6301   BT6303   BT6305   BT6305   BT6307   Course Code   Code   Course Code   Course Code   Course Code   Course Code   Code	BT5208   Course Code   BT6401   BT6403   BT6405   BT6407   BT6407   BT6301   BT6303   BT6305   BT6307   BT6307   BT6307   BT6201   BT620	BT5208   Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   BT6301   BT6303   BT6303   BT6307   BT6307   BT6201   BT6203   BT620	BT5208   Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   BT6301   BT6303   BT6305   BT6307   BT6201   BT6201   BT6201   BT6205   BT620
o. Course Code 18T6401	Course Code 18T6401 18T6403	Course Code 18T6401 18T6403 18T6405	Course Code 18T6401 18T6403 18T6405	Course Code  BT6401  BT6403  BT6405  BT6407  Course Code	Course Code 18T6401 18T6403 18T6405 18T6407 Course Code	Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   Course Code   BT6301	Course Code   BT6401   BT6403   BT6405   BT6405   BT6407   Course Code   BT6301   BT6303   BT6303	Course Code  BT6401  BT6403  BT6405  BT6405  BT6407  Course Code  BT6301  BT6303  BT6307	Course Code  18T6401  18T6403  18T6405  18T6407  Course Code  18T6301  18T6303  18T6305  18T6305  18T6305  Course Code	Course Code 18T6403 18T6405 18T6405 18T6407 Course Code 18T6301 18T6305 18T6305 18T6307 Course Code	Course Code   18T6401   18T6403   18T6405   18T6407   18T6301   18T6301   18T6307   18T6307   18T6201   18T6203   18	Course Code  BT6403  BT6403  BT6405  BT6405  BT6407  Course Code  BT6301  BT6303  BT6303  BT6303  BT6304  BT6201  BT6201  BT6205
18T6401	IBT6401 IBT6403	IBT6403 IBT6403 IBT6405	BT6401   BT6403   BT6405   BT6407	18T6401 18T6403 18T6405 18T6407 Course Code	18T6401 18T6403 18T6405 18T6407 Course Code	18T6401 1BT6403 1BT6405 1BT6407 Course Code 1BT6301	IBT6401   IBT6403   IBT6405   IBT6407   Course Code   IBT6301   IBT6303   IBT6303	IBT6401 IBT6403 IBT6405 IBT6407 Course Code IBT6301 IBT6303 IBT6305 IBT6307	18T6401   18T6403   18T6405   18T6407   18T6301   18T6303   18T6303   18T6305   18T6307	BT6401   BT6403   BT6405   BT6407   BT6301   BT6301   BT6305   BT6305   BT6307   BT6201	BT6401   BT6403   BT6405   BT6407   Course Code   BT6301   BT6305   BT6305   BT6305   BT6201   BT6203	BT6401   BT6403   BT6403   BT6405   BT6405   BT6301   BT6301   BT6303   BT6307   BT6201   BT6203   BT6203   BT6205   B
	IBT6403	IBT6403	IBT6403 IBT6405 IBT6407	IBT6403     Metabolic Engineering       IBT6405     Vaccine Technology Advanced Biochemistry       IBT6407     Advanced Biochemistry       Course Code     Course Name	IBT6403     Metabolic Engineering       IBT6405     Vaccine Technology Advanced Biochemistry       IBT6407     Advanced Biochemistry       Course Code     Course Name       IBT6301     Industrial waste water treatment	IBT6403     Metabolic Engineering       IBT6405     Vaccine Technology Advanced Biochemistry       IBT6407     Advanced Biochemistry       Course Code     Course Name       IBT6301     Industrial waste water treatment       IBT6303     Metagenomics	IBT6403         Metabolic Engineering           IBT6405         Vaccine Technology Advanced Biochemistry           IBT6407         Advanced Biochemistry           Course Code         Course Name           IBT6301         Industrial waste water treatment           IBT6303         Metagenomics           IBT6305         Transgenic Technology	IBT6403         Metabolic Engineering           IBT6405         Vaccine Technology Advanced Biochemistry           IBT6407         Advanced Biochemistry           Course Code         Course Name           IBT6301         Industrial waste water treatment           IBT6303         Metagenomics           IBT6303         Transgenic Technology           IBT6307         Biomaterials	IBT6403         Metabolic Engineering           IBT6405         Vaccine Technology Advanced Biochemistry           IBT6407         Advanced Biochemistry           Course Code         Course Name           IBT6301         Industrial waste water treatment           IBT6303         Metagenomics           IBT6305         Iransgenic Technology           IBT6307         Biomaterials           Course Code         Course Name	IBT6403         Metabolic Engineering           IBT6405         Vaccine Technology Advanced Biochemistry           IBT6407         Advanced Biochemistry           Course Code         Course Name           IBT6301         Industrial waste water treatment           IBT6302         Metagenomics           IBT6303         Iransgenic Technology           IBT6305         Biomaterials           Course Code         Course Name           BIG501         Bioethics, Blosafety and IPR	IBT6403         Metabolic Engineering           IBT6405         Vaccine Technology Advanced Biochemistry           IBT6407         Advanced Biochemistry           Course Code         Course Name           IBT6301         Industrial waste water treatment           IBT6303         Metagenomics           IBT6304         Industrial waste water treatment           IBT6305         Transgenic Technology           IBT6307         Biomaterials           Course Code         Course Name           IBT6201         Bioethics, Blosafety and IPR           IBT6203         Bioprocess Plant Design	IBT6403         Metabolic Engineering           IBT6405         Vaccine Technology Advanced Biochemistry           IBT6407         Advanced Biochemistry           Course Code         Course Name           IBT6301         Industrial waste water treatment           IBT6303         Metagenomics           IBT6304         Transgenic Technology           IBT6307         Biomaterials           Course Code         Course Name           BT6201         Bioethics, Blosafety and IPR           IBT6203         Bioprocess Plant Design           BT6203         Advanced Animal Biotechnology

# DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN ENVIRONMENTAL ENGINEERING (ENE)

		Sem	Semester-1						4			E C	9
no	S.No. Course Code	Course Name	Type/Area	ů	T	H	a.	CWS	PRS	MIE	212	PKE	Lotal Credits
Z	ENES01	Water Pollution	Core	4	3	0	2	15	25	20	40	¥	
Z	ENES03	Air Pollution & Control	Core	4	3	0	2	15	25	20	40	36.]	
12	ENES401/5403/	Elective 1	Elective	4	3/4	0	0 2/0	15/20	25/0	20/30	40/50	æ	17
604	ENES301/5303/	Elective 2	Elective	3	3/2	0	0 0/2	20/15	0/25	30/20	50/40		
63 6	ENES201/5203/	Elective 3/University Elective I	Elective	2	2	0	0	20	(4)	30	50	9.	• :
4		Sem	Semester-II							4			
7.4	S.No. Course Code	Course Name	Type/Area	Ċ	L	Т	Ь	CWS	PRS	MTE	ETE	PRE	Total Credits
	ENES02	Water Engineering Design	Core	4	3	0	2	15	25	20	40	1 Eq.	
	ENES04	Solid Waste Management	Core	4	3	0	2	15	25	20	40	ħ:	
	ENE5402/5404/	Elective 4	Elective	4	3/4	0	0/2/0	15/20	25/0	20/30	40/50	2	17
	ENES302/5304/	Elective 5	Elective	3	м	0	0	20	(*)	30	20	19	
1673	NES202/5204/	ENES202/5204// Elective 6/University Elective II	Elective	2	2	0	0	20		30	80	÷	
			Semester-III									<i>i</i>	
	S.No. Course Code	Course Name	Type/Area	C	J	H	А	CWS	PRS	MTE	ETE	PRE	Total Credits
	ENE651	Research Project	Core	12									
	ENE601	Major Project I	Core	е						40	8		12
[43]	ENE6401/6403/	Elective 7	Elective	4	3/4		0 2/0	15/20 25/0	25/0	20/30 40/50	40/50		
[1]	ENE6301/6303/	Elective 8	Elective	т	3/2		0 0/2	20/15	0/25	30/20 50/40	50/40	ĸ	
111	ENE6201/6203/	Elective 9	Elective	7	7	0	0	20	Ð	30	20	i	

			Semester-IV	er-IV						İ				
	S.No.	S.No. Course Code	Course Name	Type/Area	ర	'n	F	<u>a</u>	P CWS PRS MTE ETE PRE	PRS	MTE	ETE	PRE	<b>Retail</b> (Credits
:E-7	Track 1													
[ ]	-	ENE652	Research Project	Core	12	0	0	12	0	a	0	100		!
Group r	Track 2			le.										
	-	ENE602	Major Project II	Core	12	0	0	12	0	¥	0	100		

List of Elective Courses

LIST OF ELECTIVES:	: TIVES :			**			1						
	S.No.	S.No. Course Code	Course Name	Type/Area	Ö	T	Ţ	Ы	CWS	PRS	MTE	ETE	PRE
:•:	٦	ENE5401	Industrial Wastewater Treatment		4	3	0	2	15	25	20	40	0
	2	ENE5403	Planning & Design of Environmental Services		4	4	0	0	20		30	50	r
Elective 1	m	ENES40S	Groundwater & Seepage	Elective	4	4	0	0	20	a l	30	20	
			518-50										
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	T	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	1	ENE5301	Environmental Chemistry & Microbiology		m	2	0	2	15	25	20	40	
	2	ENE5303	Occupational Safety & Health		3	3	0	0	20	*	30	20	,
Elective 2	3	ENE5305	Instrumentation	Elective	e	2	0	2	15	25	20	40	,
		2											
	S.No.	S.No. Course Code	Course Name	Type/Area	ර	7	Т	Д	CWS	PRS	MTE	ETE	PRE
	1	ENE5201	SEMINAR		2	0	0	2	7	100	(4)	×	
	2	ENE5203	Advanced Mathematics & Statistics		2	2	0	0	20	,	30	20	*
Elective 3	ო	ENE5205	Design of Hydraulic Structures	Elective	2	2	0	0	20	(0)	30	20	

	S.No.	S.No.  Course Code	Course Mame	Typewica	נ	7	-	-	CWD	rks	MIE	212	Z.E.
	1	ENE5402	Global Warming & Climate Change		4	4	0	0	20		30	20	(8)
	2	ENE5404	Waste Containment & Remediation Technology		4	3	0	2	15	25	20	40	×
Elective 4	m	ENE5406	Environmental Planning & Management	Elective	4	4	0	0	70		30	20	
												i lie	
	N. C.	Course Code	Course Name	Type/Area	ప	T	T	Ь	CWS	PRS	MTE	ETE	PRE
	-	ENF5302	MINOR PROJECT		m	0	0	19	in .	40			9
	2	ENE5304	Environmental Monitoring & Assessment		m	3	0	0	20	(A)	98	20	
Elective 5	m	ENE5306	Green Technology & Sustalnability	Elective	ო	3	0	0	20		30	20	X
						÷							
	N.	Course Code	Course Name	Type/Area	ئ	T	T	P	CWS	PRS	MTE	ETE	PRE
	-		Environmental Policy & Law		2	2	0	0	20	÷	30	20	÷
	1	FNES204	Human Values & Ethics		7	2	0	0	20	•	30	20	8
Elective 6	1			Elective									
	S.No.	Course Code	Course Name	Type/Area	రే	r	Ţ	ط	CWS	PRS	MTE	ETE	PRE
	-	ENE6401	Environment Impact Assessment & Audit		4	4	0	0	20	Ė	30	20	S.
	2	ENE6403	Remote Sensing & GIS		4	3	0	2	15	25	20	40	ii2
Elective 7				Elective									
					1		į	6	9	200	MATERIAL	i i	TOTA
	S.No.	Course Code	Course Name	Type/Area	ל	7	-	4	CW3	L L	TATA	ara	3
	н	ENE6301	Air Quality Modeling		m	2	0	2	a	2	707	40	e:
	2	ENE6303	Life Cycle Assessment		m	m	0	0	20		30	20	
Elective 8				Elective									
	S.No.	Course Code	Course Name	Type/Area	ర	7	T	Ъ	CWS	PRS	MTE	ETE	PRE
	-	-	Hazardous Waste Management		2	2	0	0	20	×	30	20	•0
	,	ENE6203	Bioremediation		2	2	0	0	20	ĸ	9	20	11
Elective 9	1			Elective									
									8				

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN HYDRAULICS & WATER RESOURCES ENGINEERING (HFE)

			Semester-I	ter-1										
	S.No	S.No. Course Code	Course Name	Type/Area	ů	1	T	Ā	CWS	PRS	MTE	ETE	PERF	PRE Batal Cooling
Group A	and .	HFE501	Computational Hydraulics	Core	4	m	0	7	13					
	7	HFE503	Advanceed fluid Mechanics	Core	4	m	0	2	15	52	20	40		
	m	HFE5401/5403/	Elective 1	Elective	4	m	0	2	15	25	20	40		LF.
Group B	4	HFE5301/5303/	Elective 2	Elective	т.	2	0	0	20		30	20	1000	
	2	HFE5201/5203//	Elective 3/University Elective I	Elective	2	2	0	0	20		30	50		
			Semester-II	er-II										
	S.No.	S.No. Course Code	Course Name	Type/Area	ప	7	۲	Ъ	CWS	PRS	MTE	ETE	PRE	Wotel Crodits
Group	-	HFE502	Water Resources Systems Planning and	Core	4	m	0	7	15	25	20	40	1	
	2	HFE504	Advanced open channel Hydraulics	Core	4	m	0	2	15	25	20	40	-	
	3	HFES402/5404/	Elective 4	Elective	4	m	0	12	15	25	20	40	-	11.3
Group D	4	HFE5302/5304/	Elective 5	Elective	3	m	0	0	20		30	20	1450	
	'n	HFE5202/5204//	Elective 6/University Elective II	Elective	61	2	0	0	20		30	05	1	
			Semester-III	r-III	21									
	S.No.	Course Code	Course Name	Type/Area	ర	L	H	Д	CWS	PRS	MTE	ETE	PRE	PRE TartikOredits
	Track 1	1												
	-	HFE651	Research Project	Core	12	0	0	12	0	54	0	100	0	
	Track 2	2	SAPERA PERSONAL PROPERTY OF THE PERSONAL PROPE											
Group F	-	HFE601	Major Project I	Core	3	0	0	9	0	7.	0	100	Q	## CH
	2	HFE6401/6403/	Elective 7	Elective	4	m	0	7	15	25	20	40	1	
	т	HFE6301/6303/	Elective 8	Blective	3	m	0	0	20		30	82		
	4	HFE6201/6203/	Elective 9	Elective	2	2	0	0	20	,	30	50	-	
			Semester-IV	r-IV										
	S.No.	S.No. Course Code	Course Name	Type/Area	ర్	T	H	Д	CWS	PRS 1	MTE	ETE	ME	PRE Trutal Credits
	Track 1												S-2	
1	-	HFE652	Research Project	Core	12	0	0	12	0		0	100	0	
4	Track 2	2											THE	67 80
	-	HFE602	Major Project II	Core	12						40	09	1	

List of Elective Courses

Course Code         Course Name         Type/Area         Cr. L. T. P. P. CNN PASS NATE         FRESADT         FRESADT         FRESADT         A 3 0 0 2 15 5 20         A 3 0 0 0 2 15 5 20         A 3 0 0 0 2 15 5 20         A 3 0 0 0 2 15 5 20         A 3 0 0 0 2 10 5 20         A 3 0 0 0 2 10 5 20         A 3 0 0 0 0 2 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0         A 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S.No. 2 2 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	urse Code E5401		Type/Area	င်	7	-	T	_	-	_	FIE	7.5
1	2 2 3 8 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	E5401	National Hydrology										
2         HEESOGS         Coarstal Engineering         Fleetive         4         3         0         2         15         25           4         HEESOGS         Coarstal Engineering         4         3         0         2         15         25           5.N.o.         Course Code         Course Name         Course Name         Crush Course Code         1         7         7         1         7         7         1         25         25         1         25         25         1         25         25         1         25         25         1<	3 3 4 4 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1		Tanana and Tanana and		4	Э	0	+	+	+	4	40	
HeESOT   HeESOT   Systems Engineering   HeESOT   Systems Engineering   HeESOT   Systems Engineering   HeESOT   Systems Engineering   HeESOT   Systems Engineering   HeESOT   Systems Engineering   HeESOT   Systems Engineering   HeESOT   Systems Engineering   S.No. Course Code   Course Name   Cou	3 8 8.No.	55403	Environmental Hydraulics		4	m	0	7	+	25	+	40	
4         HEEAGOT         4         3         0         2         15         25           S.No.         Course Code         Course Name         Type/Area         Cr.         L.         T.         P.         CNS         PRS         N           1         HEESGOS         Secliment Transport         Elective         3         3         0 <td>S.No.</td> <td>55405</td> <td>Coastal Engineering</td> <td>Elective</td> <td>4</td> <td>m</td> <td>0</td> <td>2</td> <td></td> <td>25</td> <td>+</td> <td>40</td> <td></td>	S.No.	55405	Coastal Engineering	Elective	4	m	0	2		25	+	40	
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS           1         HFESSOS         Water Power Engineering         3         3         0         0         20         0		E5407	Systems Engineering		4	m	0	7	+	25	+	40	ě
1   HEE301   Sectione   Course Power Engineering   Show   Course Code   Course Power Engineering   Show   Course Code   Course Name   Course		-	Courses Mana	Tvne/Area	ن	-	H	+	-	+	-	ETE	PRE
1         HEE3011         George-Information Engineering         Elective         3         3         0         0         20         0           3         HEE303         Sediment Transport         Sediment Transport         A HEE303         3         3         0	Т	urse Cone	Motor Dawer Englopering	37	8	m	0	0	20	0	30	20	4
A HESSOR   Fig. 2002   Fig.		E3301	Geotechnical Farthquake Engineering		m	m	0	0	20	0	30	50	2
S.No.         Course Code         Course Name         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. C. W.S. P.R.S. Infection         Type/Area         Cr. L. T. P. P. C.W.S. P.R.S. Infection         Type/Area         Cr. L. T. T. P. C.W.S. P.R.S. Infection         Type/Area         Trype/Area         Cr. L. T. T. P. P. C.W.S. P.R.S. Infection         Trype/Area         Cr. L. T. T. P. P. C.W.S. P.R.S. Infection         Trype/Area         Trype/Area         Cr. L. T. T. P. P. C.W.S. P.R.S. Infection         Trype/Area         Trype/Area         Cr. L. T. T. P. P. C.W.S. P.R.S. Infection         Trype/Area <th< td=""><td>1 0</td><td>53503</td><td>Sed/ment Transport</td><td>Elective</td><td>m</td><td>3</td><td>0</td><td>0</td><td>20</td><td>0</td><td>30</td><td>20</td><td></td></th<>	1 0	53503	Sed/ment Transport	Elective	m	3	0	0	20	0	30	20	
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         RBS         RBS         TA         L         T         P         CWS         RBS         RBS         RBS         LBS         <	4	E5307	Water and Soll Conservation Engineering		m	m	0	0	20	0	30	20	24
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         FRS           1         HFES201         Seminar         Envilronmental System Modelling         2         0         0         2         0         0         2         1         100         0 <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td><math>\pm</math></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>200</td>						1		$\pm$	-	-	-	-	200
1         HFESZOLT         Seminar         2         0         0         2         -         100           2         HFESZOS         Environmental System Modelling         2         2         0         <		ourse Code	Course Name	Type/Area	Ď	٦	F	+	-	+	4	313	E E
2         HFE5203         Environmental System Modelling         Elective         2         2         0         20         0         20         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0         0         20         0	1 HR	165201	Seminar		2	0	0	2		100			a .
3         HEESOS         Engineering Risk Analysis         Elective         2         2         0	Г	E5203	Environmental System Modelling		2	2	0	0	20	0	30	20	0
4 HFESO7         Urban Water Infrastructure         Type/Area         C         2         0	m	:E5205	Engineering Risk Analysis	Elective	2	2	0	0	20	0	90	20	0
S.No. Course Code         Course Name         Course Name         Type/Area         Cr         L         T         P         CWS         PRS           1         HFE5402         Irrigation of Flood Control and River Training Works         4         3         0         2         15         25           3         HFE5406         Hydro-Informatics and Simulations         4         3         0         2         15         25           4         HE5508         Hydro-Informatics and Simulations         L         4         3         0         2         15         25           5.No.         Course Code         MINOR PROJECT         T         T         P         T         P         4           2         HE5302         MINOR PROJECT         3         0         0         2         1         4           2         HE5304         Applications of GiS and Remote Sensing in Water Res         3         3         0         0         2         2         1           3         HE5306         Distanter Miteration and Management         Belective         3         3         0         0         0         0         0         0         0         0         0         0	П	:E5207	Urban Water Infrastructure		2	7	0	0	70	0	9 9	22	0
S.No. Course Code         Course Name         Course Name         Course Name         Crouse Application of Gload Control and River Training Works         Type/Area         Crouse Application of Gload Control and River Training Works         Type/Area         Crouse Application of Gload Course Name         Type/Area         Crouse Application of Gload Remote Sensing in Water Residence Sensing in Water Residence Applications of Gload Remote Sensing in Water Residence Applic								7	_	-	-	1	
1         HFE5402         Design of Flood Control and River Training Works         4         3         0         2         15         25           2         HE5404         Inrigation and Drainage Engineering         4         3         0         2         15         25           3         HE5406         Hydro-Informatics and Simulations         4         3         0         2         15         25           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         4         4         3         0         2         15         25           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         4         4         3         0         2         15         25           4         HE5302         MINOR PROJECT         3         0	S.No. Co	nurse Code	Course Name	Туре/Агеа	ڻ	r	ы	7		-	-	ETE	PRE
2         HEESA04         Intrastlon and Drainage Engineering         Elective         4         3         0         2         15         25           3         HEESA06         Hydro-Informatics and Simulations         4         3         0         2         15         25           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         7         4           1         HEES302         MINOR PROJECT         3         0<	Г	E5402	Design of Flood Control and River Training Works		4	m	0	2	15	25	20	64	٠
3         HEESAGE         Hydro-Informatics and Simulations         Elective         4         3         0         2         15         25           4         HEESAGE         Hydro-Informatics and Simulations         Image: Contract Code         Image: Contract Code         Image: Contract Code         Image: Code	Г	E5404	Irrigation and Drainage Engineering		4	е	0	7	15	55	20	40	ĸ
4         HEESA08         Hydro-Informatics and Simulations         4         3         0         2         15         25	m	:ES406	Hydrometeorology	Elective	4	63	0	2	15	25	20	40	
S.No. Course Code         Course Name         Type/Area         Cr.         L         T         P         CWS         PRS           1         HFE5302         MINOR PROJECT         3         0         0         -         40           2         HFE5304         Applications of GIS and Remote Sensing in Water Res         8         3         3         0         0         20           3         HFE5306         Soll Structure Interaction         Applications and Management         3         3         0         0         20         -		-E5408	Hydro-Informatics and Simulations		4	m	0	2	15	25	20	9	18
S.No.         Course Code         Course Name         Type/Area         Cr.         L.         I.         F. CWS ARS           1         HFE5302         MINOR PROJECT         3         0         0         -         40           2         HFE5304         Applications of GIS and Remote Sensing in Water Res         3         3         3         0         0         20           3         HFE5306         Soll Structure Interaction         Soll Structure Interaction         3         3         3         0         0         20					,		E	t		-	-	T.L.	PRE
1 HFE5302         MINOR PROJECT         3         0         0         40           2 HFE5304         Applications of GIS and Remote Sensing in Water Residents         Elective         3         3         0         0         20         -           3 HFE5306         Soll Structure Interaction         Interest Multiparting and Management         3         3         0         0         20         -		ourse Code	Course Name	Type/Area	בֿ	7	-	+	_	+	+		
2 HFES304         Applications of GIS and Remote Sensing in Water Res         3         3         0         0         20            3 HFES306         Soil Structure interaction         Soil Structure interaction         3         3         0         0         20	1 HE	FE5302	MINOR PROJECT		m	0	0			40	į.		8
3 HFES306 Soil Structure interaction Elective 3 3 0 0 20		FE5304	Applications of GIS and Remote Sensing in Water Re	- oti	m	m	0	0	2		30	22	•
Discrete Adhibation and Management 3 3 0 0 20 -	m	FE5306	Soll Structure Interaction	Elective	m	en en	0	0	20	ĕ	<u>۾</u>	20	Ď,
Hresaus		HFES308	Disaster Mitigation and Management		m	Е	0	0	20		e e	20	7

	S.No.	S.No. Course Code	Course Name	Type/Area	Ö	1	۲	4	CWS	PRS	MTE	FTE	PRF
	1	HFE5202	Ground Water Hydrology		2	7	0	0		-	2 2	200	
	2	HFE5204	Transients in Pipes		2	2	0	0	20	0	8	200	1
Elective 6	m	HFE5206	Offshore Geotechnical Engineering	Elective	2	2	0	0	20	0	e e	200	
	4	HFE5208	Waste to Energy		2	2	0	0	20	0	30	20	
	S.No.	S.No. Course Code	Courses North	**	(					$\rightarrow$			
	H	HFE6401	The Contract of the Contract o	Iype/Area	ე ,	، بد	-	۵,	CWS	. +	MTE	ETE	PRE
	7	HFE6403	Environmental Impact Accompany		4 ,	m	0	7	15	25	20	9	,
Elective 7	m	HFE6405	Material Injury of the International Information	0001100	4	n	0	2	15	25	20	9	•
		1000 CH	water political control and stream sentetion	בוברווגב	4	E)	0	7	15	25	20	40	
	4	Hreb4U/	Stability Analysisof Slopes		4	m	0	2	15	25	20	40	
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	-1	Ē	A	CWS	PRS	MTF	T. E.	PDE
	н	HFE6301	Water Resources Economics		8	m	0	0	_	+	30	202	,
	2	HFE6303	An Introduction to Sustainable development		m	60	0	0	20		30	SS	Γ,
Elective 8	m	HFE6305	Ground Improvement Techniques	Elective	В	m	0	0	20		30	20	
	4	HFE6307	Probability and Statistical Methods in Engineering		m	7	0	7	15	25	20	40	
	O MT-	-										Ŋ	
	S.IVO.	Course Code	Course Name	Type/Area	ů	T	Т	Ь	CWS 1	PRS 1	MTE	ETE	PRE
	-	HFE6201	Subsurface Investigations		7	2	0	0	20		30	20	16
	7	HFE6203	Introduction to Al Techniques		2	2	0	0	20		30	S	
Elective 9	т	HFE6205	Geotechnical Practice for Waste Management System	9	2	2	0	0	20		30	200	9
			The state of the s	רופרוואפ									
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## DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION MASTER OF TECHNOLOGY IN COMPUTATIONAL DESIGN (CDN)

Total Critis Total Crathing Total Credits Total Cultibits 12 12 17 17 PRE PRE PRE PRE 0 100 100 100 20 ETE ETE ETE ETE 20 20 9 9 40 6 9 20 20 40 20 22 40 MTE MTE MTE P CWS PRS MTE 25 30 0 20 30 0 30 40 30 30 20 2 20 0 20 20 PRS PRS PRS 25 25 25 25 25 25 CWS CWS CWS 20 20 0 13 0 12 20 2 13 20 20 15 12 0 15 12 12 12 Д, Ы 0 2 0 0 Ы 0 I 0 0 H 0 0 H 0 1 0 4 ψ Č 12 2 12 Ċ Ç Ç 3 И m Semester-IV Semester-III Semester-II Semester-I Type/Area Type/Area Type/Area Type/Area Elective Elective Elective Elective Elective Elective Elective Elective Elective Core Core Core Core Core Core Core Computational Mechanics of Materials Course Name System Modelling ,Simulation and Elective 6/University Elective II Elective 3/University Elective I Finite Element Method Research Project Research Project Major Project II Major Project I Course Name Course Name Course Name Elective 7 Elective 8 Elective 9 Elective 2 Elective 4 Elective 5 Elective 1 Robotics Analysis CDN5202/5204/... CDN6301/6303/ CDN5201/5203/.. CDN6401/6403/. CDN5301/5303/ CDN5402/5404/. CDN5302/5304/. CDN6201/6203/. CDN5401/5403/. S.No. Course Code Course Code Course Code S.No. Course Code 1 CDN652 CDN602 CDNS03 CDN601 CDN502 CDN504 1 CDN651 CDN501 Track 2 Track 2 Track 1 S.No. S.No. 7 4 9 m 7 Group F Group D Group E Group B Group C Group A

List of Elective Courses

LIST OF ELECTIVES	STIVES												
	S.No	S.No. Course Code	Course Name	Type/Area	ပ်	7	Н	d	CWS	PRS	MTE	ETE	PRE
	1	CDN5401	Advanced theory of Vibration and Cor		4	3	0	7	15	25	20	40	ii.
i	7	CDN5403	Fracture Mechanics		4	в	0	2	15	25	20	40	4
Elective 1	m	CDN5405	Theory of elasticity and plasticity	Elective	4	m	0	2	15	25	20	40	
				MARTINE DAY									
	S.No.	. Course Code	Course Name	Type/Area	ů	1-3	٤	4	CWS	PRS	MTE	FTE	pier
	н	CDN5301	Optimization Techniques in Design	2	m	m	0	0	20		8	2 04	12
	7	CDN5303	Numerical Methods in Engineering		e	п	0	0	2		30	5.	
Elective 2	m	CDN5305	Design of Experiments	Elective	m	3	0	0	20	:4	30	50	
													30
	2										ı		12
	S.No.	Course Code	Course Name	Type/Area	ڻ	'n	T	مر	CWS	PRS	MTE	ETE	PIE.
,	н	CDN5201	Seminar	37	2	0	0	2	4	100	×		3
	2	CDN5203	Smart Structures and Materials		2	2	0	0	20		30	50	许
Elective 3	m	CDN5205	Human Factors in Engineering and Biochemical Design	Elective	2	2	0	0	20		90	20	مِنْ الْحَدِيثِ الْمُ
	4	CDN5307	Design for Manufacture		2	2	0	0	20	•	30	50	4
				1300									Š.
	S.No.	Course Code	Course Name	Type/Area	Cr	Т	T	4	CWS	PRS	MTE	ETE	PHE.
	ч	CDN5402	Engineering Tribology and Bearing De		4	3	0	2	15	25	20	40	- 14
i	2	CDN5404	Rapid Prototyping and Tooling		4	3	0 2	7	15	25	20	40	
Elective 4	m	CDN5406	Innovative Engineering Design	Elective	4	m	0 2	01	15	25	20	40	ند
72				11 11			1						
	S.N.O	,											
	ONT'C	Course Code	Course Name	Type/Area	ڻ	J.	F	4	CWS	PRS	MTE	ETE	PIEE
	4	CDN5302	MINOR PROJECT		m	0	0			40		¥	9
	2	CDN5304	Rotor Dynamics		6	е	0	0	20	,	30	20	4
Cective 5	m	CDN5306	Product Design and Development	Elective	6	м	0	٥	20	Ŕ	30	20	e .
				200		0	Ī						
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	S.No.	S.No. Course Code	Course Name	Type/Area	င်	ľ	Т	Д	CWS	PRS	CWS PRS MTE ETE	ETE	PRE
	ч	CDN5202	Reliability Engineering		2	2	0	0	20	*	30	20	25
	7	CDN5204	Product Life Cycle Management		2	2	0	0	20		30	20	4
Elective 6	9	CDN5206	Noise and Acoustics Design	Elective	2	2	0	0	20		30	20	٠
	S.No.	S.No. Course Code	Course Name	Type/Area	'n	П	T	ы	CWS	PRS	MTE	ETE	PRE
	н	CDN6401	Computational Fluid Dynamics		4	3	0 2	2	15	25	20	40	DC:
	2	CDN6403	Machine Tool Design		4	3	0	0 2	15	25	20	40	24
Elective 7	m	CDN6405	Pressure Vessels and Plping Design	Elective	4	6	0	2	15	25	20	40	×
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	ľ	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	-	CDN6301	Composite Material Technology		6	3	0	0	20	*	30	20	÷
	7	CDN6303	Mechatronic System Design		Э	3	0	0	20		30	20	3
Elective 8	m	CDN6305	Instrumentation and Control Systems	Elective	m	m	0	0	20	*	30	20	è
	S.No.	Course Code	Course Name	Type/Area	Ç	Ţ	T	Ъ	CWS	PRS	MTE	ETE	PRE
		CDN6201	Computer Aided Design		2	2	0	0	20	*	90	20	ė.
	2	CDN6203	Surface Engineering		2	2	0	0	20		30	20	ū
Elective 9	m	CDN6205	Automotive System Design	Elective	7	2	0	0	20		30	ος	٠

DELHI TECHNOLOGICAL UNIVERSITY SCHEME OF EXAMINATION

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Group A

Group B

17

					Semester-II										
				2	CITACSICI -IL										
	S.No.	S.No. Course Code	Course Name		Туре/Агея	Ċ	h	L	Ч	CWS	PRS	MTE	ETE	PRE	Total Cretiits
Group	-	CSE502	Distributed Systems		Core	4	m	0	2	15	25	20	40	7	
	2	CSE504	Advanced Computer Networks	Vetworks	Core	4	т	0	2	15	25	20	40	2 (	
	3	CSE5402/5404/	Elective 4	1 7	Elective	4	m	0	2	15	25	20	40	÷	17
Group D	4	CSE5302/5304/	Elective 5	Z.	Elective	3	က	0	0	20	1000	30	50	Ü	
	5	CSE5202/5204//	Elective 6/University Elective II	Elective II	Elective	2	2	0	0	20		30	50	î	11. July 1999
				Š	Semester-III										SPA
	S.No.	S.No. Course Code	Course Name	100.00	Type/Area	ů	7	T	Д	CWS	PRS	MTE	ETE	PRE	Total Credits
	Track 1		o se vjetodi 190 ili n												
	1	CSE651	Research Project	MANUAL PROPERTY.	Core	12	0	0	12	0	,	0	100	0	
	Track 2	2	100000000000000000000000000000000000000		2										yeard
A all of	1	CSE601	Major Project I		Core	3	11					40	09		12
	2	CSE6401/6403/	Elective 7	DAMP FOR	Elective	4	3/2	0	2/4	10+A34	15	25	50		
	m	CSE6301/6303/	Elective 8		Elective	3	3/2	0	0/2	20/10	15	30/25	50		der
	4	CSE6201/6203/	Elective 9	1	Elective	2	2/1	0	0/2	20/10	0/15	30/25	50	*	

				Semester-IV	7									
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr L	7	Н	P.	CWS	PRS 1	MTE E	TE F	'RE To	CWS PRS MTE ETE PRE Total Credits
	Track 1													
Ş	-	CSE652	Research Project	Core	12	12 0 0	0	12	0		0	100	0	12
Group F	Track 2	2								-				
		1 CSE602	Major Project II	Core	12						40	09	_	

						-							
	S.No.	S.No. Course Code	Course Name	Type/Area	ථ	r	ы	ы	CWS	PRS	MTE	ETE	PRE
	H	CSE5401	Artificial Intelligence and Expert Systems	pe	4	m	0	2	15	22	20	40	•:
	~	CSE5403	Data warehousing and Data Mining	17	4	ю	0	7	15	25	20	40	
	· ·	CSE5405	Design of Embedded Systems		4	2	0	4	15	25	20	40	36
Elective 1	A	CSF5407	Information Retrieval	Elective	4	3	0	7	15	25	20	40	(e)
		CSF5409	Soft Computing		4	3	0	2	15	25	20	40	20
	ه ا	CSE5411	Semantic Web		4	3	0	7	15	25	20	40	20
	_	CSE5413	Machine Learning		4	3	0	2	15	25	20	40	3.
		Course Code	Course Name	Type/Area	Ċ	r	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	,-	CSF5301	Advanced Computer Graphics.		3	2	0	2	15	25	70	40	8
	1	CSE5303	Fault Tolerant and testable Systems.		3	3	0	0	20	*	30	20	
		CSE5305	VLSI Design		3	2	0	7	15	25	20	40	
	4	CSE5307	Parallel Computer Architecture		3	ю	0	0	20		30	20	9
Elective 2	L.	CSF5309	Social Media and Online Marketing	Elective	ю	m	0	0	70	٠	30	50	G.
	9	CSE5311	Reliable System Design		3	3	0	0	20	荆	30	20	540
	_	CSE5313	Robotics Engineering		8	2	0	2	15	25	20	40	W
	S.No.	. Course Code	Course Name	Type/Area	Cr	L	Т	Ь	CWS	PRS	MTE	ETE	PRE
	1	CSE5201	SEMINAR		2	0	0	2	i.	100	э	/4	î.
	2	CSE5203	Distributed Algorithms		7	2	0	0	20	9	30	20	
	cn	CSE5205	Modeling & Simulation		2	ı	0	2	10	15	25	20	T
Elective 3	4	CSE5207	Multivariate Calculus	Elective	2	2	0	0	20		30	20	4
	r.	CSE5209	Ethical Hacking		7	2	0	0	20		30	20	¥

Type/Area Cr L T P CWS PRS MTE ETE  Flective 4 3 0 2 15 25 20 40  Flective 4 3 0 2 15 25 20 40  Type/Area Cr L T P CWS PRS MTE ETE  3 3 0 0 2 15 25 20 40  Type/Area Cr L T P CWS PRS MTE ETE  3 3 0 0 2 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0		ω	CSE5211	Software Lab		2	er!	0	2	10	15	25	ίζ	¥
5.No.         Course Code         Course Name         TypeAres         Cr.         1         T         P         CWS         PRS         MTIE         ETF           2         CSES402         Wireless Abooles Communication         4         3         0         2         15         55         20         40           3         CSES405         Software Testing         Software Testing         4         3         0         2         15         25         20         40           4         SES406         Software Testing         Complex Vision         4         3         0         2         15         25         20         40           6         GES412         Optical Networks         Applied Cyptosysty         4         3         0         2         15         25         20         40           5.No         Currse Code         Courrse Name         Complex Policer         3         2         1         7         7         7         1         1         1         1         7         7         1         1         1         1         1         1         1         1         1         1         1         1         1         1		;												
1         CESESA02         Wireless & Mobile Communication         Flertive Cessade         4         3         0         2         15         25         20         40           4         2         GESA04         Digital Image Processing         Flertive Cessade         Flertive Cessade         4         3         0         2         15         25         20         40           5         GESEA08         Computer Vision         Applied Chyptography         Type/Area         C         1         1         25         20         40           5         GESEA12         Optical Networks          Computer Vision         Type/Area         C         1         7         C         1         2         1         2         4         3         0         2         1         2         4         3         0         2         15         4         4         3         0         2         15         4         4         3         0         2         15         4         4         3         0         2         15         4         4         3         0         2         15         4         4         3         0         2         15         4		S.No.		Course Name	Type/Area	Cr	Г	T	Ъ	CWS	PRS	MTE	ETE	PRE
2         CEESAQA         Digital Image Processing         Elective         4         3         0         2         15         25         20         40           4         3         CEESAGG         Software Testing         Elective         4         3         0         2         15         25         20         40           5         CEESA10         Appited Typtography         4         3         0         2         15         25         20         40           6         CEESA12         Optical Networks         Course Name         Type/Area         Cr         L         T         P         CWS         75         20         40           5. No. Course Code         Course Name         Type/Area         Cr         L         T         T         CWS         75         20         40           1         CEESA30         Minton PRODECT         3         2         C         L         T         T         P         CWS         75         20         40         70         2         15         25         20         40         40         40         2         15         2         2         15         2         2         15 <t< td=""><td></td><td>1</td><td>CSE5402</td><td>Wireless &amp; Mobile Communication</td><td></td><td>4</td><td>m</td><td>0</td><td>2</td><td>15</td><td>25</td><td>20</td><td>40</td><td>•</td></t<>		1	CSE5402	Wireless & Mobile Communication		4	m	0	2	15	25	20	40	•
3   CEE406   Software Testing   Elective   4   3   0   2   15   25   20   40     5   CEE408   Computer Vision   Elective   4   3   0   2   15   25   20   40     6   CEE5412   Optical Networks   Course Name   Course Name   CEE5304   Diptical Network Security   CEE5304   Diptical Network Security   CEE5304   Diptical Network Security   CEE5304   Diptical Network Security   CEE5306   Diptical Network Security   CEE5306   Diptical Network Security   CEE5306   Diptical Network Security   CEE5306   Diptical Network Security   CEE5306   Diptical Network Security   CEE5307   Diptical Network Security   CEE5310   CEE5310   Diptical Network Security   CEE5310   CEE5310   Diptical Network Security   CEE5310   CEE5310   Diptical Network Security   CEE5310   CEE5310   CEE5310   Diptical Network Security   CEE5310		2	CSE5404	Digital Image Processing		4	m	0	2	15	25	20	8	
4         CSEE3408         Computer Vision         Tecturo         4         2         0         4         15         25         20         40           5         CSES5410         Applied Cyglography         4         3         0         2         15         25         20         40           S.No.         Course Code         Course Cycle         Course Name         Type/Area         4         3         0         2         15         25         20         40           1         CSE3304         Information and Network Security         3         2         0         2         15         25         20         40           2         CSE3304         Information and Network Security         3         2         0         2         15         25         20         40           3         CSE3304         Information and Network Security         3         3         0         0         2         15         25         20         40           4         CSE3306         Big Data Analytics         Security and Privacy in Social Network Security         3         3         0         0         2         15         25         10         40         2         15	ective 4	e	CSE5406	Software Testing	t d	4	т	0	2	15	25	20	40	
5         CSES 410         Applied Cryptography         Type/Area         Cr         L         T         P         CWS         TS         20         40           S.No.         Course Code         Optical Networks         Type/Area         Cr         L         T         P         CWS         PRS         MTB         EFT           1         CSES302         Information and Network Scurity         Big Data Analytics         3         2         0         2         1         2         1         4         3         0         2         1         4         3         0         0         2         4         3         0         0         2         1         4         3         0         0         2         1         4         3         0         0         2         1         4         3         0         0         2         1         4         3         0         0         2         1         4         3         0         0         2         1         4         3         0         0         2         1         4         0         0         0         0         0         0         0         0         0         0 </td <td></td> <td>4</td> <td>CSE5408</td> <td>Computer Vision</td> <td>בוברוואב</td> <td>4</td> <td>2</td> <td>0</td> <td>4</td> <td>135</td> <td>25</td> <td>20</td> <td>40</td> <td>0</td>		4	CSE5408	Computer Vision	בוברוואב	4	2	0	4	135	25	20	40	0
6 CSES 412         Optical Networks         Type/Area         Cr. 1. T P P CWS         TS S S S S S S S S S S S S S S S S S S		2	CSE5410	Applied Cryptography		4	С	0	7	15	25	20	40	
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTD         ETE           1         CSE5302         MINOR PROJECT         3         -		9	CSE5412	Optical Networks	ı	4	m	0	2	15	25	20	8	
1         CSES302         MINOR PROJECT         3         .		S.No.		Course Name	Type/Area	Ç	T	H	4	CWS	PRS	MTE	ETE	PRE
2         CSES304         Information and Network Security         3         2         0         2         15         25         20         40           3         CSES306         Bioinformatics         3         3         2         0         2         15         25         20         40           5         CSES310         Big Data Analytics         3         3         0         0         2         15         25         20         40           6         CSES310         Probability and Statistical Theory         Elective         3         3         0         0         20         20         20         30         50           7         CSE5314         Business Intelligence         3         3         0         0         20		1	CSE5302	MINOR PROJECT		3	. 10				40		-	09
3         CSE5306         Bioinformatics         3         3         3         0         0         20         2         2         3         5         5         4         5         5         4         5         5         4         5         5         4         5         5         5         4         5         6         5         5         5         5         6         5         6         5         5         5         6         6         5         5         5         7         6         6         5         6         7         1         5         7         6         7         1         5         7         4         5         7         4         5         7         4         5         7         4         5         7         4         5         9		2	CSE5304	Information and Network Security		m	2	0	7	15	25	702	8	
4   CSES308   Big Data Analytics   Security and Privacy in Social Networks     5   CSES310   Probability and Privacy in Social Network     6   CSES314   Probability and Statistical Theory     7   CSES314   Business Intelligence     8   CSES316   Mobile and Celtular Network Security     8   CSES316   Mobile and Celtular Network Security     8   CSES316   Course Name   Type/Area   Cr		m	CSE5306	Bioinformatics		3	3	0	0	20	(0)	30	52	,
Society   Security and Privacy in Social Networks   Elective   3   3   3   0   0   20   20   30   50   50   50   50   50   50   5		4	CSE5308	Big Data Analytics		3	7	0	7	15	25	20	64	
6         CSES312         Probability and Statistical Theory         3         3         3         0         0         20         20         3         50           8         CSES314         Business Intelligence         3         3         3         0         0         20         20         3         50           8         CSES316         Mobile and Cellular Network Security         3         3         0         0         20         20         20         30         50           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         FTE           1         CSE5202         Optimization Tools         Type/Area         Cr         L         T         T         P         CWS         PRS         MTE         FTE           2         CSE5202         Statistical Tools         Geo-Informatics         2         2         0         0         20         2         30         50           4         CSE5208         Security Tools and Applications         Elective         2         2         0         0         20         2         30         50	ective 5	Ŋ	CSE5310	Security and Privacy in Social Networks	-	m	3	0	0	70	j.	30	20	(4)
7         CSE5314         Business Intelligence         3         3         3         3         0         0         20         20         20         3         50           8         CSE5316         Mobile and Celtular Network Security         3         3         3         0         0         0         0         20         -         30         50           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           1         CSE5202         Optimization Tools         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           2         CSE5204         Statistical Tools         Go-Informatics         2         2         0         0         20         -         30         50           3         CSE5208         Geourity Tools and Applications         Elective         2         2         0         0         20         -         30         50           4         CSE5208         Secure Coding         Linear Optimization         Elective         2         2         0         0         0		9	CSE5312	Probability and Statistical Theory		æ	6	0	0	20	٠	30	50	, a
8         CSE5316         Mobile and Celtular Network Security         3         3         3         3         0         0         20		7	CSE5314	Business Intelligence		я	23	0	0	20		30	55	(%
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           1         CSES202         Optimization Tools         2         2         2         0         0         20         30         50           3         CSES204         Geo-Informatics         2         2         2         0         0         20         30         50           4         CSES206         Geo-Informatics         2         2         0         0         20         30         50           5         CSES210         Security Tools and Applications         Elective         2         2         0         0         20         30         50           5         CSES210         Becure Coding         2         2         0         0         20         30         50           6         CSES212         Linear Optimization         2         2         0         0         20         30         30         50           7         CSES214         Advances in Multimedia Technology         2         2         0         0         0         0         0         0		00	CSE5316	Mobile and Cellular Network Security		33	m	0	0	50	1	30	S.	39
S.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           1         CSE5202         Optimization Tools         2         2         0         0         20         2         30         50           2         CSE5204         Statistical Tools         Geo-Informatics         2         2         0         0         20         0         20         30         50           4         CSE5208         Security Tools and Applications         Elective         2         2         0         0         20         2         30         50           5         CSE5210         Secure Coding         2         2         0         0         20         30         50           6         CSE5210         Linear Optimization         2         2         0         0         20         30         30         50           7         CSE5214         Advances in Multimedia Technology         2         0         0         0         2         30         50         50														
1         CSES202         Optimization Tools         2         2         2         0         0         20         20         50         50           2         CSES204         Statistical Tools         CSES204         Statistical Tools         2         2         0         0         20         20         30         50           3         CSES206         Geo-Informatics         Security Tools and Applications         Elective         2         2         0         0         20         20         30         50           5         CSE5210         Secure Coding         2         2         0         0         20         20         30         50           6         CSE5212         Linear Optimization         2         2         0         0         20         2         30         50           7         CSE5214         Advances in Multimedia Technology         2         2         0         0         20         2         30         50				Course Name	Type/Area	Cr	L	T		CWS	PRS	MTE	ETE	PRE
2 CSE5204         Statistical Tools         2 2 2 0 0 0 20         20 50         30 50         50<			CSE5202	Optimization Tools	-	2	2	0	0	20		30	200	,
3         CSES206         Geo-Informatics         2         2         2         0         0         20         20         50         50           4         CSES208         Security Tools and Applications         Elective         2         2         0         0         20         20         30         50           5         CSES210         Secure Coding         2         2         0         0         20         20         30         50           6         CSES212         Linear Optimization         2         2         0         0         20         20         30         50           7         CSES214         Advances in Multimedia Technology         2         2         0         0         20         20         30         50			CSE5204	Statistical Tools		2	2	0	0	20	a	30	202	ì
4   CSES208         Security Tools and Applications         Elective         2         2         0         0         20         30         50           5   CSES210         Secure Coding         2         2         0         0         20         30         50           6   CSES212         Linear Optimization         2         2         0         0         20         30         50           7   CSES214         Advances in Multimedia Technology         2         2         0         0         20         30         50			GSE5206	Geo-Informatics		7	2	0	0	20		30	20	٠.
CSE5210         Secure Coding         2         2         2         0         0         20         20         30         50           CSE5212         Linear Optimization         2         2         2         0         0         20         -         30         50           CSE5214         Advances in Multimedia Technology         2         2         0         0         20         -         30         50	ctive 6		CSE5208	Security Tools and Applications	Elective	7	7	0	0	20	Ģ	30	05	
CSE5212         Linear Optimization         2         2         0         0         20         -         30           CSE5214         Advances in Multimedia Technology         2         2         0         0         20         -         30			CSE5210	Secure Coding		2	2	0	0	20		30	82	
CSE5214 Advances in Multimedia Technology 2 2 0 0 20 30			CSE5212	Linear Optimization		2	2	0	0	20		88	52	
		-	CSE5214	Advances in Multimedia Technology		2	2	0	٥	20	×	30	20	je.

.No. C	S.No.   Course Code	Course Name	Type/Area	ن	7	Е	Ъ	CWS		MTE	ETE	PRE
ΙŅ	CSE6401	Pattern Recognition		4	м	0	2	25	25	20	40	ğ
7 :	CSE6403	Software Project Management		4	m	0	7	15	22	70	40	ĕ
	CSE6405	Cluster & Grid Computing	Flortive	4	m	0	2	15	22	20	9	
	CSE6407	Internet of Things	רוברוואב	4	3	0	2	15	25	20	49	
	CSE6409	Nanotechnology		4	2	0	4	15	22	20	40	
1												
S.No.	Course Code	Course Name	Type/Area	Cr	IJ	Т	Ы	CWS	PRS	MTE	ETE	PRE
10	CSE6301	Natural Language Processing		3	3	0	0	20	¥	30	20	·
$\vdash$	CSE6303	Digital Forensics		3	3	0	0	70	3	30	20	4
10	CSE6305	Game Theory		3	m	0	0	20	Ť	30	20	242
- J	CSE6307	Deep Learning		m	m	0	0	20		30	20	- 4
<u> </u>	CSE6309	Blockchain and applications	Elective	E	m	0	0	20		30	20	34
$\vdash$	CSE6311	Real Time Systems		С	2	0	7	15	25	70	40	
۲	CSE6313	Quantum Computing		м	2	0	2	15	25	20	40	
1												
S.No.	Course Code	Course Name	Type/Area	Cr	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	CSE6201	Research Methodology		2	2	0	0	20	(*	30	20	30
	CSE6203	Enterprise Computing in JAVA	2	2	1	0	2	10	15	25	20	х
	CSE6205	Advances in Internet & Web Technology		2	2	0	0	20	*3	30	50	(4)

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN CONTROL & INSTRUMENTATION ( C&I )

				Semester-I	_									
	S.No.	S.No. Course Code	Course Name	Type/Area	ů	r	T	4	CWS3	SERS	MILE	DEPT.	PREZE	CWS#SERS SMITE STREET PREST FAST G-6415
Group A	-	C&I501	System Theory	Core	4	г	0	2	15	25.35	200 - 200	40	Σ'. - :	
	2	C&1503	Measurement & Instrumentation	Core	4	6	0	2	15	15 17.75	31111111111	, an		
		C&I5401/5403/	Elective 1	Elective	4	m	0	2	15	35.55	120	7.40		2347
Group B	4	C&15301/5303/	Elective 2	Elective	23	m	0	0	200	3	1.20	1	31	201
	5	C&I5201/5203//	Elective 3/University Elective I	Elective	2	2	0	0	20		730 1550	-		
			S	Semester-II								1		
	S.No.	S.No. Course Code	Course Name	Type/Area	ර්	I.	T	4	CWE	Sala	CWS SPEC SAFE METER PRES	T. C. L.	PRE	The Derette
Groun	-	C&I502	Intelligent Control	Core	4	m	0	2	15	15 × 285	100%	(40)	100	
9	2	C&I504	Process Control	Core	4	m	0	2	15	1805		25AD		
	3	C&IS402/5404/	Elective 4	Elective	4	m	0	2	15.55	7.75	1000	OF.	192 24.1	7833
Group D	4	C&I5302/5304/	Elective 5	Elective	3	rr	C	c	20.00	ýš.		- 5	T	
	S	C&15202/5204//	Elective 6/University Elective II	Hective	2	2	0	0	20 6		730.	-	10	
			Sc	Semester-II	_									
	S.No.	Course Code	Course Name	Type/Area	ڻ	J	H	Д	CWS	PRS	MATE, SE	TE	NO.	CWEATHS WINTE, OFTER PROCESS Total Gredits
	Track 1	1250												
	-	C&1651	Research Project	Core	12	0	0	12	0	List of	94 08/80	180	1.50	
	Track 2												10.	
Groun F.	-	C&1601	Major Project I	Core	3				f.C.s	45	0#3	09:4	- 1	72.55
	2	C&16401/6403/	Elective 7	Elective	4	m	0	2	15	25		2.40	13	24930
	м	C&16301/6303/	Elective 8	Elective	3	m	0	0	20		283 S50	50		
	4	C&16201/6203/	Elective 9	Elective	2	2	0	0	20		05 1 059	50	Ų.	

		lat ré		Semester-IV	Λ									
	S.No.	S.No. Course Code	Course Name	Type/Area	Ċ	1	T	<u>r</u>	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credit
	Track 1	1		1100		- /4								
	-	C&1652	Research Project	Core	12	.0	0	12	0 12 0	*	0	0 100	0	12
Group F	Track 2	2												
	-	C&1602	Major Project II	Core	12	. 0	0	0 12	0	6	0	0 100	0	

List of Elective Courses

C&15401   Analog and Digital Electronics   Cxe15401   Analog and Digital Electronics   Cxe15401   Analog and Digital Electronics   Cxe15403   Analog and Digital Electronics   Cxe15403   Control     Cxe15403   Control   Cxe15403   Electrive   A	LIST OF ELECTIVES	IVES:						İ						
1   C&15401   Analog and Digital Electronics   Analog and Digital Electronics   Analog and Digital Electronics   Analog and Digital Electronics   Analog and Digital Electronics   Analog and Digital Electronics   A		S.No.	Course Code	Course Name	Type/Area	Ċ	J	H	Д	CWS	PRS	MTE	ETE	PRE
C&15403   Manufacturing, Automation & Control Control Control Design of Face Section   Control Control Control Code   Control Code   Control Code   Control Code   Control Code   Control Code   Control Code   Control Code   Control Code   Control Code   Control Code   Code Code   Code Code   Code Code   Code Code   Code Code   Code Code Code Code Code Code Code Code		1	C&I5401	Analog and Digital Electronics		4	ю	0	2	15	25	70	40	3
3         C&15405         Biomedical Instrumentation         A 3 0 0 2 15         1         1         2         15         1         2         15         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         3         0         2         1         2         1         4         3         0         2         1         4         3         0         2         1         4         3         0         0         2         1         4         2         1         4         3         3         3         0         0         2         1         4         3         3         3         0         0         2         1         2         1         4         3         3         3         0         0         2         1         2         1         1         4         3         3         3         3         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4 </td <td></td> <td>7</td> <td>C&amp;I5403</td> <td>Manufacturing, Automation &amp; Control</td> <td>į</td> <td>4</td> <td>ო</td> <td>0</td> <td>2</td> <td>15</td> <td>25</td> <td>20</td> <td>40</td> <td>2</td>		7	C&I5403	Manufacturing, Automation & Control	į	4	ო	0	2	15	25	20	40	2
4         CRIE407         Soft Computing Techniques         4         3         0         2         15           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&15301         Estimation         Sixtense         Samination         3         3         9         0         0         20           2         C&15303         Nonlinear Control Theory         Elective         3         3         9         0         0         20           3         C&15307         Optimization Techniques         Systems         3         3         9         0         20         20           4         C&15307         Optimization Techniques         3         3         3         9         0         0         20           5         C&15307         Applied Mathematics         Course Name         Type/Area         Cr         L         T         T         P         CWS           5         C&15201         Stones Code         Course Name         Type/Area         Cr         L         T         T         P         CWS           4         C&15207         Robust Control	tive 1	m	C&15405	Biomedical Instrumentation	Elective	4	3	0	2	15	25	20	40	W
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&15301         Random Processes in Control & Estimation         3         3         3         0         0         20           2         C&15303         Nonlinear Control Theory         Elective         3         3         3         0         0         20           3         C&15303         Nonlinear Control Theory         Elective         3         3         0         0         20           4         C&15307         Optimization Techniques         3         3         0         0         20           5         C&15309         Applied Mathematics         Type/Area         Cr         L         T         P         CWS           5.No. Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           5         C&15203         Networked Control         Elective         2         2         0         0         2         -           4         C&15207         Robust Control         Methodeling Instrumentation         T         T         T         T         T         C<		4	C&15407	Soft Computing Techniques		4	6	0	2	15	25	20	40	-
C&15301   Random Processes in Control & Septembration   Random Processes in Control & Septembration   Septem		S	Course Code	Course Name	Tvne/Area	ů	1	H	A.	CWS	PRS	MTE	ETE	PRE
2         C&15303         Nonlinear Control Theory         Elective         3         3         3         0         0         20           3         C&15305         Systems         3         3         3         3         0         0         20           4         C&15307         Optimization Techniques         3         3         3         3         0         0         20           5         C&15309         Applied Mathematics         Type/Area         Cr         L         T         P         CWS           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           2         C&15203         Networked Control System         Elective         2         2         0         0         2           3         C&15205         Networked Control         Type/Area         Cr         L         T         P         CWS           4         C&15207         Robust Control         Type/Area         Cr         L         T         P         CWS           1         C&15204         Digital Signal Processing         T         4         3         0         2         15 <td></td> <td>-</td> <td>C&amp;15301</td> <td>Random Processes in Control &amp; Estimation</td> <td></td> <td>n</td> <td>m</td> <td>0</td> <td>٥</td> <td>20</td> <td>(i)</td> <td>30</td> <td>50</td> <td>30</td>		-	C&15301	Random Processes in Control & Estimation		n	m	0	٥	20	(i)	30	50	30
3         C&L5305         Design of Fractional Order Systems         Elective         3         2         0         2         20           4         C&L5307         Optimization Techniques         3         3         3         0         0         20           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           3.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           4         C&I5203         Bio Engineering & Control         Elective         2         2         0         0         2         2           3         C&I5203         Networked Control System         Elective         2         2         0         0         2         2           4         C&I5203         Robust Control         System         Type/Area         Cr         L         T         P         CWS           5.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&I5402         Intelligent Instrumentation         A         3         0         2		2	C&15303	Nonlinear Control Theory		3		0	0	20	33	30	20	¥.
4         C&15307         Optimization Techniques         3         3         3         0         0         20           5.No.         Course Code         Course Name         Type/Area         Cr.         L         T         P         CWS           1         C&15203         Bio Engineering & Control         2         0         0         2         -         -           2         C&15203         Bio Engineering & Control         Elective         2         2         0         0         2         -           3         C&15203         Networked Control System         Elective         2         2         0         0         2         0         0         2         0         0         2         0         0         2         0         0         2         0         0         2         0         0         0         2         0         0         0         2         0	ctive 2	m	C&I5305	Design of Fractional Order Systems	Elective	3	2	0	2	20	•	30	50	×
5.No.         Course Code         Applied Mathematics         Type/Area         Cr.         L         T         P         CWS           1         C&ISSO1         SEMINAR         Course Code         Course Code         Course Code         Course Code         C         L         T         T         P         CWS           2         C&ISSO3         Bio Engineering & Control         Elective         2         2         0         0         2         -           3         C&ISSO3         Networked Control System         Elective         2         2         0         0         2         0         0         2         0         0         20         20         0         2         0         0         2         0         0         2         0         0         2         0         0         2         0         0         2         0         0         0         2         0         0         0         2         0		4	C&15307	Optimization Techniques	1. A	3	3	0	0	20	*	30	22	×
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&IS201         SEMINAR         2         0         0         2         -           2         C&IS203         Bio Engineering & Control         2         2         0         0         20           3         C&IS203         Networked Control System         Elective         2         2         0         0         20           4         C&IS207         Robust Control         Type/Area         Cr         1         7         P         CWS           5.No.         Course Code         Course Name         Type/Area         Cr         1         T         P         CWS           1         C&IS402         Intelligent Instrumentation         4         3         0         2         15           2         C&IS404         Digital Signal Processing         4         3         0         2         15           3         C&IS404         Modelling, Identification and         Elective         4         3         0         2         15           4         C&IS408         Power Quality         A         3		2	C&15309	Applied Mathematics		3	3	0	0	20		30	20	10
1         C&15201         SEMINAR         2         0         0         2         -           2         C&15203         Bio Engineering & Control         System         2         2         0         0         20           3         C&15205         Networked Control System         Elective         2         2         0         0         20           4         C&15207         Robust Control         Type/Area         Cr         1         7         P         20           S.No.         Course Code         Course Name         Type/Area         Cr         1         T         P         CWS           1         C&15402         Intelligent Instrumentation         4         3         0         2         15           2         C&15404         Digital Signal Processing         4         3         0         2         15           3         C&15404         Modelling, Identification and Countrol         Elective         4         3         0         2         15           4         C&15408         Power Quality         A         3         0         2         15		S.No.	Course Code	Course Name	Type/Area	Cr	T	L	٩	CWS	PRS	MTE	ETE	PRE
2         C&15203         Bio Engineering & Control         C         2         2         0         0         20           3         C&15205         Networked Control System         Elective         2         2         0         0         20           4         C&15207         Robust Control         T         2         2         0         0         20           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&15402         Intelligent Instrumentation         4         3         0         2         15           2         C&15404         Digital Signal Processing         4         3         0         2         15           3         C&15406         Control         Control         Control         A         3         0         2         15           4         C&15408         Power Quality         A         3         0         2         15		1	C&I5201	SEMINAR		2	0	0	2	8.5	100	*8	Độ	·
3         C&L5205         Networked Control System         Elective         2         2         0         0         20           4         C&L5207         Robust Control         Robust Control         Type/Area         Cr         L         T         0         0         20           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         R         CWS           1         C&L5402         Intelligent Instrumentation         4         3         0         2         15           2         C&L5404         Digital Signal Processing         4         3         0         2         15           3         C&L5405         Control         Control         Flective         4         3         0         2         15           4         C&L5408         Power Quality         4         3         0         2         15		2	C&15203	Bio Engineering & Control		2	2	٥	Q	20	120	30	20	
4         C&L5207         Robust Control         2         2         2         0         0         20           S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&L5402         Intelligent Instrumentation         4         3         0         2         15           2         C&L5404         Digital Signal Processing         4         3         0         2         15           3         C&L5405         Control         Control         Flective         4         3         0         2         15           4         C&L5408         Power Quality         4         3         0         2         15	ctive 3	m	C&I5205	Networked Control System	Elective	2	7	0	0	20	34	30	50	7.
S.No.         Course Code         Course Name         Type/Area         Cr         L         T         P         CWS           1         C&IS402         Intelligent Instrumentation         4         3         0         2         15           2         C&IS404         Digital Signal Processing         4         3         0         2         15           3         C&IS406         Control         Control         Power Quality         4         3         0         2         15           4         C&IS408         Power Quality         4         3         0         2         15		4	C&15207	Robust Control		2	7	0	a	20	8	30	20	ж
1         C&L5402         Intelligent Instrumentation         4         3         0         2         15           2         C&L5404         Digital Signal Processing         4         3         0         2         15           3         C&L5406         Control         Control         4         3         0         2         15           4         C&L5408         Power Quality         4         3         0         2         15		S.No.		Course Name	Type/Area	Cr	Г	T	Q.	CWS	PRS	MTE	ETE	PRE
2         C&IS404         Digital Signal Processing         4         3         0         2         15           3         C&IS406         Control         Control         4         3         0         2         15           4         C&IS408         Power Quality         4         3         0         2         15		1	C&15402	Intelligent Instrumentation		4	3	0	7	15	25	20	40	
3         Cal5406         Control         Power Quality         Power Quality         Elective         4         3         0         2         15           4         Cal5408         Power Quality         4         3         0         2         15		2	C&I5404	Digital Signal Processing		4	m	a	2	15	25	20	40	3
C&15408 Power Quality 4 3 0 2 15	ctive 4	m	C&15406	Modelling, Identification and Control	Elective	4	m	Q	2	15	25	20	40	S!
		4	C&15408	Power Quality		4	3	Q	2	15	25	20	40	ï

	S.No.	S.No. Course Code	Course Name	Type/Area	Ċ	П	Н	Д	CWS	PRS	PRS MTE	- 1	ETE
	Н	C&15302	MINOR PROJECT		m	0	0	10	ş	40		0.0	
Flactive 5	2	C&15304	Computer Communication & Control	i	m	m	0	0	20		30	05	1 _
רופכווגם	m	C&IS306	Analog Filter Design	Elective	m	3	0	0	20		30	20	1
	4	C&I5308	Optimal Control Theory		m	8	0	0	20	į.	30	20	1
	S	C&15310	Digital Image Processing		e	m	0	0	20		30	50	1
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	7	T	Ъ	CWS	PRS	MTE	ETE	
	ч	C&15202	Nature Inspired Algorithms		2	2	0	0	20	. 10	30	20	1
	7	C&15204	Machine Learning		2	2	0	0	20	-63	30	52	
Elective 6	С	C&15206	Adaptive Signal Processing	Elective	2	2	0	0	20		30	20	
	4	C&15208	Special Topics in Control Systems	i.	2	2	0	0	20		30	22	
	S.No.	Course Code	Course Name	Type/Area	ڻ	1	Т	Ъ	CWS	PRS	MTE	KTR	- 4
	П	C&16401	SCADA & Energy Management		4	m	0	2	15	75	20	40	
	2	C&16403	Applications of Control in Power Electronic Systems		4	co	0	2	15	25	20	40	
Elective 7	m	C&16405	Microcontroller & Embedded Systems	Elective	4	m	0	2	15	25	20	40	
	4	C&16407	Digital Instrumentation		4	8	0	2	15	25	20	40	
	S.No.	S.No. Course Code	Course Name	Tvne/Area	ť	-	E	۵	OM/C	ppe	MITTE	Cl. Cl.	
	1	C&16301	ics & Control		5 60	2 ~	, 0	. 0	20 20	e .	30	3 6	
	2	C&16303	Stochastic Control		ю	6	0	0	20		30	20	
Elective 8	3	C&16305	Adaptive Control	Elective	m	m	0	0	20		30	50	
	4	C&16307	Instrumentation Transducers		3	3	0	0	20	٠,	30	50	
	S	C&16309	Advanced Control System Design		3	n	0	0	20		30	20	
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	r	Т	Ъ	CWS	PRS	MTE	ETE	
	1	C&16201	Special Topics in Instrumentation		7	2	0	0	20	9	30	20	
Elective 9	2	C&16203	Special Topics in Signal Processing	Elective	2	2	0	0	20		30	05	
	ю	C&16205	Artificial Intelligence		2	2	0	0	20		30	50	
	4	C&16207	Pattern Recognition		2	2	0	0	20	ş,	30	20	
	u	CP.16300	Dugamy Andiking and Opposite		•	,							

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN BIOINFORMATICS (BIO)

		2	Se	Semester-I										
	S.No.	S.No. Course Code	Course Name	Type/Area	Ċ	T	Т	а	CWS	PRS	MTE	ETE	PRE	Total Credits
1	1	BIO501	Bioinformatics I	Core	4	m	0	2	15	25	20	40		
Group A	2	BIO503	Advanced Proteomics	Core	4	m	0	2	15	25	20	40	×	
	3	BIO5401/5403/	Elective 1	Elective	4	м	0	2	15	25	20	40	<b>(</b> ()	17 %
Group B	4	BIO5301/5303/	Elective 2	Elective	3	ო	0	0	50		30	20	×	
200	2	BIO5201/5203//	Elective 3/University Elective I	Elective	2	2	0	0	20	10)	30	20	240	
			Sel	Semester-II							İ			
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
2	П	BIO502	Bioinformatics II	Core	4	ю	0	2	15.	23	20	40	1390	
oroup .	2	BIO504	High-throughput structural biology	Core	4	c	0	7	15	શ્ર	70	40		
	33	BIO5402/5404/	Elective 4	Elective	4	m	0	2	15	25	20	40		17
Group D	4	BIO5302/5304/	Elective 5	Elective	3	ო	0	0	20	10	30	50	40	
	S	BIO5202/5204//	Elective 6/University Elective II	Elective	2	2	0	0	20	а	30	20		
			Ser	Semester-III	İ									
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE	Total Credits
	Track 1	cl												
	-	BIO651	Research Project	Core	12	0	0	12	0	7	0	100	0	
	Track 2	د2												
, ;		BIO601	Major Project I	Core	3						40	09		12
diono io	7	BIO6401/6403/	Elective 7	Elective	4	ю	0	2	15	25	70	40	ř	
	3	BIO6301/6303/	Elective 8	Elective	3	ო	0	0	70	a	30	50	9	
	4	BIO6201/6203/	Elective 9	Elective	2	2	0	0	20	,	30	20		

9)				Seme	Semester-IV						4				
	S.No.	S.No. Course Code	Course Name	Tyı	Type/Area	Ċ	Cr L	T	A	CWS	PRS	MTE	ETE	PRE	CWS PRS MTE ETE PRE Total Credits
	Track 1	1											1		
	П	1 BIO652	Research Project	Cor	þ	12	0	12 0 0 12 0	12	0	(4)	0	100	0	
Group r	Track 2	2													12
	-	BIO602	Major Project II	Core	<sub>o</sub>	12	0	0	12	0		0	100 0	0	

List of Elective Courses

LIST OF ELECTIVES:	ECTIVE	:S:											
	S.No	S.No. Course Code	Course Name	Type/Area	C	r	T	P	CWS	PRS	MTE	ETE	PRE
	н	BIO5401	Computer Graphics		4	m	0	2	15	25	20	8	C
	2	BIO5403	Computer Aided Drug Design		4	n	0	2	15	25	20	3	C
Elective 1	m	BIO5405	Pharmacogenomics and Personalized Medicine	Elective	4	ന	0	7	15	25	20	9	
	4	BIO5407	OMICS in Medicine	T-W-T-	4	m	0	2	15	25	20	94	0
			COLOR REPORTS CONTRACTOR CONTRACTOR	. 27									
	S.No.	S.No. Course Code	Course Name	Type/Area	Cr	T	T	Ъ	CWS	PRS	MTE	ETE	PRE
	щ	BIO5301	Data Warehousing and Data mining	- Committee	ന	ო	0	0	20		30	Sh.	61
Floctive 2	7	BIO5303	Genomics: From Human Genome Project to Medical Applications	ī	m	ო	0	0	20		30	S.	
	m	BIO5305	Combinatorial Methods in Biopharmaceuticals	Elective	ო	m	0	0	20		30	i S	
	4	BIO5307	Microarray Technology		n	.3	0	0	70		30	20	1
			10000	CREAT C									
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	T	Т	Ь	CWS	PRS	MTE	ETE	PRE
	ч	BIO5201	SEMINAR	2. 11	2	0	0	2	R	100	,	ï	
	7	BIO5203	Database management system		2	1	0	7	20	,	30	50	
Elective 3	m	BIO5205	Analysis of Biological Networks	Elective	7	2	0	0	20		30	ß	ie.
	4	BIO5207	Plant Bioinformatics		2	2	0	0	20	(4)	93	20	1
				Stone (15%)									
	S.No.	Course Code	Course Name	Type/Area	Ċ	L	Т	Ъ	CWS	PRS	MTE	ETE	PRE
	Н	BIO5402	Advanced Genetic Engineering	OT IN I	4	m	0	2	15	25	20	46	(3)

*		ě		PRE	09	E	ı	74	PRE	09	09	e			PRE	,	ů.	D)	8		PRE	24	9	ġ	ž	PRE	ě	1	
40	40	40		ETE		20	20	20	ETE	10		20	(0)		ETE	40	40	40	40		ETE	50	20	20	20	ETE	20	20	20
20	20	70		MTE	9300	30	30	30	MTE	**	a	30	36		MTE	20	20	20	20		MTE	30	30	30	8	MTE	8	30	30
25	25	25		PRS	40	¥		а	PRS	04	40	40	100		PRS	25	25	25	25		PRS		(4)	E	j,	PRS	8	()	(a)
15	15	15		CWS	/16	70	20	20	CWS	P	1960	20	34		CWS	15	15	15	13		CWS	20	20	70	20	CWS	20	20	20
2	2	2		Д	40	0	0	0	Ь	4	4	0	2		Д	2	2	2	2		A.	0	0	0	0	۵	2	0	0
0	0	0		H	0	0	0	0	ы	0	0	0	0		£	0	0	0	0		H	0	0	0	0	Ľ	0	0	0
m	m	m		Г	0	3	8	3	L	0	0	2	0		r	Э	m	m	က		٦	ო	ო	က	m	IJ	0	2	2
4	4	4		Cr	c	က	3	3	င်	2	2	2	2		ర	4	4	4	4		ů	ന്	ო	က	m	Ċ	7	7	7
	Elective		ă	Type/Area			Elective		Type/Area		Elective				Type/Area			Elective			Type/Area		المالة ويناموالة			Type/Area		avi-to-	
Systems Biology	Web Application Development	Image Processing in Medicine		Course Name	MINOR PROJECT	Immunoinformatics	Medical Bioinformatics	Pharmacoinformatics	Course Name	Perl Programming for Bioinformatics	Python Programming for Bioinformatics	Bioethics and IPR	Seminar - II		Course Name	Drug Design and Discovery	Neurobiology	Cell and Molecular Biology	Biostatistics		Course Name	Nanotechnology in Health Care	Resource Planning & Management in Bioinformatics	Advanced Drug Delivery Systems	Artificial Intelligence	Course Name	Design and Analysis of algorithms	Molecular Evolution	Molecular and Cellular Biophysics
B105404	BI05406	Т		o. Course Code		Т	T		S.No. Course Code	8105202					S.No. Course Code	BI06401				П	S.No. Course Code	1 8106301	8106303		Т	S.No. Course Code	1 BIO6201	Т	
1 2	_	ļ_		S.No.	-	1	-		S.N				4		S.N	-	2		_		S.N	Н	,	_	4	S.N		_	
	Elective 4						Elective 5				a ovitor a	בובנו		<b>3</b> 0.1				Elective 7					i	Elective 8				i	Elective 9

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF EXAMINATION
MASTER OF TECHNOLOGY IN BME MEDICAL ENGINEERING (BME)

			A STEEL STATE OF THE PARTY OF T	T-Ialcalina										
	S.No.	S.No. Course Code	Course Name	Type/Area	ڻ	T	T	Ы	CWS	PRS	MTE	RTE	PDE	Total Course
Group A	-	BME501	Human Anatomy and Physiology	Core	4	m	0	2	15	25		-		Managed
	2	BME503	Biomaterials and Clinical Devices	Core	4	4	0	0	20				-	
	3	BME5401/5403/	Elective 1	Elective	4	3/4	0	2/0	15/20 25/0		20/30	40/5		1 E
Group B	4	BME5301/5303/	Elective 2	Elective	m	m	0	٥	20		30	5		
	٧	BME5201/5203/	Elective 3/University Elective I	Elective	2	2	0	0	20 20	(	30	3 05		
			S	Semester-II										
	S.No.	S.No. Course Code	Course Name	Type/Area	Ç	T	T	Д	CWS	PRS	MTE	ETE	PRE	Total Credits
Cronn	-	BME502	Tissue Engineering and Artificial Core	Core	4	ന	0	2	15	25	20	40		
	2	BME504	Immuno-diagnostics and Therapeutics	Core	ч	m	0	2	15	25	20			
	3	BME5402/5404/	Elective 4	Elective	뀩	4	0	0	20	1	30			111
Group D	4	BME5302/5304/	Elective 5	Elective	ŧΠ	m	c	c	20		02	1 2		
	5	BME2/5204/	Elective 6/University Elective II	Elective	2	2	0	0	20	-	30	8 6		,,
			Se	Semester-III										
	S.No.	Course Code	Course Name	Type/Area	Ç	J	Ħ	ď	CWS	PRS	MTE	ETE	PRE	Total Credits.
	Track 1							H						
	1	BME651	Research Project	Core	12	0	0	12	0	Ε,	0	100	0	70.
	Track 2				Alder J	200								N. S.
Group E	1	BME601	Major Project I	Core	8			T			40	09		112
	2	BME6401/6403/	Elective 7	Elective	4	3/4	0	2/0	15/20 25/0		20/30 4	40/50		
- 10	3	BME6301/6303/	Elective 8	Elective	m	m	0	-	50			50		
	4	BME6201/62037	Elective 9	Elective	c	,	c				5			

				Semester-IV	<b>&gt;</b>									λy.
0,3	S.No.	S.No. Course Code	Course Name	Type/Area	ర్	C. I	Т	Д		CWS PRS	MTE	MTE ETE		PRE Socat Credits.
T	Track 1													
ŗ	-	BME652	Research Project	Core	12	0	0	12	0	津	0	100	0	is equi
Group F	Track 2												Z-mores.	
	-	BME602	Major Project II	Core	12	0	0	12	0	Ē	0	100	0	Ave

Flective	Course Code Course Name
Flective   4   4   0   0   20   - 30   50	BME5401 Medical Physics and Biochemistry
Type/Area   A   A   O   O   C   C   C   S   S	BME5403 Instrumentation in Engineering
Type/Area   Cr   L   T   P   CWS   PRS   MTE   ETE	BME5405 Rehabilitation Engineering
Type/Area   Cr	BME5407 Biopolymer Technology
Appendix   Appendix	None Of State of Stat
3   3   0   0   20	10
Sective	BME5303 Infection and Disease
3   3   0   0   0   0   0   0   0   0	BME5305 Molecular Basis of Disorders
Type/Area         Cr         L         T         P         CWS         PRS         MTE         ETE           2         0         0         2         -         100         -	BME5307 Pharmacology and Toxicology
Type/Area   Cr   L   T   P   CWS   PRS   MTE   ETE	
Elective   2   0   0   2   -   100   -     -	Course Code Course Name
Elective   2   2   0   0   20   - 30   50   50   50   50   50   50   50	BME5201 SEMINAR
Elective   2   2   0   0   20   - 30   50   50   50   50   50   50   50	BME5203 Research Methodology
Type/Area   Cr   L   T   P   CWS   PRS   MTE   ETE	BME5205 Advanced Human Genetics
Type/Area Cr L T P CWS PRS MTE ETE  1	BME5207 Protein Engineering
nd Signal  The Signal  The Signal  The Signal A A D D C C C C C C C C C C C C C C C C	A STATE OF S
Elective	Riochweire System
licine Elective 4 4 0 0 20 - 30 30 30 4 4 0 0 20 - 30 4 30 4 0 0 20 - 30	nystem
licine Hecuve 4 4 0 0 20 - 30 4 4 0 0 20 - 30	BME5404 OMICS in Medicine
4 4 0 0 20 - 30	BME5406 Image Processing in Medicine
	BME5408 Industrial Biotechnology

	S.No	S.No.   Course Code	Course Name	Tyne/Area	Ü		£-	۵	SMJ	DDC	CWS PRS MTF	FTE	DDE
	н	BME5302	MINOR PROJECT			c		1		9	TITLE		3 5
8	2	BME5304	Drug Design and Development		"	,				2		,	200
Elective 5	m	BME5306	Neurobiology	Elective	0 0	0 0			200		30	ns s	
	4	BME5308	Oncology		0	, (		9	07	2	30	DS	
			Olicology.	T	7	m	0	0	20		30	20	Ü
	S.No.	Course Code	Course Name	Type/Area	Ö	T	T	4	CWS	PRS	MTE	ETE	PRE
	Н	BME5202	Microarray Technology		2	2	0	0	20		30	C.	,
	2	BME5204	Genetic Manipulation in Medicine		2	2	0	0	20	,	30	25	×
Elective 6	е	BME5206	Hospital Management	Elective	2	2	0	0	20		30	20	
	4	BME5208	Seminar II		2	2	0	0	20	DS.	30	50	10
	o No	2000		:									
	3.IV0.	Course	Course Name	Type/Area	Ů	ı	L	P	CWS	PRS	MTE	ETE	PRE
	Н	BME6401	Bioinformatics		4	3	0	2	15	25	20	40	
	7	BME6403	Biopharmaceuticals		4	4	0	0	20	(10	30	20	12.0
Elective 7	m	BME6405	Biostatistics	Elective	4	4	0	0	20	- Ca	30	20	
	4	BME6407	Molecular and Cellular Biophysics	į	4	4	0	0	20	30	30	50	
			AN Older with 1950										
	S.No.		Course Name	Type/Area	Cr	Г	Т	A.	CWS	PRS	MTE	ETE	PRE
	1	BME6301	Bioethics and IPR		3	en en	0	0	20	10	30	52	W
	7	BME6303	Population Genetics	TO THE PARTY.	3	м	0	0	20	=,	30	52	9
Elective 8	т	BME6305	Artificial Intelligence	Elective	8	т	0	0	20	*	30	50	
	4	BME6307	Biosensors		ы	т	0	0	20		30	20	7
-			C. Perform D. St. Marie										
	S.No.	S.No. Course Code	Course Name	Type/Area	ڻ	T	H	Ч	CWS	PRS	MTE	ETE	PRE
	н	BME6201	Gene Therapy		2	2	0	0	20		30	05	X
	2	BME6203	Entrepreneurship		7	2	0	0	20		30	20	
Elective 9	m	BME6205	Biomechanics	Elective	2	2	0	0	20	ŀ	30	20	
	4	BME6207	Alternative Medicine		2	2	0	0	20		30	20	

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#### Master of Science (M. Sc.) 2019-2021



#### DELHI TECHNOLOGICAL UNIVERSITY

(Estd. by Govt. of NCT of Delhi vide Act 6 of 2009) Shahbad Daulatpur, Bawana Road, Delhi-110042 www.dtu.ac.in

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#### M.Sc. Program

#### Preamble

The University offers following M.Sc. programs in Mathematics, Physics, Chemistry and Biotechnology leading to Master degree in different disciplines. Academic curricula are so devised that a student of one discipline can take some courses of other disciplines offering choice based credit system (CBCS). Such flexibility helps a student to develop his core competence together with the interdisciplinary skills in the area of his/her interest.

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#### Structure of two year M.Sc. program

The two year M.Sc. program comprises of courses divided in five distinct areas, namely: Departmental Core Course (DCC), Ability Enhancement Course (AEC), Skill Enhancement Course (SEC), Department Specific Elective (DSE), General Elective (GE). Credits assigned to various components of the M.Sc. curriculum are given in Table-2 and the broad structure of the program is given in Table-3.

Table-1: M.Sc Programs

S. No.	- Department	Academic Program	Code
1.	Applied Mathematics	M.Sc (Mathematics)	MA
2.	Applied Physics	M.Sc (Physics)	PH
3.	Applied Chemistry	M.Sc (Chemistry)	CH
4.	Biotechnology	M.Sc (Biotechnology)	BT

Table-2: Credits of Different Curricular Components

	URRICULAR COMPONENTS	Credits
(a) Found	lation Course (Common Courses)	X
i.	Communication English (AEC)	4
ii.	Fundamentals of Computers (SEC)	4
	Total	8
(b) Depar	tmental Core Courses (DCC)	s e g
i.	Core Courses	54
ii.	Dissertation	12
	Total	66
	tmental Elective Courses (DSE) / Track-I	24
Grand	Total	98

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Table-3: Course Structure for M.Sc. Program (Maths/Physics)

#### FIRST YEAR

S. No.	Subject Code	Course Title	Credits	Category
1.	MSMA 101	Core-1	4	DCC
2.	MSMA 103	Core-2	4	DCC
3.	MSMA 105	Core-3	4	DCC
4.	MSMA 107	Core-4	4	DCC
5.	MSMA 109	Core-5	4	DCC
6.	MSMA 111	Lab-I	2	DCC
0.	MISIMINITI	Total	22	97 2 2
7.	MSHu 113*	Communicative English	4	AEC

Second Se	Subject Code	Course Title	Credit	Category
1.	MSMA 102	Core-6	4	DCC
2.	MSMA 104	Core-7	4	DCC
3.	MSMA 106	Core-8	4	DCC
4.	MSMA 108	Core-9	4	DCC
5.	MSMA 110	Core-10	4	DCC
	MSMA 112	Lab-2	2	DCC
6.		Total	22	
7.	MSMA 114*	Fundamentals of Computers	4	SEC

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#### SECOND YEAR

S. No.	Subject Code	Course Title	Credit	Category
1.	MSMA 201	Core-11	4	DCC
2.	MSMA 203	Core-12	4 ' 1 ' - 13	DCC
3.	MSMA 205	Dissertation-I	2	DCC
4.	MSMA xxx	DSE-1/Track-I	4	DSE
5.	MSXX xxx	GE-1	4. (4) 1 = 6.	GE
6.	MSMA xxx	DSE-2	4	DSE
	22	Total Lines	22	

विद्याद्वास्त्री

S. No.	Subject Code	Course Title	Credit	Category
1010	MSMA 202	Core-13	4	DCC ned base w
2.	MSMA 204	Dissertation-II	8 255 2 29	DCC
- 3	MSMA xxx	DSE-3/Track-I	4 (39).43	DSE
4.	MSXX xxx	GE-2	4	
5.	MSMA xxx	DSE-4	4	DSE
	19.36 J	Total	24	DRC CARRON TO A STATE OF THE ST

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For M.Sc. (Physics ) Plugge 18

#### **Course Coding**

A course is identified by a course code designated by a string of alphanumeric characters and a course title. In a course code, first two letters of the string indicate the Academic Program & next two letters indicate the department offering the course and the last three numbers designate particular course.

#### Course Number

For all the courses, the first digit corresponds to the level (year) at which a course is normally offered. The last two digits denote the number of the course, which will usually be odd for courses offered in the Odd Semester and even for courses in the Even Semester.

#### **Teaching Engagements**

Every course maintains a teaching schedule for which weekly contact hours are decided for delivering lectures (L), engaging tutorials (T) and/or performing practicals (P) to make learning in a course more effective. In the syllabi, the information regarding number of course credits and contact hours per week is denoted as: Credits (L - T - P); 4 (3 - 1-0) and options are tabulated below:

Credits	To T-L	T	P
4	3	1	0
4	4	0	0
1	3	0	2
1	2	1	2
1	2	0	4
4	0	0	8

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S. No.	(	Course	Туре	Ex	amination			Rel	ative Weigl	ıts
	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1,	3	1	0	Yes	-	25	¥1	25	100	
2.	4	0	0	Yes	0	25	-	25	100	#
3.	3	0	2	Yes	Yes	25	25	25'''	75	-
4.	2	m <b>1</b>	2	Yes	Yes	25	25	25	75	u :=
5.	2	- 0	4	Yes	Ýes	25	50	-25	50	7
6.	បារីអាមិ ៖ 0	) គិន្តអូរ៉េភ្ន 0	1.7.1	Achilis a	Yes land about	En Contributed	50	e e e e e	elucio sili li	100

offered the last two digits genote the marrier of the course, which will usually outers offered in the Odd Seisoner and even the courses in the fiven Seisoner

In general, the relative weights assigned to different components of the entire course are as given in subsequent tables.

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MTE Bristings, november 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Mid Term Examination 5 10 5 10 17 20 10 10 10 10
PRE	Practical Examination
PRS	Practical Sessional
ETE 2	End Term Examination
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### MASTER OF SCIENCE Mathematics

#### I YEAR: First Semester

		Teaching Scheme			Con Hours/		c	Exan	n Duration		R	elative W	eights (%	6)
S	Subject	Course Title	Subject Area	Credit	L	Т	P	Theory	Practical	CWS	PRS	MTE	ETE	PRI
No	Code	1020-04-08-0	DCC	4	3	1	0	3	0	25	100	25	100	140
1	MSMA-101	Abstract Algebra	DCC	-4					0	25	-	25	100	-
2	MSMA-103	Real Analysis	DCC	4	3	1	0	3	U				34870	
3	MSMA-105	Ordinary Differential	DCC	4	3	1	0	3	/ 0	25		25	100	
		Equations Discrete Mathematics	DCC	4	3	1	0	3	0	25	~	25	100	221
4	MSMA-107	Discrete Mathematics	Dec							25	25	25	75	
5	MSMA-109	Mathematical Statistics	DCC	4	3	0	2	3	0	23	23	23	- /3	
,	INDITET TO		700	2	0	0	4	0	2	148	25	=	: e	50
6	MSMA-111	Programming Lab- I	DCC	Z	0	ľ								-
		Total		22	15	4	6	4.						
7.	MSHu-113	Communicative English*	AEC	4	3	1	0	3	0	25		25	100	

#### I YEAR: Second Semester

- g	Teaching Scheme			Hours/	tact Weel	۲	Exan	n Duration			elative W	CIBBES (	
Subject Code	Course Title	Subject Area	Credit	L	Т	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
	C. L. trabeis	DCC	4	3	1	0	3	0	25	-	25	100	Ne:
					_		2	0	25	-	25	100	7.5%
MSMA-104	Partial Differential Equations	DCC	4	3	1	۷	3				26	100	1.2
		DCC	4	3	1	0	3	0	25	3	25	100	
MSMA-100	2.1.75 11.65	D.00	1	3	1	0	3	0	25	-	25	100	-
MSMA-108	Linear Algebra	DCC	4	ا	•	Ů			2.5	25	25	75	
MSMA 110	Numerical Analysis	DCC	4	3	0	2	3	0	25	23	23	12	
MSMA-110			1	0	0	1		2	7,5	25	-	-	50
MSMA-112	Programming Lab- II	DCC	2	0	0					h.'			
	Total		22	15	4	6							
				-	0	2	3	0	2.5	25	25	75	
MSMA-114	Fundamentals of Computer *	SEC	4	3	0	2	J	J					
	Code MSMA-102 MSMA-104 MSMA-106 MSMA-108 MSMA-110 MSMA-110	Subject Course Title Code  MSMA-102 Complex Analysis  MSMA-104 Partial Differential Equations  MSMA-106 Topology	Subject Code Code Complex Analysis  MSMA-102 Complex Analysis  DCC MSMA-104 Partial Differential Equations  DCC MSMA-106 Topology DCC MSMA-108 Linear Algebra DCC MSMA-110 Numerical Analysis DCC MSMA-111 Programming Lab- II DCC Total	Subject Code Course Title Subject Area  MSMA-102 Complex Analysis DCC 4  MSMA-104 Partial Differential Equations DCC 4  MSMA-106 Topology DCC 4  MSMA-108 Linear Algebra DCC 4  MSMA-110 Numerical Analysis DCC 4  MSMA-110 Programming Lab- II DCC 2  Total 22	Subject Code         Course Title Area         Subject Area         Credit L         L           MSMA-102         Complex Analysis         DCC         4         3           MSMA-104         Partial Differential Equations         DCC         4         3           MSMA-106         Topology         DCC         4         3           MSMA-108         Linear Algebra         DCC         4         3           MSMA-110         Numerical Analysis         DCC         4         3           MSMA-112         Programming Lab-II         DCC         2         0           Total         22         15	Subject Code         Course Title         Subject Area         Credit         L         T           MSMA-102         Complex Analysis         DCC         4         3         1           MSMA-104         Partial Differential Equations         DCC         4         3         1           MSMA-106         Topology         DCC         4         3         1           MSMA-108         Linear Algebra         DCC         4         3         1           MSMA-110         Numerical Analysis         DCC         4         3         0           MSMA-112         Programming Lab- II         DCC         2         0         0           Total         22         15         4	Subject Code         Course Title Area         Subject Area         Credit L         T         P           MSMA-102         Complex Analysis         DCC         4         3         1         0           MSMA-104         Partial Differential Equations         DCC         4         3         1         0           MSMA-106         Topology         DCC         4         3         1         0           MSMA-108         Linear Algebra         DCC         4         3         1         0           MSMA-110         Numerical Analysis         DCC         4         3         0         2           MSMA-112         Programming Lab-II         DCC         2         0         0         4           Total         22         15         4         6	Subject Code         Course Title Area         Subject Area         Credit L T P Theory           MSMA-102         Complex Analysis         DCC 4 3 1 0 3           MSMA-104         Partial Differential Equations DCC 4 3 1 0 3           MSMA-106         Topology DCC 4 3 1 0 3           MSMA-108         Linear Algebra DCC 4 3 1 0 3           MSMA-110         Numerical Analysis DCC 4 3 0 2 3           MSMA-112         Programming Lab-II DCC 2 0 0 4 -           Total         22 15 4 6 -	Subject Code         Course Title Area         Subject Area         Credit L         T         P         Theory         Practical           MSMA-102         Complex Analysis         DCC         4         3         1         0         3         0           MSMA-104         Partial Differential Equations         DCC         4         3         1         0         3         0           MSMA-106         Topology         DCC         4         3         1         0         3         0           MSMA-108         Linear Algebra         DCC         4         3         1         0         3         0           MSMA-110         Numerical Analysis         DCC         4         3         0         2         3         0           MSMA-112         Programming Lab-II         DCC         2         0         0         4         -         2           Total         22         15         4         6         -         0	Subject Code         Course Title Area         Subject Area         Credit L T P Theory         Practical Practical CWS           MSMA-102         Complex Analysis         DCC 4 3 1 0 3 0 25           MSMA-104         Partial Differential Equations         DCC 4 3 1 0 3 0 25           MSMA-106         Topology DCC 4 3 1 0 3 0 25           MSMA-108         Linear Algebra DCC 4 3 1 0 3 0 25           MSMA-110         Numerical Analysis DCC 4 3 0 2 3 0 25           MSMA-112         Programming Lab-II DCC 2 0 0 4 - 2 - 2           Total         22 15 4 6	Subject Code         Course Title Area         Subject Area         Credit L T P Theory         Practical Practical CWS PRS           MSMA-102         Complex Analysis         DCC 4 3 1 0 3 0 25 -           MSMA-104         Partial Differential Equations DCC 4 3 1 0 3 0 25 -           MSMA-106         Topology DCC 4 3 1 0 3 0 25 -           MSMA-108         Linear Algebra DCC 4 3 1 0 3 0 25 -           MSMA-110         Numerical Analysis DCC 4 3 0 2 3 0 25 25           MSMA-112         Programming Lab-II DCC 2 0 0 4 - 2 - 25           Total         22 15 4 6	Subject Code         Course Title Area         Subject Area         Credit L T P Theory         Practical Practical CWS PRS MTE           MSMA-102         Complex Analysis         DCC 4 3 1 0 3 0 25 - 25           MSMA-104         Partial Differential Equations DCC 4 3 1 0 3 0 25 - 25           MSMA-106         Topology DCC 4 3 1 0 3 0 25 - 25           MSMA-108         Linear Algebra DCC 4 3 1 0 3 0 25 - 25           MSMA-110         Numerical Analysis DCC 4 3 0 2 3 0 25 25 25           MSMA-110         Programming Lab-II DCC 2 0 0 4 - 2 - 25 - 25           Total         22 15 4 6 - 25	Subject Code         Course Title Area         Subject Area         Credit L T P Theory         Practical Practical CWS PRS MTE ETE         MTE ETE           MSMA-102 Complex Analysis         DCC 4 3 1 0 3 0 25 - 25 100           MSMA-104 Partial Differential Equations         DCC 4 3 1 0 3 0 25 - 25 100           MSMA-106 Topology         DCC 4 3 1 0 3 0 25 - 25 100           MSMA-108 Linear Algebra         DCC 4 3 1 0 3 0 25 - 25 100           MSMA-110 Numerical Analysis         DCC 4 3 0 2 3 0 2 3 0 25 25 25 75           MSMA-112 Programming Lab-II         DCC 2 0 0 4 - 2 - 2 - 25 75           Total         22 15 4 6

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#### II YEAR: Third Semester

		Teaching Scheme				ontact rs/Wee	k	Exa	ım Duration	71	380	Relative	Weights	(%)
S. No	Subject Code	Course Title	Subject Area	Credit	L	ho <b>T</b> Li	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1	MSMA-201	Functional Analysis	DCC	4	3	1	0	3	0	25	. u2	25	100	-
2	MSMA-203	Operation Research	DCC	4	3	1	0	3	0	25		25	100	
3	MSMA-205	Dissertation-1	DCC	2	-	1			177 00	REAL POINT				- 1
4	MSMA xxx	DSE-1/ Track-I	DSE	4	3	1/0	0/2	3	0	25	0/25		100/75	
5	MSMA xxx	DSE-2	DSE	4	3	1/0	0/2	3	0	25	0/25	25	100/75	1
6	MSXX xxx	GE-1	GE	4	3	1/0	0/2	3	0	25	0/25	25	100/75	100
ŀ	Department Spe	Total	78 -	22	17	5/2	0/6		27	364 J	BH T	1	100/75	

#### П YEAR: Fourth Semester

	Lama en	Teaching Scheme		E.	WELL STATE	ontact rs/Weel	ζ.	Exa	n Duration	PARTE (FT	nail land	Relative V	Weights (	
S. No	Subject Code	Course Title	Subject Area	Credit	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
I	MSMA-202	Measure and Integration	DCC	4 (9) (15) (1)	3 3000k	1	0	3	0	25	=	25	100	=
2.	MSMA-204	Dissertation-II	DÇC	8		7210-9	-							
3.	MSMA xxx	DSE 3/Track-I	DSE	4	3.7	1/0	0/2	3	0	25	0/25	25	100/75	-
1 14	MSMA xxx	DSE 4	DSE	4	3	1/0	0/2	3	0	25	0/25	25	100/75	- 1
5.	MSXX xxx	GE2	GE	4	3	1/0	0/2	30400	0 352	25	0/25	25	100/75	- 8
	1001	Total	97	24	20	4/1	0/6	37:00	N.	fsn/Jas	structure the	The second	nor Lates	1114

In addition to the above scheme

Elective Courses / Activities: These are part of Co and Extra-Curricular Activities and must opt for a minimum of 2 to 6Credits in entire duration of the

The Identified MOOC's subjects or any other On-line Courses offered by the Recognized Accredited University enlisted by the University.

The Approved Co and Extra-Curricular Activities as defined by the University.

Publication in category 1 or category 2 journal publication is mandatory outcome of the Track 1. In second year (i.e., III and IV Semesters) Track 1 option is by research work. Candidate will be finally evaluated at the end of

the semester IV on the basis of his/her publication (accepted or published in category 1 or 2 journals).

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#### **List of Electives**

S. No.	Course Code	Course Title	DSE Details
1.	MSMA- 207	Stochastic process	<u>x</u>
2.	MSMA- 209	. Analysis and Design of Algorithms	
3.	MSMA-211	Number theory	DSE I
4.	MSMA-213	Mathematical Modeling and Simulation	138
5.	MSMA-215	Calculus of Variation and Optimal Control	
6.	MSMA-217	Graph Theory	X
7.	MSMA-219	Database Management System	- T
8.	MSMA-221	Integral Transforms & Equations	DSE 2
9.	MSMA-223	Cryptography and Coding Theory	1977 A
10.	MSMA-225	Classical Mechanics	- 4 7 7 7 7
11.	MSMA-206	Financial Mathematics	100 Y F.
12.	MSMA-208	Data Mining	
13.	MSMA-210	Optimization Techniques	DSE 3
14.	MSMA-212	Approximation Theory	
15.	MSMA-214	General Relativity and Cosmology	
16.	MSMA-216	Finite Element Method	
17.	MSMA-218	Machine Learning	
18.	MSMA-220	Econometrics	DSE 4
19.	MSMA-222	Univalent Function Theory	
20.	MSMA-224	Fuzzy Sets and Logic	

#### Credits in Four Semesters

Total	Core	Generic Electives (GE)	Department Specific Electives (DSE)	Ability Enhancement Courses (AEC)	Skill Enhancement Courses (SEC)
90	66	8	16	4	4

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# MASTER OF SCIENCE

# **Physics**

# I YEAR: First Semester

Teachir	ng Scheme				Cont	et Hour	s/Week	Exam E	uration	Relativ	e Weigh	tage %		
S. No.	Subject Code	Course Title	Course Type	Credit	L is	T T	P P	Theory	Practical	cws	PRS	MTE	ETE	PRE
1.	MSPH 101	Mathematical Physics	DCC	4	3	1	0	3	0 14-6.15; NS	25		25	100	-
2.	MSPH 103	Classical Mechanics	DCC	(4milling	11 <b>3</b> 141 34	711/w	0	3	not-Abterna	25	-	25	100	-
3.	MSPH 105	Quantum Mechanics	DCC OUT	4 smalne is the	3	tanatij 1	-0	3	VSWA ASSI	25	_	-25 <sup>K</sup>	100	*
4.	MSPH 107	Applied Optics	DCC	4 marketedd	3	1	0	3	0 SS-AMAM	25		25	100	=
5.	MSPH 109	Electronics _	DCC	(4mming)	13/19/07	1	0	3	no amoun	25	4	25	100	
6.	МЅРН Џ 1	Physics Lab-Î	DCC	2 Special	0		magan di m	n0 · - →.	AMÈN 2	-	- 25.	-41		50
		Total	- 4	22 504			4		MSMA_21	-		4		
		Communicative	Viculation	SO FROM LA	scuber.	inniau (h		inee g	15.446414			14.	1	
7.	MSHu 113	English*	AEC L	M <b>4</b> MA Accum	a(3) why	I <sup>1</sup>	0	3	MINAFA-Q1	25	V.	25	100	•
		ry Course (AEC		AUTHOR DE		3,000			1 Newsty			10.		

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# I YEAR: Second Semester

Teacl	ning Scheme				Cont Hou		eek	Exam Du	aration	Relativ	e Weigh	tage %		
S. No.	Subject Code	Course Title	Course Type	Credit	L	Т	P	Theory	Practical	cws	PRS	MTE	ETE	PRE
1.	MSPH 102	Advanced Quantum Mechanics	DCC	4	3	1	0	3	0	25	•	25	100	353
2.	MSPH 104	Statistical Mechanics	DCC	4	3	1	0	3	0	25	3 <del>4</del>	25	100	
3.	MSPH 106	Computational Methods	DCC	4	3	1	0	3	0	25	.es	25	100	
4.	MSPH 108	Electrodynamics	DCC	4	3	1	0	3	0	25	2	25	100	_
5.	MSPH 110	Solid State Physics	DCC	4	3	ï	0	3	0	25	I:	25	100	
6.	MSPH 112	Physics Lab-II	DCC	2	0	0	4	0	2	anicity.	25		-	50
		Total		22	15	5	4		1901	1. 1	e Yr ag			
7.	MSMA 114	Fundamentals of Computer*	SEC	4	3	1	0	3	0	25	2	25	100	=

\*Non CGP Mandatory Course (SEC - Skill Enhancement Course)

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# II YEAR: Third Semester

Teac	hing Scheme		000		Con	tact E	lours/	Exam D	uration	Relative	Weigh	tage %		
S. No.	Subject Code	Course Title	Course Type	Credit	L.	T	·P	Theory	Practical	cws	PRS	MTE	ETE	PRE
1,	MSPH 201	Atomic and Molecular Physics	DGC	0 4	3	1 /	0	3	0 1 10 1	25	1, 11	25	100	
2	MSPH 203	Nuclear and Particle Physics	DCC	4	3	7	0 54	3	0	25		25	100	
3.	MSPH 205	Dissertation-I	Ф¢С	2		6	j.	5.03	destroy-			new i	.6	
4.	MSPH xxx	DSE-I/ Track-1	DSE	4 (6	3.0	News	(1) <b>(1</b> (1) (1)	11 <b>3</b> 5 Hins27	0.555) ==1 to	25 <sub>719305</sub>	agly/2	25 50	100	-
5.	MSXX xxx	GE-1	GE	4	3	1	0	3	0	25	2	25	100	-
6.	MSPH 211	Advanced Physics Lab -I	DSE	4	0	1	6	0	3	0	50	0	0	100
		Total		22	12	7	6							٠

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# II YEAR: Fourth Semester

Teac	hing Scheme	· ·				itact irs/ W	eek	Exam Du	ration	Relati	ve Weig	htage %	- 1	
S. No.	Subject Code	Course Title	Course Type	Credit	L	т	P	Theory	Practical	cws	PRS	MTE	ETE	PRE
1.	MSPH 202	Semiconductor Devices	DCC	4	3	1	0	3	0	25	gior =	25	100	31
2.	MSPH xxx	DSE-II / Track -I	DSE	4	3	1	0	3	0	25	-	25	100	
3.	MSXX xxx	GE-2	GE	4	3	1	0	3	0	25	f	25	100	
4.	MSPH 208	Advanced Physics Lab -II	DSE	4	0	1.	6	0	3	0	50	0 -	0	100
5.	MSPH 210	Dissertation-II	DCC	8						etige	Timb	1 0 1	L A	
di, i	2 N	Total	The of	24 21 / W ×	9	12	6	n desertan		S.			ī	

Elective Courses / Activities: These are part of Co and Extra-Curricular Activities and must opt for a minimum of 2 to 6Credits in entire duration of the

The Identified MOOC's subjects or any other On-line Courses offered by the Recognized Accredited University enlisted by the University.

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The Approved Co and Extra-Curricular Activities as defined by the University. Publication in category 1 or category 2 journal publication is mandatory outcome of the Track 1. In second year (i.e., III and IV Semesters) Track 1 option is by research work. Candidate will be finally evaluated at the end of

the semester IV on the basis of his/her publication (accepted or published in category 1 or 2 journals).

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# **List of Electives**

S.No.	Course Code	Course Title	DSE Details
1.	MSPH 207	Fibre and Integrated Optics	
2.	MSPH 209	Advanced Condensed Matter Physics	
3.	MSPH 213	Advanced Numerical Physics	DSE-I
4.	MSRHJ215 : GINI	Spintronics	n e : pouhey.v.
5::	5 MSPH 217	Characterization Techniques	A STATE OF THE STATE OF
6.	MSPH 204	Space and Atmospheric Science	1 A A A A A A A A A A A A A A A A A A A
7.	MSPH 206	Laser Spectroscopy	***
8.	-MSPH 212 -	Plasma Physics	DSE-II
9.	MSPH 214	Advanced Electronics	Wall to accomm
10.	MSPH 216	Advanced Functional Materials	Al disament All Harmon in the

### Credits in Four Semesters

Total	Core	Generic Electives (GE)	Department Specific Electives (DSE)	Ability Enhancement Courses (AEC)	Skill Enhancement Courses (SEC)
90	66	8	16	4	4

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# MASTER OF SCIENCE Chemistry

# I YEAR: First Semester

Teachin	g Scheme				Hou Wee	ırs/		Exam D	uration	Relativ	ve Wei	ghtage %	6	
S. No.	Subject Code	Course Title	Course Type	Credit	L	T	P	Theory	Practical	cws	PRS	MTE	ETE	PRE
1.	MSCH101	Inorganic Chemistry-I	DCC	4	3	1	0	3	0	25	* ,	25	100	-
2.	MSCH103	Organic Chemistry-I	DCC	4	3	1	0	3	0	25	3	25	100	
3.	MSCH105	Physical Chemistry-I	DCC	4	3	1	0	3	0	25	(a)	25	100	199
4.	MSCH107	#	DCC	4	4	0.	0	3	0	25	i e	25	100	_
5.	MSCH109	Lab-I	DCC	6	0	0	12	0	12	7		75	÷	150
		Total	4	22	12	14	12	- W	13.F	toresa e	-1	74 F.		
6.	MSHu 111	Communi cative English *	AEC	4	3	1	0	3	0	25	0	25	100	7

\*Non CGPA Mandatory Course (AEC – Ability Enhancement Course) # a. Mathematics for Chemists or Biology for Chemists b. Computers for Chemists

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25/04/2019

I YEAR: Second Semester

		Teaching Scheme				Conta	ct Veek	Exar	n Duration		Relati	ve Weig	htage %	
S. No.	Subject Code	Course Title	Course Type	Credit	CDT	Ť	P	Theo ry	Practical	cws	PRS	MTE	ETE	PRE
1,	MSCH 102	Inorganic Chemistry-2	DCC	4	3	1	0	3	0	25	141	25	100	=
2.	MSCH 104	etii Organic Chemistry-2	"DCC	4	3	1	0	3	0	25	1=11. 8	25	45 400	-
3.	MSCH 106	Physical Chemistry-2	DEC	4	3	1	0	3	0	25	- 11	25	100	+
4.	MSXX xxx	GE-1	GE	4	3	1	0	3	3 . FO	25	-	25	100	-
5.	MSCH 108	Lab-2	DCC	,i6	0	0	12	0	12	Application of the second of t	70 H 18	75	7	150
	MI SE	Total	b i	22	12	4	12	- 6	Mi i					
6.	MSMA 114	Fundamentals of Computer*	SEC	j.33 <b>4</b> .	3 4		0	3	0	25	gerto)	25 ¢	100	- 4

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# II YEAR: Third Semester

Teacl	ing Scheme				Cont		eek	Exam Du	ıration	Relative	Weight	ige %		
S.	Subject	Course Title	Course Type	Credit	L	Т	P	Theory	Practical	cws	PRS	MTE	ETE	PRE
No.	MSCH201	Core-8	DCC	4	3	1	0	3	0	251	-	25	100	
1.		Core-9	DCC	4	3	1	0	3	0	25	Q- 1	25	100	-
2.	MSCH203		DCC	6	0	0	12	0	.12	e <del>ž</del> ti.	ğ =,	75	-	150
3.	MSCH205	Lab-3		0	-				1			7	100	14
4:	MSCHXXX	DSE-1/ Track-I	DSE	4	3	1	0	3	0	25	-	2,5	100	-
5,	MSCHXXX	DSE-2	DSE	4	3	1	0	3	0	25		25	100	-
-		Total	- A	22	12	4	12		911	Maria de la composición della composición della	(d	ler la		

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### II YEAR: Fourth Semester

ila .	ν zu T	eaching Scheme	A 11 30	7 , Vo	B	ontac lours/ Veek		Exam	Duration		Relativ	ve Weigh	itage %	.3%
S. No.	Subject Code	Course Title	Course Type	Credit	Ļ	Ţ	P	Theory	Practical	CWS	PRS	мте	ETE	PRE
MI 1.	MSÇH 202	Core-11	,DCC	4	3	î	0	3	0 :	25		25	100	Ī.
2.	MSCH 204	Lab-4	-DCC	4	0	0	8	0	8	- 18		50		100
3.	MSXX XXX	GE-2	ĢE	4	3	1	0	- 3,	0	25 -1:	1	( <b>),25</b> ).	1	
4.	MSCH xxx	DSE-3/ Track-I	DSE	340	3	1	0	* 3	3761	25 H		tx <del>25</del> 08	100	
5.	MSCH 206	Dissertation	DCC	8	FL.			22	-	itaí -	100	-		200
		Total		24	17	3	8						- 1	- de

### Credits for four Semesters

Total	Core	Generic Electives (GE)	Departmen Specific (DSE)		Ability Enhancement Courses (AEC)	Skill Enhancement Courses (SEC)
90	70	8	12	74	4	4

In addition to the above scheme

Elective Courses / Activities: These are part of Co and Extra-Curricular Activities and must opt for a minimum of 2 to 6Credits in entire duration of the program.

The Identified MOOC's subjects or any other On-line Courses offered by the Recognized Accredited University enlisted by the University.

The Approved Co and Extra-Curricular Activities as defined by the University.

Publication in category 1 or category 2 journal publication is mandatory outcome of the Track 1. In second year (i.e., III and IV Semesters) Track 1 option is by research work. Candidate will be finally evaluated at the end of

the semester IV on the basis of his/her publication (accepted or published in category 1 or 2 journals).

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# MASTER OF SCIENCE Biotechnology

I Year: First Semester

	Т	eaching Scheme				Conta ours/ V		Exam	Duration		Relative	Weight	age %	
S. No.	Subject Code	Course Title	Course Type	Credit	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1	MSBT 101	Biochemistry	DCC	4	3	0	2	YES	YES	25	25	25	75	
2	MSBT 103	Cell and Developmental	DCC	4	3	1	0	YES	NO	25	(* 00)	25	100	
4	MSBT 105	Biology Molecular Biology	DCC	4	3	0	2	YES	YES	25	25	25	75	
4	MSBT 107	Analytical Techniques	DCC	4	3	0	2	YES	YES	25	25	25	75 100	
5	MSBT 109	Biostatistics and Computer Applications	DCC	4	3	1	0	YES	NO	25	-	25	100	50
6	MSBT 111	Seminar	DSE	2	0	0	4	NO	YES		25	ELLY C		30
Sir .	17 S 1921 A	TOTAL	Timus: 1	22	1.7				phon " - i	10	- 17		A term	400
8	MSHu 113	Communicative English y course (AEC – A.	AEC*	4	3	1	0	YES	NO	25	(** ****C	25	100	-

# I Year: Second Semester

		Teaching Scheme			Con	ntact Ho Week		Exam	Duration	Relative Weightage %					
S. No.	Subject Code	Course Title	Course Type	Cr	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE	
1	MSBT 102	Immunology	DCC	4	3	0	2	YES	YES	25	25	25	75		
2	MSBT 104	Microbiology and Industrial	DCC	4	3	0	2	YES	YES	25	25	25	75		
3	MSBT 106	Applications Genetic Engineering	DCC	4	3	0	2	YES	YES	25	25	25	75	Ē	
	Settingson	Genetics	DCC	4	3	1	0	YES	NO -	25	ile <del>.</del>	25	100	3	
4	MSBT 108	Genetics				ļ. —	-	YES	NO	25		25	100	-	
5	MSBT 110	Genomics and Proteomics	DCC	4	3	1	0	I ES	NO	LJ		I Cole No.		75	
6	MSBT 112	Project Proposal Presentation	DCC	2										13	
		TOTAL		22											
7	MSMA 114	Fundamentals of Computer* atory course (SEC - S.	SEC	4	3	0	2	3	0	25	25	25	75		

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# II Year: Third Semester

		Teaching Scheme			Contact Hours/ Week			Exam	Relative Weightage %					
S. No.	Subject Code	Course Title	Course Type	Credit	L P	Т	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1	MSBT 201	Bioprocess Engineering & Technology	DCC	4	3	0	2	YES	YES	25	25	25	75	•
2	MSBT 203	Immunotechnology and Molecular Virology	DCC	4	3	1	0	YES	'NO	25		25	100	
3	MSBT 205	IPR & Biosafety	DCC	4	3	1	0	YES	NO	25		25	100	
4	MSBT xxx	DSE-I	DSE	4	3	1	0	YES	NO -	25	3 a	25	100	1.2
5	MSBT xxx	DSE-II	DSE	4	3	1	0	YES	NO	25		25	100	
7	MSBT 243	Lab Based on Elective	DSE	2	0	0	4	NO	YES	021-03	25	15 THE	-	50
	1	TOTAL		22					A assessed	Ti -				-

# II Year: Fourth Semester

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	Tea	ching Scheme			Contact Hours/ Week			Exam	Duration	Relative Weightage %					
S. No.	Subject Code	Course Title	Course Type	Credit	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE	
1.	MSBT 202	Project Work	DCC	16`			1538	Mr. 7 teness	billin Perhand	5-132	adamid Esternolar	Still World	4111172	(++*)-(	
2.	MSXX xxx	GE-1	GE	4 1	3:16:	af ha	0.04	YES	NO	25		25	100		
3.	MSXX xxx	GE-2	GE	E41 3201 5	43	1	O CHARGE	YES	NO	25	e grijaja	25	100		
9,98	E 3214 美物	TOTAL	AP-5. 103	24	icay, E	TE	TT	61	in seminal	21412	Service Vi		H.W. 23		

# **Credits for four Semesters**

Total	Core	Generic Electives (GE)		Ability Enhancement Courses (AEC)	Skill Enhancement Courses (SEC)
90	70	8	12	4	4

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# **List of Electives**

S. No.	Course Code	Course Title	DSE Details
1	MSBT207	Microbial Technology	4
2	MSBT209	Computational Biology	
3	MSBT211	Animal Biotechnology	
4	MSBT213	Plant Biotechnology	DSE-I
5	MSBT215	Environmental Biotechnology	
6	MSBT217	Nanobiotechnology	
7	MSBT219	Protein Engineering	
8	MSBT221	Molecular Virology	
9	MSBT223	Industrial & Food Biotechnology	
10	MSBT225	Diagnostics	
11	MSBT227	Cancer Genetics	vi vi
12	MSBT229	Evolutionary Genetics	
13	MSBT231	Model Genetic Systems	
14	MSBT233	Pharmacogenomics	DSE-2
15	MSBT235	Stem Cell Biology	
16	MSBT237	Vaccines	
17	MSBT239	Metabolic Engineering	
18	MSBT241	Molecular Therapeutics	

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# DEPARTMENT OF BIOTECHNOLOGY

# M.Sc. BIOTECHNOLOGY

# SCHEME

IYe	ar: Odd Sen	iester							- 1					
S. No.	Code	Title	Type	Cr	<b>بر</b>	T	Ъ	TH	PR	CWS	PRS	MTE	ETE	PRE
	MSBT	Biochemistry	DCC	4	3	0	2	YE S	YE S	25	25	25	75	2
,	101							YE	NO	25	47	25	10	
2	MSBT 103	Cell and Developmental	DCC	4	3	1	0	S	NO	23			0	
4	MSBT	Biology Molecular	DCC	4	3	0	2	YE S	YE S	25	25	25	75	
	105.	Biology Analytical	DCC	4	3	0	2	YE	YE	25	25	25	75	-
4	MSBT 107	Techniques	500		9			S	S	25	-	25	10	
5	MSBT 109	Biostatistics and Computer	DCC	4	3	-1	0	YE S	NO	25		23	0 -	
6	MSBT 111	Applications Lab-l	DCC	2	0	0	4	NO	YE S		25			50
-		TOTAL		22									- 7	
8	MSBT 115/ MSMA11	Introductory Biology/ Introductory	GEC*	4	3	1	0	YE S	NO	25	-	25	10 0	
	5	Mathematics Communicatio	AEC*	4	3	1	0	YE	NO	25	-	25	10	(#E
9	MSHu 117	n Skills	ALC					S		-	-		0	
	1	*Non CGPA M	andatory							1				
		course							_	1		-		

I Year: Even Semester

S. No.	Code	Title	Type	Cr	7	T	Ъ	TH	PR	CWS	PRS	MTE	ETE	PRE
1	MSBT 102	Immunology	DCC	4.	3	0	2	YES	YES	25 *	25	25	75	( <del></del>
2	MSBT 104	Microbiology and Industrial Applications	DCC	4	3	0	2 .	YES	YES	25	25	25	75	7.1 2.1
3	MSBT 106	Genetic Engineering	DCC	4	3	0	2	YES	YES	25	25	25	75	30
4	MSBT 108	Genetics	DCC	4	3	1	0	YES	NO	25	=	25	100	li sæs
5	MSBT 110	Genomics and Proteomics	DCC	4	3	1	0	YES	NO	25		25	100	*
6	MSBT 112	Project Proposal Presentation (SEC)	SEC	2		5		4 70			>			75
		TOTAL		22		65		2						

II Year: Odd Semester

IX X	ear: Od	d Semester	i işafı	-9										
S. S.	Code	Title	Type	ڻ	7	ms:	Ь	TH	PR	CWS	PRS	MTE	ETE	PRE
1	MSB T 201	Bioprocess Engineering & Technology	DCC	4	3	0	2	YE S	YE S	25	25	25	75	:#S
2	MSB T -203	Immunotechnolog y and Molecular Virology	DCC	4	3	1 ; 988	0	YE S	NO	25		25	10 0	3
3	MSB T 205	IPR & Biosafety	DCC	4	3	1	0	YE S	NO	25		25	10 0	(E.)
4 .	MSB T XXX	DSE-I	DSE	4	3	1	0	YE S	NO	25	39	25	10 0	*
5	MSB T XXX	DSE-II	DSE	4	3	1	0	YE S	NO	25	3 <b>2</b> 7	25	10 0	20
7	MSB T 213	Lab VII-Based on Elective	DSE	2	0	0	4	NO	YE S	2	25		7.50	50
		TOTAL		22										

II Year: Even Semester MTE ETE PRS S. No. Code Title Cr  $\Gamma$ 10 25 N YE SEC Bioentrepreneur MSB ship (SEC) T 202 Project Work 20 20 MSB T 204 24 TOTAL

# Credits of Different Curricular Components (Biotechnology)

	CURRICULAR COMPONENTS	Credits
(a) Founda	tion Course (Common Courses)	Non CGPA Mandatory course
	Communication English (AEC)	4
ii.	Fundamentals Courses (GEC)	4
11.	Total	8
(b) Depart	mental Core Courses (DCC)	CGPA Mandatory courses
i j	Core Courses	56
ii	SEC	04
	Dissertation	20
(c) Depart	tmental Elective Courses (DSE)	10
(c) Depart	Grand Total	98

S. No.	Code	Title	Ç	L	T	Ъ	TH	PR	CWS	PRS	MTE	ETE	PRE
1	MSBT 207	Microbial Technology	3	3	0	0	YES	NO	25	2	25	100	=:
2	MSBT 209	Computational Biology	3	. 3	0	0	YES	NO	25		25	100	174
3	MSBT 211	Animal Biotechnology	3	3	0	0	YES	ИО	25	-	25	100	-
4	MSBT 213	Plant Biotechnology	- 3	3	0	0	YES	ИО	25	3	25	100	2
5	MSBT 215	Environmental Biotechnology	3	3	0	0	YES	NO	25		25	100	-
6	MSBT 217	Nanobiotechn ology	3	3	0	0	YES	МО	25	-	25	100	:=:
7	MSBT 219	Protein Engineering	3	3	0	0	YES	МО	25	~	25	100	(#) 
8	MSBT 221	Molecular Virology	3	3	0	0	YES	МО	25	-	25	100	. =
9	MSBT 223	Industrial & Food Biotechnology	3	. 3	0	0	YES	NO	25	-	25	100	
10	MSBT 225	Diagnostics	3	3	0	0	YES	NO	25	-	25	100	(#.
11	MSBT 227	Cancer Genetics	- 3	3	0	0	YES	ИО	25	-	25	100	100
12	MSBT 229	Evolutionary Genetics	3	3	0	0	YES	ИО	25	-	25	100	
13	MSBT 231	Model Genetic Systems	3	3	0	0	YES	NO	25	3	25	100	
14	MSBT 233	Pharmacogen omics	3	3	0	0	YES	NO	25	-	25	100	
15	MSBT 235	Stem Cell Biology	3	3	0	0	YES	NO	25	-	25	100	
16	MSBT 237	Vaccines	3	3	0	0	YES	NO	25		25	100	-
17	MSBT 239	Metabolic Engineering	3	3	0	0	YES	NO	25	-	25	100	12
18	MSBT 241	Molecular Therapeutics	3	3	0	0	YES	NO	25	1	25	100	-

# Junior Technical Assistant (PB-1, Rs.5200-20200 Grade Pay Rs.2400/- (6th CPC) Level-4, Entry Pay Rs.25500/- (7th CPC)

### For direct recruitment:

10th pass with science with ITI Certificate/National Trade Certificate/National Apprenticeship Certificate or equivalent in the relevant (or an allied) subject field with five (05) years Industrial/Laboratory Experience in the desired trade.

OR

Three years State Board Diploma (or equivalent) in the relevant (or an allied) subject/ field with two (02) years Industrial/Laboratory Experience in the desired trade.

OR

Senior Secondary (or equivalent) with science subjects in the relevant (or an allied) subject field with five (05) years Industrial/Lab experience in the desired trade.

OR

Bachelor of Science Degree in relevant field or equivalent with one (01) year Industrial/Lab experience in the desired trade.

OR

Bachelor of Computer Applications (BCA) with one (01) year Industrial/Lab experience in the desired trade.

Age limit: 35 years

# MBA

# Entrepreneurship, Innovation and Venture Development

The University School of Management and Entrepreneurship (USME), East Delhi Campus of DTU, which has entrepreneurship as a focus area, has as part of its mission, the delivery of a portfolio of professionally designed courses in entrepreneurship. With an aspiration to be recognized a world class practice based school, it would like to offer practicum mode learning programs in entrepreneurship which are experiential and outcome based in nature. It is in this context that the following course is being proposed by the department for consideration.

### Background:

The AICTE in its start-up policy in 2016 announced the need and design for an experiential learning cum outcome based MBA program in entrepreneurship. It was to be focused on outcome based evaluation, with a curriculum divided over components such as knowledge (30%), attitude and behavioral element (30%) and skills (40%). In line with the policy, a framework has been designed, and is being put up for consideration. The intention is that the AICTE syllabus for this program will eventually be offered as per its suggested detailed contents, after further consideration of the merits and USME capabilities, discussion in the department, experts and its Board of Studies, in terms of specific course plans.

# MBA Entrepreneurship, Innovation and Venture Development

### Introduction:

Syllabus of two years MBA in Entrepreneurship, Innovation and Venture Development comprises of core and elective courses, skill certification, capstone projects and Action Learning segments. With an objective to connecting theory of innovation and entrepreneurship with practice and enabling students to acquire skills, this outcome oriented program is designed to deliver in phases and modules. The program is focused on learning grounded in all stages of the new venture development process. It will require that students create their own venture in their chosen area within the first semester, and go through the stages of entrepreneurial activity, while learning about these through knowledge and experiential courses. They will simultaneously apply their entrepreneurial skills in real life situations, validate ideas, test market and build a successful venture out of it, and these outcomes will be both guided by mentors/faculty as well as evaluated on an outcome basis, where success for each Capstone project around their venture are defined beforehand as an evaluative criterion.

This course has five Modules, two Action Learning Segments and three Capstone Projects to enable students to learn to recognize, create and shape a business opportunity, develop leadership and build a start-up team, assess market feasibility for launching new start-ups and construct a business model.

In terms of the structure, the semester and module structure will closely follow the recommended AICTE structure and policy.

### This is given as below:

Tracks/Phase	Year	Semester	Modules Capstone Projects and Action Learning Segments.
Foundation of Management & Entrepreneurship Track	1 <sup>st</sup>	1 <sup>st</sup> Semester	<ul> <li>Module-1: Introduction to Innovation &amp; Entrepreneurial Idea Generation &amp; Identifying Business Opportunities.</li> <li>Capstone Project-1: Development of an Innovative Business Idea into a Proof-of-Concept.</li> <li>Module-II: Management Skills for Entrepreneurs and Managing for Value Creation.</li> <li>Capstone Project-II</li> <li>Development of Business Idea into working Prototype</li> </ul>
mann illigation of	Year	2 <sup>nd</sup> Semester	<ul> <li>Module-III: Creating &amp; Sustaining Enterprise Model &amp; Organizational Effectiveness.</li> <li>Capstone Project-III: Development of Minimum Viable Business Model of Innovation.</li> </ul>
Start-up Experiential Learning Track			Action Learning: Segment-1:     Start-up/Incubation Residency Learning Program.
Entrepreneurship Intensity Track (Immersion into Incubation Facility and Resource Access)	2 <sup>nd</sup> Year	3 <sup>rd</sup> Semester	<ul> <li>Module- IV: Advancing Entrepreneurial Skill &amp; Venture Planning</li> <li>Module-V: Creating and Growing New Venture and National &amp; Global Business Environment.</li> </ul>
Start-up Establishment Track		4 <sup>th</sup> Semester	• Action Learning Segment-II: Venture Establishment Phase at Incubators/Accelerators.
Final Exit	L grilling	Completion Venture De	of "MBA/PGDM in Innovation, Entrepreneurship and evelopment" Degree

Induction Module: The program would begin with a 5 days orientation session on "Know, Recognize and manage your Entrepreneurial Talent" that aims at measuring entrepreneurial instincts, assessment of students and development of a venture development plan through a self-assessment, reflection, feedback mechanism and possible outcomes when starting a venture etc. This session intends to discover innovative and entrepreneurial talent at the beginning of course. This component may include field exposure to startups. Students will get exposed to motivational sessions by successful startup founders, along with an exercise in expectation mapping of students from this course and expectation from students throughout this program. This will also include an experience through immersion into real time problem scenario with close interaction sessions with incubatees sharing their own challenges they have experienced at the various stages of enterprise development. All these will be achieved through a structured program on the lines of ideathon/hackathon/bootcamp/business canvas etc. The Foundation of Management and Entrepreneurship Track: This comprises of mix of classroom and experiential learning modules (I, II and III). Teaching components offers in the form of core and elective courses blended with educational activities, capstone projects and Incubator Twinning program in which students while working in teams on real life venture related problems faced by incubatees, learn and develop creative problem solving skills, manage innovative ideas, and validate business opportunity potential. This will be done while working with mentors, expert and incubatees of the IIC based at USME, and managed and evaluated by the

USME allocated faculty coordinators as per the directions of the department. Along the way, student also study and acquire skill on entrepreneurial approaches (concepts, process and scope) and management skills such as marketing of innovations, financial, strategy, business ethics and social responsibility, entrepreneurial management decision making.

The Entrepreneurship Intensity Track: This comprises of Module-IV and V, mostly designed to deliver during 3<sup>rd</sup> Semester of program. Through these modules, incumbent will acquire specialized skills and build-up risk taking and other competencies towards venture establishment. This will advance the actual stage of venture planning, testing and tapping of opportunities for students as they are pursuing a venture and expect to launch shortly as part of the Action Learning-II Segment.

Three Capstone Projects: Three capstone projects are designed as a part of first three modules (I, II and III) designed to be delivered during 1<sup>st</sup> and 2<sup>nd</sup> Semester. These capstone projects are Experiential Learning Segments where students apply their classroom learning throughout the semester into practice of innovation & Entrepreneurship. They will be required to create a business opportunity map, and create an entity related to their chosen area of entrepreneurial activity. They would receive an initial seed funding from the University for their venture. The University would not have any equity or stake in their venture, or any kind of return from this funding, however. The venture would have to be taken to the stage of commercialization by the last semester, as part of their experiential learning and also outcome evaluation. Each capstone project will be an independent project/assignment to be accomplished under the guidance of mentor experts. A faculty guide from amongst the regular faculty at USME will also be assigned as Faculty Coordinator for the project for each student.

Credit Requirement: As per the AICTE model curriculum guideline, for awarding the master degree (MBA), total credit of 102 is required to be completed over two years. The credit allocations for this proposed new MBA in IEV degree is a total of 104 credits which can be earned as following:-

- Classroom Credits Total 44 (20+24) Credits: Out of 104 credit requirement over four semesters, incumbent need to earn total of 44 credits from class room sessions which includes core courses (20) and Elective Courses (24) spread over 4 semesters. The classroom credit distribution is designed in such a way that, the load of class room credits will be reduced during 3<sup>rd</sup> semester compared to 1<sup>st</sup> and 2<sup>rd</sup> semesters and with provision of more elective credits. This make this MBA more flexible and leaves the student to choose appropriate courses and get more time to work towards venture planning, to meet customers and validate innovations and test business model assumptions in the real market scenario. Furthermore, especially during 3<sup>rd</sup> semester, students have also option to earn elective credits, up to 8 credits, by opting courses offered online/MOOC or from any other MBA program on Campus that suits their entrepreneurial needs, such as analytics, IOT, retailing, etc.
- Outside Classroom Credits Total 14 Credits: Incumbents also can earn up to 14 credits from outside
  classroom programs by enrolling/participating in training and workshops programs/ achievement in
  competitions/presenting in seminars/exhibitions of subject of relevant to innovation and
  entrepreneurship, start-up skill building and venture development etc. This will based on approval of
  the Department, and may also include workshops being organized for students by USME, and some

offered particularly for this MBA program, such as in entreprenuerial finance, workshops on institutional funding environment and schemes-ups, Business Law, workshops with overseas collaborations, etc.

- Capstone Projects (CP) Credits Total 12 Credits: Incumbents would earn up to 12 credits on successful completions of three capstone projects during 1<sup>st</sup> and 2<sup>nd</sup> Semesters. These are required to be accomplished by students independently under the guidance of expert mentors, and under the coordination of the allotted USME Department. This three capstone projects will make students to work on their idea to convert innovation and further development of business model out of it. Faculty/Industry/Start-up experts will guide students to do independent projects or guide students to build advancement of one idea into Low Fidelity Wireframes and High Fidelity Wireframes based upon the domain students are working on.
- Integrated educational learning activities, through Experiential Learning Component (EL):

  This is a Non Credit Compulsory course which involves simulations, case studies, Guest/leadership talk series sessions, etc., where attendance is mandatory. In every module where it is offered, it comprises a series of learning interventions of experiential nature on topics suggested in the program structure or as otherwise deemed fit by the Faculty Mentor for specific cases of student enterprise. If a student does not meet University norms of minimum attendance in experiential sessions, student will need to repeat/engage in experiential learning sessions/tasks, as mandated by the Department of the Experiential Learning Module.
- Action Learning Segments (AL) Credits Total 34 Credits (14+20): Incumbent has to go through two action learning segments; one is designed during 2<sup>nd</sup> Semester and second is designed during 4<sup>th</sup> semester and up to total 34 credits can be earned on successful completion. The first learning segment is more focus on experiential learning through a Start-up Residency Program (SRP) in a start-up or in an incubation Unit. Whereas, the second action learning segment is focusing on establishing venture either in self or with support of incubation unit based on the innovation and business model developed as part of capstone projects.

Credit Distribution across and throughout the semester as below:-

Year	Semester	Credit Core (Class Room)	Credit Elective (Class Room)	Credit-Outside Classroom Learning/ Certification /Competitions	Credit Capstone	Credit Action Learning Segment	Total
1st Year	1 <sup>st</sup> Sem.	8	8	4	4+4		28
	2 <sup>nd</sup> Sem.	4	4	2	4	14	28
2 <sup>nd</sup> Year	3 <sup>rd</sup> Sem.	8	12	4	74		24
	4 <sup>th</sup> Sem.			4		20	24
Total		20	24	14	12	34	104

Learning Outcomes: By the end of the program, students will have a knowledge and understanding of

- Key concepts of entrepreneurship, innovation and new venture development

- How to take an idea, build a prototype and launch to early customers in the market.
- Demonstrate how to Market and idea/Prototype to early customers.
- Knowledge of scale up of ventures
- Knowledge of venture growth strategies
- Knowledge of Business Models and Fund Raising
- Knowledge of Hiring and Talent Management
- Knowledge of International Start-up Ecosystem

DTU has a strong innovation and start-up ecosystem in campus with existence of an established incubation Centre (DTU Innovation and Incubation Foundation-DTUIIF and the USME's Innovation and Incubation Centre – IIC). The advanced labs with workspace for incubation, would be leveraged for the program, wherein few incubatees of DTU-IIF will be resident in the USME premises. The two Centres of Innovation and Incubation, and of Entrepreneurship Development, including business services of DTU-IIF, will be provided as resource to these students. The mentoring and other experiential elements will be offered under the direct supervision of incubation unit of institute and under administrative control of institute. Hard and soft resource of incubation unit and department, both, will be used to deliver the program. Institute/incubation unit will draw the expertise within and outside such as incubates/ start-ups, successful graduate start-ups, mentor-experts, industry-investment practitioners, IP and regulatory expert, design experts to teach and deliver the program. For this purpose, institute may engage competent faculties drawing from interdisciplinary departments available internally and or drawing external experts from industry/ market to teach the course in a way similar to the adjunct/guest faculty program at DTU.

Eligibility & Selection of Candidate: - The minimum academic eligibility for a candidate to apply for this program should be a graduate having at least three years degree program recognized nationally, with at least 50% percent marks in graduation. Reservation as norms followed by DTU would apply in all cases to this program.

The selection will be based on graduation marks (30%) 5% gender diversity; 5% academic diversity; Essay (10%) + Interview (50% of which 30% marks for business plan/idea and 20% for personal characteristics such as entrepreneurial motivation, passion, degree of engagement, creativity and quality of understanding of innovation, entrepreneurship etc.).

**Exit options:** Course is designed to offer incumbent an opportunity to exit after successful completion of the first year. First year is generally focusing on Entrepreneurial motivation and venture foundation development and experiential learning making candidate to exit with an innovation and entrepreneurial abilities with management capability to manage incubation and start-up environments. 2<sup>nd</sup> year (3<sup>rd</sup> and 4<sup>th</sup> Semester) is focusing on advancement of entrepreneurial skill and validates the enterprising skill by setting up real ventures with incubation support as part of the 2<sup>nd</sup> Action Learning Segment.

Awarding of Degree: - Upon successful completion of 2 years, award as 'MBA in Entrepreneurship, Innovation and Venture Development'. USME/DTU may issue certificate to student who wish to discontinue the program after successful completion of 1st Year, titled "Certificate in Entrepreneurship, Innovation and Venture

Development" based on successful completion of the academic requirements of the First Year of MBA Entrepreneurship, Innovation and Venture Development.

Career and Employment Opportunity: - The objective of this program is to prepare young minds towards self-employment and create employment opportunity for others through enterprise development. It is expected that, more job creators will come out and most of the graduates of this program will start and thrive with their own start-ups launched during the study period.

Moreover, graduates from this program also will find lots of opportunities to get placed in start-ups because of their close understanding and working experience in innovation and entrepreneurship throughout their study period. Furthermore, these graduates will be preferred candidates to get the assignment to coordinate and lead pre-incubation centers in academics such as Entrepreneurship Development Cells (EDC), IEDC, New Gen IEDC, Start-up Cell, Innovation Cell etc. with their experience and interest, further job opportunities to get absorbed with incubation units, acceleration unit, angel and VC firms etc. Even, these graduates will find preferential space to work with CSR arm, social enterprise arm and spin off arm of corporate, NGOs, social enterprises, round that the built condition for bottom so the promotion of the condition of the authorizance of the condition

However, the USME or DTU will not facilitate their Placement with companies in this regard, and they would be encouraged to become entrepreneurs, and enhance the job creation. If they would wish to work in the incubator space, they would be given a lot of networking opportunity in this period, to create such opportunities for themselves in the spirit of the program.

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# Semester wise Expectation from students

ality Semester-1 matitants a toll willifeight of subdate engraphic of a mattandar of willifeight. Students are expected to gain foundation and deep knowledge on development of right problem statement based on which affordable solution and business plan will be developed. They will acquire knowledge on the process of developing a proof of concept (PoC) involving an introduction to the innovation process that defines creativity. They will also learn human-centered design & achieving deep customer understanding that will enable them to identify and understand what customers need and want in a product, service, or processbased on observation, not date alone is at the core a human-centered innovation process. Students will learn to develop an actionable point of view that addresses questions such as: Who are the target users? What do they need? How do you know? Students will practice several techniques for achieving deep customer understanding, both in and outside of the classroom, and will then synthesize research findings in an effort to home in on key insights. Identifying opportunity areas problem framing, idea generation through systematic inventive thinking (SIT) Concept Development will be key take home with focus on the critical role that prototyping, experimenting, and iteration play in the development of ideas, its implementation and management.

### Semester-2

Students are expected to learn business processes involved in creating startups and its growth. They must get hands on training in a startups/incubator and monitor the health of startups. With such deep training, it is desirable that candidates will further refine their business plan. Special focus on entrepreneurial finance will

be designed for students who plan to get involved with a new venture at some point in their career—as a founder, early employee, advisor or investor. They are expected to gain a broader view of the financing landscape for young firms, going beyond the basics of venture capital and angel financing to look at venture debt, bank finance, corporate venture capital and receivables financing.

### Students can expect to:

- Summarize and critique their existing business, its strengths and weaknesses, and set priorities for
  moving the business forward, including the most pressing priorities to be addressed during the course
  itself;
- Develop a strategy for taking the business to the next level, including a plan for funding, and a plan and timeline for reaching scale.
- Give and receive feedback from other highly motivated student teams, the incubatees with whom they attached, the mentors and exerts they would network with and the external experts delivering workshops for them.
- Meet frequently as a team, and individually for capstone projects, with the faculty advisor/Coordinator and Faculty Mentor.
- · Receive feedback and counsel from outside business advisors.
- Have opportunities to pitch their work to angel, seed, and venture capital investors.

The main deliverable will be the individual/team's final presentation and the supporting slide deck and report. There will also be intermediate deliverables building up to that point. Further there would be outcomes decided on by Departments, based on entrepreneurship success such getting buy in for proof of concept by target customer, achieving initial funding, employing personnel of certain level, or creating business agreements with value chain partners.

### Semester-3

Candidates are expected to have fixed their business plan and the idea and start incubating in the incubator. They should gain fair understanding of angel funding, venture capital and private equity funds. Special focus will be given on experiential inputs designed for students who plan to join rapidly growing ventures in technology or other areas, who are preparing to scale their own ventures, or who plan to evaluate such ventures through the lens of principal investing.

Through case discussions, these programs/inputs will examine executive leadership and functional management challenges in scaling startups after the "search and discovery" stage of startup evolution. These challenges include:

- Strategy Formulation: At what pace and in what directions should a new venture grow, balancing the trade-offs across market and competitive dynamics, financing options, product and operational readiness, talent availability, and customers?
- Executive Leadership: When and why should scaling ventures replace a founder-CEO? How do professional CEOs differ in their approach when they "inherit' a scaling venture?



- Organizational Design: When and how should a rapidly scaling startup especially one with a strong, product-oriented founder- introduce more formal organizational structure, systems, and processes?
- Sales & Marketing: When should a startup venture shift from expeditionary to process-oriented sales? What are best practices for bringing professional sales people into an organization with a startup culture, and for scaling a direct sales force?
- Product & Service Engineering: How should new ventures balance market demands for offer customization versus operational efficiency? When should a venture pay down technical debt? What are best practices for product management as an organization scales?
- Business Development: How does a business development team prioritize at what point does the founder pull back from a role in bus development activities? How to manage negotiating asymmetries, such as dealing with firms much larger than themselves?
- Institutional and angel financing, and financial/business models: How does one obtain funding and from where? What is the financial model? What is the capital structure appropriate for one's venture looking at the domain, own situation, and place in value chain in that industry.

In lieu of a final exam, for action courses, students will also complete a project that applies course concepts, alone or in teams (at the direction of the department through the Faculty Coordinators), and draft a short essay, about what they learned. This is in addition to the business outcomes that their ventures achieve.

Performance progress of Student participants will thus be monitored and evaluated by institute using set of KPIs and measurement indicators prescribed by department and proposed and executed by Faculty Coordinators in close connection with their specific start-up domain and scale. This will be in line with AICTE Start-up Policy/Atal Ranking of Institution on Innovation Achievement (ARIIA) Ranking Framework evaluation criterion.

Further detail of semesters and modules and indicative list of courses are elaborated separately as Annexure -1.

Semester-4

Semester-4

Semester-4

It is expected that the student, who has registered a start-up and start building the enterprise with support from incubator/accelerator earlier, now takes it to a stage where it is starting the commercial success phase. It is also desirable that at the end of the 4th semester, candidate will avail a fellowship program/prototyping fund/angel fund to take the enterprise development mission further to establish it outside of the Campus premises, or in its formal incubator program. Enterprise may be established by one student with members from outside or a group of students from the same batch with complimentary expertise. In any case, it is expected that students should have minimum 20% share in a company, by this stage. It is expected that perhaps IP shall be filed by the candidate or she should raise any of the entrepreneurial fellowships (EIR of DST, SIIP of BIRAC), Innovation/startup fellowships of state Government or Corporate or should raise competitive prototyping grants such as PRAYAS of DST, MSME incubate fund, BIG of BIRAC or any innovation grant amounting 5.0 Lakhs or avail of angel or institutional funding of the same amount at least. This will lead to the highest level of grading achievable in the existing system of evaluation. Other specific outcomes in a gradient of success will be formulated for each student by the Faculty Coordinator appointed by the Department, in context of the specific start-up.

By this semester there will be an opportunity for each team to present their business to investors through a form of demo day. This will enable the above outcome based performance evaluation, as well as assessment on qualitative parameters.

# Annexure -1

Master of Business Administration
Entrepreneurship, Innovation and Venture Development

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Appendix One: Detailed Structure and Academic Milestones for Implementation of MBA-EIV Program

		F	Modules Canstone Projects and Action Learning	Assessment for Students & Ney Fellollinance indicates (2007)
Tracks/Phase	Year	Semester	Segments.	Second Assessment for Taught Subjects (Core & Elective) and Practical Sessions
		1st Semester	Module-1: Introduction to Innovation &     Entrepreneurial Idea Generation & Identifying	(Theory + Practical).
			Business Opportunities.  Capstone Project-1: Development of an Importative Business Idea into a Proof-of-	Group/Individual Project – Proof of Concept (PoC) – Organizing Demo Day.
Foundation of			Concept.	Credit Points Earned from outside classroom Skill Certifications/Award in Events/competitions held at repute national and international Agencies.
Management & Entrepreneurship			ė.	Access to Pre-incubation facilities at Institute,
Track	1" Year		Module-II: Management Skills for Entrepreneurs     Module-II: Management Skills for Entrepreneurs	Internal Assessment for Taught Subjects (Core & Elective) and Practical Sessions (Theory+Practical).
			Capstoners, development of Business Idea into	Credit Points Earned from outside classroom Skill Certifications/Award in Events/competitions held at repute national and international agencies.
			working Prototype	Group/Individual Project – Market Research Plan/Potential Customer Acceptance Plan – Organizing Demo Day.
		2md	Module-III : Creating & Sustaining Enterprising     Actual & Occaminational Effectiveness.	
Start-up Experiential Learning Track :		Semester	• Capstone Project-III: Development of Minimum Viable Business Model of Innovation/Solution.	Credit Points Earned from outside classroom Skill Certifications /Up gradations and Recognition/Award in Events/competitions held at repute national and international agencies.
(Co-Learning & Contribution)				Access to co-working space at Incubation Unit.
				Group/Individual Project – Business/Enterprise Model – Organizing Demo Day.
			Action Learning : Segment-1: Starf-up/Incubation Residency Learning Program.	
Entrepreneur-ship		3rd	Module- IV : Advancing Entrepreneurial Skill & Venture Planning.	
Intensity Track (Immersion into Incubation Facility and Resource	2nd Year		Module- and Nati	Credit Points Earned from outside classroom Skill Certifications /Up gradations and Recognition/Award in Events/competitions held at repute national and international agencies.
Access)				Access to incubation space and schemes at incubation unit.
				Group/Individual Project - Preparation & Checklist for Venture Setup - organizing Demo Day.
Start-up		Somester	Action Learning Segment-II: Venture     Establishment Phase at Incubators/Accelerators.	

			Credit Points Earned from outside classroom Skill Certifications /Upgradations and Recognition/Award in Events/competitions held at repute national and international agencies.
	1	The property past of the design of the property of the past of the	Access to incubation space and schemes at incubation unit.
Final Exit	Completion of "MBA in	f#MBA in Getermentic T	Venture Establishment and resource planning and Operation.
	o monada de la composição de la composiç	ranga in Entrepreneutship, innovation and Venture Development" Degree	evelopment" Degree
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Academic Phase	Year	Semester	Academic Modules	Course	Credit	L'EMBRING ACADOMIC DE CAMPA	- 10
-			(M) Induction	Length 15-21 Days (2- 3 Week)	Breakup	Know & Manage your Entrepreneurial Talent: Vision and Mission Building	Tools to tests Entrepreneurial Ability-Sell Assessment, Reflection, Feedback & finally a create a career development plan
3			M-1: Innovation Entrepreneurial	2-2.5 months (8-10 weeks)	14 Credits (Class Room Core Credit-4, Elective-4,	Principles of Technology-Innovation-Management. Theories & Models of Techno-Entrepreneur-ship. Opportunities Mapping-Sector & Competitive Analysis of Start-up Ecosystem of Region & Nation.	Exercise/Simulations that Chatterings students to apply Business Skill for Real Problem Solving, Practice Leadership, Team Work Skills, Idea Feasibility Analysis, Apply Ethical and Social Resonaville. Reasonine. Examine Decisions
		1 <sup>rd</sup> Semester		ž.	Skill Certification- 2, Capstone Project-4)	Research Methods-Data, Models & Decisions  Skill Development Programs: Participate in Trainings on Ideation, Business Model Canvas, Design Innovation, Technological Innovation & Designing, Entrepreneurship,	etc.
ndation of agement	78 L		į.			Data Analytic etc.  Capstone Course/Project-1 : Creative Problem Solving/Idea-Proof-of-Concept and Submission.	Work on Idea and Develop Proof-of-Concept
and Entrepreneur-	Year				Idea	Idea/POC Project Evaluation Followed by a Week Break	Exposure, Familiar and Hands on Activities and
: ot		8	M-II: Management Skill for Entrepreneurs and	2-25 months (8-10 weeks)	14 credits (Class Room Core Credit-4,	Innovation Development and Management.  Managerial Economics for Entrepreneurs.  Entrepreneurial Finance: Concept & Management.	Trainings on Analytical Tools (Case Studies, Exercises, and other Action Learning Methodologies) and Perspective Essentials to
Facility and Resource)			Managing for Value Creation		Elective-4 Skill Certification -	Start-up Law, Ethics and Environment in India. Start-up Ecosystem Management-1 : Concept and Best Practices of Pre-incubation Services Facilities.	value creation Demand and Forecast, Market Segmentation, Pricing Strategy, Budgeting, Social Responsible Managerial Decision
					Project – 4)	Skill Development Programs: Participate in Trainings on Enterprise Development, Management, Negotiation, Marketing & Research, Lean Start-up Models etc.  Capstone Course/Project-II: Development of Innovation/Prototype & Submission.	Making.
				Inni	wation/Prototype	Innovation/Prototype Evaluation Week followed by a Semester Break (2 weeks)	
				of Factor	14 credits	Fntrepreneurial Leadership - Org Behaviour.	
		2nd Semester	M-III: Creating & Sustaining Enterprise Model &	2.5 months (10 weeks)	(Class Room core credit-4,	Corporate and Social Entrepreneurship  New Venture Establishment & Management	186
			Organizational Effectiveness		Skill	Measuring and Managing Strategic Performance of Existing and New Ventures	- 1
					2, Capstone	-	Exercise, Training and Simulation focus on building and implementing competitive
					Project-4)	Start-ups. Start-up Ecosystem Management –II: Concept and Best Practices of Incubation and Acceleration Services	capabilities and d
						Management for Start-ups  Skill Development Programs: Participate in Trainings on Leadership, Learn Start-up, Venture Planning & Management, Operation Management, Performance	
				E		Management etc.  Capstone Course/Project-III: Development of Business Model for the Innovation & Submission.	Developing a Minimum Viable Product & Business Model to get into the Market.
					Dr. 4 Durin	By State of Break Week Break.	ek Break.

Total Credit Summary:

2nd Year Final Evaluation Week (2 weeks)

Final Exit

Phase)

Space)

Completion of "MBA/PGDM in Innovation, Entrepreneurship & Venture Development" Degree

Start-up Evaluation & Demonstration Week

Readiness><Partnership and Stakeholder Management>

ear	Semester	Core Credit (Class Room)	Core Credit Elective Credit Class Room) (Class Room)	Core Credit Elective Credit Credit through Acquiring Relevant Skill Capstone Credit Action Learning Total (Class Room) Programs outside Classroom Learning Class Room) Credit	Capstone Credit	Action Learning Credit	Tots
ar	1st Semester	8	8	4 months	4+4		28
	2nd Semester	4	4	2	4	14 80	28
Ind Year	3rd Semester	80	12	4	3	-1	24
	4th Semester	25-CH.41	STATE OF THE STATE	4		20	24
	Total	20	24	14	12	34	104

Course may be of 2-3 Credits and One credit equal to 10 hours for in-class coursework - Core, Elective). Capstone Project is 6 Credit. AL is a total of 34 Credits.

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Tracks/Phase Y	Year	Semester	Syllabus Capstone Projects and Action Learning Segments	Internal Assessment for Taught Subjects (Core & Elective) and Practical
		I" Semester	ea	Sessions (Theory + Practical).
		ı		Group/Individual Project – Proof of Concept (PoC) – Organizing Demo Day.
Foundation of Management &				Credit Points Earned from outside classroom Skill Certifications/Up gradations and Recognition/Award in Events/competitions held at repute national and international Agencies.
Entrepreneurship Track	1st Year		Module-II : Management Skills for Entrepreneurs and	Access to Pre-incubation facilities at Institute,
			Capstone Project-II: Locating prospective customers, development of Business Idea into working Prototype	Internal Assessment for Taught Subjects (Core & Elective) and Practical Sessions (Theory + Practical).
				Credit Points Earned from outside classroom Skill Certifications/Up gradations and Recognition/Award in Events/competitions held at repute national and international agencies.
				Group/Individual Project - Market Research Plan/Potential Customer
		2nd Semester	Module-III : Creating & Sustaining Enterprising Model &	Acceptance 1 and Discussion of Taught Subjects (core and Elective) and Practical Sessions (Theory + Practical).
ack			Capstone Project-III: Development of Minimum Viable     Business Model of Innovation/Solution.	Credit Points Earned from outside classroom Skill Certifications /Up gradations and Recognition/Award in Events/competitions held at repute national and international agencies.
(Co-Learning & Contribution)				Access to co-working space at Incubation Unit.
		N.		Group/Individual Project – Business/Enterprise Model – Organizing Demo Dav.
			Action Learning : Segment-1: Start-up/Incubation Residency	Selection & Placement in Startups and incubation Units.
			Learning Program.	Reports Submission for Startup Residency Program.
nenr-		3rd Semester	r • Module- IV : Advancing Entrepreneurial Skill & Venture Planning.	
Intensity Liack (Immersion into Incubation Facility and Resource	2nd Year		And and Growing New Venture and Nationa	Credit Points Earned from outside classroom Skill Certifications /Up gradations and Recognition/Award in Events/competitions held at repute national and international agencies.
Access)			& Global Business Environment.	Access to incubation space and schemes at incubation unit.
				Group/Individual Project – Preparation & Checklist for Venture Setup – organizing Demo Day.

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And And west Hurwist Flore getters. To surface &	stablishment rack	4" Semester	Action Learning Segment-II: Venture Establishment Phase at outside Incubators/Accelerators or starting work from own Workspace arrangements outside Campus	ion Learning Segment-II: Venture Establishment Phase at side Internal Assessment for Taught Subjects (Core & Elective) and Practical side Incubators/Accelerators or starting work from own kspace arrangements outside Campus
Anne of Sharestates of seal purely by the golden product of the state		*		Credit Points Earned from outside classroom Skill Certifications /Up gradations and Recognition/Award in Events/competitions held at repute national and international agencies.
			Constraint State of the State of the State of State of the State of State o	Access to incubation space and schemes at incubation unit.
The same of the sa	Diami Baria			Venture Establishment and resource planning and Operation

Adoption of Techniques of Design Innovation, Business Canvas, Lean Startup, Bootstrapping, Customer, Society and Market oriented Startup Strategic Model, Market Research and Marketing Innovation techniques, techniques of "Forming-storming-norming-performing model" of group development etc for the team to grow, face up to challenges, tackle problems, find solutions, plan work, and deliver results.

# Detailed Semester Wise Credits and Learning and Evaluation Module Structure Location Scheme: Semester I Module I – Innovation, Entreprenurial Skill and Opportunity Identification

Semester	Module	Course Type	Course	Course Title/Workshop	15 3	Learning Mod (L,T, P:Total)	ng Mo	Learning Mode - Hours (L,T, P:Total)	Evaluation PRS+IA+ESE
						I Crea		$\sim$ $\vdash$	
	INDUCTION	Workshop	MBE I 101	Know/Manage Entreprenuerial Talent		0,0,1	-	I: Non	Self Assessment
	Module I							Credit	and Feedback
	(10 WEEKS)								
	L	Core Course		Consideration of the supplied of the supplied of					
		1	MBE CI11	Theories and Models of Entrepreneurship		-	1	2	02.00.00
		2	MBE C112	Research Methods-Data, Models & Decisions		-	1	1 (	20120100
1.7	2.	Elective Credit (Class Room)	Class Room)	Attention of the contract of t				1	20.202.00
6 E		1	MBE DEC	Principles of Technology-Innovation-Management.	100	-	0 2	7	20+40_40
		2	MBE DEC	Opportunities Mapping-Sector & Competitive Analysis of Start-up Ecosystem of Region & Nation. (Focus on Sector)	art-up	_	0 2	7	20+40+40
		ō	MBE MOOC 113	Or, Choice of any MOOC, or Course of Independent Study under industry/entrepreneur mentor/faculty approved by DEPARTMENT as of equivalent credit and desired content.	under NT as	_	0 2	2	As determined by guide and approved by
	3	Shill Confidentian	Description						DEPARTMENT.

	1.	MBE SC	SC Workshops/certification/awards in areas like:  Ideation, Business Model Canvas, Design Innovation, Technological			
			Innovation & Designing, Entrepreneurship, Data Analytic etc.	*(91) 0	4	50 +0+0+ 50 for
4.	Capstone Project	MBE CP1	Creative Problem Solving/Idea-Proof-of-Concept Submission *(A candidate is expected to work at least sixteen hours in a week)			POC to Prototype outcome
						evaluation specified
			× .			(Faculty
						Coordinator)
			Dacisionmaking 0	0 2	-	0+0+0
5.	Experiential Learning*	MBE EL1	Feasibility Analysis, Leadership, Leanwork, Decisionnassis, Ethics and socially conscious decisions, etc.		1	Compulsory, Non Credit

Credit:  $L-one\ hour\ per\ week\ for\ ten\ week=1\ credit;\ T/P-two\ hours\ per\ week\ for\ ten\ weeks=1\ credit;\ Project: 4\ hrs\ per\ week=1\ credit:$ IA – Integrated assessment basis department approved assessment methodology for specific course and component of pedagogy. Learning Mode: L – Lecture; T- Tutorial; P – Workshop/Practical/Experiential Case research or analysis etc.

Learning Mode Hours Evaluation 1.2 Teaching and Evaluation Scheme Semester I Module II - Management Skill for Entrepreneurs and Managing Value Creation

Scillester	Module	Course Lype	Code		(L,T, P:10tal) 1 Credit: 10 h	lotal) : 10 h	(L,T, P:Total)  1 Credit: 10 hours total	and an extension of
					T I	Д	T P TOTAL	
	Module II							
	-	Core Course		Superior Value	-	0	2	20+20+60
		-	MBE C121	Innovation/Development and Managing Customer and	-	6	2	20+20+60
		2	MBE C122	Entrepreneurial Finance: Concept & Management.				
	r	Elective Credit (Class Room)		S. L. L. J. See Detromonality	-	0 2	2	20+40_40
	i	-	EC	Managerial Economics and Environment in Indua to Citi Special		-		
			111		-	0 2	2	20+40+40
		2	MBE DEC	Start up Law, Company Act and Sector regulatory				
			- 11	(Focus oil section)		0 2	7	ermine
		0 <b>r</b> 1	MBE DEC	Or, Choice of ally mosts, or proved by DEPARTMENT as of				guide
			113	industry/entrepreneur ineritor approved		_		approved
				equivalent credit and desired content.		_		DEPARTMENT.
				Politica de la Constitución de l				
	1	Skill Certification	n Programs/Wor	Programs/Workshops/outside Classroom Lean ming	2			50+50+0 or
		<u>-</u>	MBE SC	Work	1			advised
			121	1. Start-up Ecosystem Management: Concept and Dest 1 ractions of				Faculty
				Pre-incubation Services Facilities - Mandatory				Coordinator:
				2. Enterprise Development, Management, Negotiation, Marketing &				Pass
								mandatory, basis
			15)	Coordinator				DEPARTMENT
								evaluation.

		Company of the control of the contro			validation as specified by DEPARTMENT (Faculty Coordinates)
5. Experiential MB Learning*	MBE EL 2	Perspective Essentials to value creation: Demand and Forecast, Market Segmentation, Pricing Strategy, Budgeting, Social Responsible Managerial Decision Making. Positioning and Value Proposition to all stakeholders in Value, when	0	0	0+0+0

# 1.3 : Teaching and Evaluation Scheme: Semester II Module III - Creating Sustaining Enterprise Model and Organisational Effectiveness

Semester	Module	Course Type	Course	Course Title/Workshop	Learning Mod (L,T, P:Total)	g Mo Total	Learning Mode Hours (L.T. P:Total) 1 Credit: 10 hours total	Evaluation PRS+IA+ESE
II					1	a	TOTAL	
	Module III (10 WEEKS)							
	1.	Core Course						
		1	MBE C231	Entrepreneurial Leadership - Org Behaviour	-	0	2	09+00+02
		2	MBE C232	New Venture Establishment & Management		0	7	20+20+60
	2.	Elective Credit (	Class Room)	AMERICAN STRUCTURE AND ADDRESS OF THE PROPERTY				
		-	MBE DEC 231	Measuring and Managing Strategic Performance of Existing and New Ventures	1 0	7	2	20+40_40
	-	2	MBE DEC 232	Corporate and Social Entrepreneurship	1 0	7	2	20+40+40
		0r1	MBE DEC 113	Or, Choice of any MOOC, or Course of Independent Study nder industry/entrepreneur mentor approved by DEPARTMENT as of equivalent credit and desired content.	1 0	7	2	As determined by guide and approved by
	33	Skill Certificatio	n Programs/Wo	Skill Certification Programs/Workshops/outside Classroom Learning				DELANIMENT.
		11	MBE SC 231	Workshops/certification/awards in areas like:  1. Start-up Ecosystem Management II: Concept and Best Practices of Incubation & Acceleration Services Management for Start-ups 2. Learn Start-up, Venture Planning & Management, Operation Management, Performance Management etc.	7	100	× ,	50+50+0 or as advised by Faculty Coordinator; Pass is mandatory, basis DEPARTMENT
	4.	Capstone Project III	MBE CP3	Development of Business Model for the Innovation.	0		16 4	50 +0+0+ 50 for Business Model

			Developing a Minimum Viable Product & Business Model to get mixethe Market.  *(A candidate is expected to work at least sixteen hours in a week)			specified by DEPARTMENT (Faculty Coordinator)
			0 and developing 0	0 2	-	0+0+0
ഗ	Experiential Learning	MBE EL 2	Building and implementing competitive capabilities and incommentations high performance organizations			Compulsory Non Credit
Start up Business Model/Enterprise Model Evaluation One week event for evaluation as determined by DEP?	interprise Model Evalu	ation DEPARTMENT				
Action Learning Segment -	ent –		O. Conformer	0	** 14	As determined by
9	8 weeks	MBE ALS 1	Action Based Learning on < Market Research & Cusuming Feedback> < Innovation and Business Model Validation> < Curumy Feedback> < Innovation and Business Model Validation> < Country Business & Service Portfolio Build> < Fund & Resource Generation Strategy> < Managing Resources in Start-up Environment> ** A student is expected to devote full working day every day of working week, as per organisational norms of internship start-up/company, during this phase, for action learning in above areas.	,		DEPARTMENT, basis Business Model Validation, Business Case presentation, acceptance by investor, Value chain creation.

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Semester Module	le	Course Type	Course Code	Course Title/Workshop  L.T. 1 Cre	(L,T, P:Total)  1 Credit: 10 hours total  1 T P TOTAL	rotal.	PRS+IA+ESE
				2			
Module IV	Module IV		-				
-		Core Course		1 1	0 0	1	20+20+60
			MBE C341	Venture Financing, Funding, Mech., Vandance	0 0	_	20+20+60
	12	7	MBE C342	Venture Growth Strategies			
2		Elective Credit			0 2	2 *2	20+40+40
i		-	MBE DEC	Digital Marketing		courses	
		*	341,342	Talent and Team Management		4	
				Buying Selling a Small Business		credits	ų
				HR Management: Performance and Competence mapping			
	9			1 Study under 1	7	2 credits	As determined by
			MBE DEC 343	choice of any Moc., or approved by DEPARTMENT as of industry/entrepreneur mentor approved by DEPARTMENT as of			guide approved
				equivalent credit and desired content.			DEPARTMENT.
			TO AND THE PROPERTY OF	D			\$0+50+0 or
ri e		Skill Certification 1.	MBE SC 341	Workshops/certification/awards in areas like Venture funding, Workshops/certification/awards in areas like Venture funding, Government support for star-ups, building value chains and value proposition Government support for star-ups, building value chains and vendor selection/management, developing			advised by Faculty Coordinator, Pass
				and valuation, supply critical areas			is mandatory, basis

|--|

# 1.5: Semester III Module V: Growing New Venture

Semester	Module	Course Type	Course	Course Title/Workshop	Learning Mode Hours (L,T, P:Total)	Evaluation PRS+IA+ESE
=					redit	le l
					L   T   P   TOTAL	
	(10 WEEKS)		Y AMP	Market and American Street		
	1.	Core Course				
			MBE C351	High performance organisations	1 1 0 2	09+00+00
		2	MBE C352	Strategies for competition and quality	+	20+20+60
	2.	Elective Credit -	-6 credit		2 2	N 15 mm
		1	MBE DEC	Government Strategies & Policies and International Economy	1 0 2 2	*2 20+40+40
			351, 352	Technology & Global Business Linkage Opportunities	courses	
				Global Start-up Exchange Incubation Program	II	4
				IPR Management	credits	
		2. primar and primar a	MBE DEC 353	Choice of any MOOC, or Course of Independent Study nder industry/entrepreneur mentor approved by DEPARTMENT as of equivalent credit and desired content	1 0 2 2 credits	
		Claim Continues	VIV1-1-1	Marine Agenties of Marine Ballet and Marine Ballet		DEPARTMENT.
	0.	Skill Certification	/ W OFKShops/out	Skill Certification/ Workshops/outside Classroom Learning		
			MBE SC 351	Workshops/certification/awards in areas like: Learn Start-up, Venture Planning & Management, Operation Management, Performance Management etc.	7	50+50+0 or as advised by Faculty Coordinator; Pass is mandatory, basis DEPARTMENT
		Experiential Learning	MBE EL 2	Building and implementing competitive capabilities and developing high performance organizations	0 0 2 1	0+0+0 Non Credit
Enterprise One week One week	Enterprise/Business Evaluation One week Evaluation Event as one week Semester Break	Enterprise/Business Evaluation One week Evaluation Event as determined by DEPARTMENT One week Semester Break	PARTMENT	The second secon		

# 1.6: Semester IV -Venture Establishment Phase

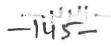
semester	Moduic	Course Type	Course	Course Title/Workshop	Learning Mode (L,T, P:Total)	Evaluation PRS+IA+ESE
=			-		I Credit: 10 hours total	
	Action Learning	Segment II: Venture	e Development	A TO NOTIFICATION OF THE PROPERTY OF THE PAR	T I I I I I I I I I I I I I I I I I I I	

(24 Weeks) SIX Months	ntinsj			
1	Skill Certification/W	Workshops/out	/orkshops/outside Classroom Learning	50+50+0 or as
Y.	1	MBE SC 461	Workshops/certification/awards in areas like: Learn Start-up, Venture Pjanning & Management, Operation Management, Performance Management etc.	advised by Faculty Coordinator; Pass is mandatory, basis DEPARTMENT cvaluation.
2.	Action Learning	MBE AL 2	Raise funding, Evaluation Readiness, Customer Base development 20	Outcome based evaluation as
			Partnerships and Stakenolder Inlangement, value are and and development of supply and forward chains, Credit and	determined DEPARTMENT.
			operations scale up. Work hours expected as in AL1	

Enterprise/Business Evaluation
Two week Evaluation Event as determined by DEPARTMENT

# Syllabus MBA Entrepreneurship Innovation and Venture Development **Core Courses**

MBE C111	Title Theories and Models of Entire
	After the course the student should be able to describe the various theories of entrepreneurship, emulate the entrepreneur's personal characteristics, assimilate the decisionmaking typical of entrepreneurs informed risk taking behavior, and identify the models of entrepreneurial activity and venture development, decisionmaking styles, develop skills which enable entrepreneurial initiatives. The course will cover the characteristics of entrepreneurial profiles, theories of entrepreneurship, development of ventures, models of entrepreneurial activity, enablers of entrepreneurial initiatives, mindset, resources and their mobilization.
MBE C112	Research Methods-Data, Models & Decisions Credit - 2  After the course the student must be able to use various research approaches, to aid decisionmaking in management of new venture, and researching technology development, customer value, us value chains and market opportunities using various tools and techniques.  The coverage shall include research types: qualitative and quantitative, exploratory, descriptive, survey and desk research, open sources of data, cluster, factor, regression and decision trees, building models using statistical and enterprise software.
MBE C121	Innovation Development and Managing Value Credit - 2  The course prepares the students for developing processes and ensuring commercially successful outcomes of the innovation process, new product development, creating and managing a continuous innovation system, mapping customer value insights that help guide innovation around customer painpoints and unmet needs.  Coverage includes the concepts of innovation, product/service concept, product life cycle, new product development process, service blueprint and servicescape, mapping and managing customer value, value add process and innovation cycle, financial and market feasibility and market testing, segmenting targeting and positioning new products, managing diffusion of innovation
MBE C122	Entrepreneurial Finance: Concept & Management. Credit - 2  The course prepares students for managing the financial resource mobilization, financial systems, feasibility and business financial models, cost management and accounting for profitability, financial ratios and performance management, investment and financing options, financial institutions. The coverage includes the basic accounting and financial concepts for running an enterprise, such as credit and debt, cost concepts, balance sheet, journal and accounting practices, inventory accounting, financial ratios, capital structure, working capital, assets and basic profit and valuation calculations, financial management systems, investment analysis. BOI 100.
MBE C231	Entrepreneurial Leadership — Organisational Behaviour and Human Resource Management Credit -2 Student face one of the biggest challenges in new ventures in the form of people issues, and creating and leading a team of start-up partners and employees effectively, providing leadership to the organization. The course prepares students to face the challenge of managing people and organizational leadership issues. The course prepares the HR processes: mapping roles recruiting, selecting, compensation, training, placement, line and staff functions, leadership concept, role and styles, organisations.



MBE C232	New Venture Establishment & Management Credit - 2
	The course enables students to create and run a new venture, managing various aspects of the venture such as financial and legal compliance, people issues and structure, leading the venture towards achieving its goals, managing different stages of
	development by knowing and tackling the challenges with the help of a clear strategy.
	Stages in venture development, establishing a new venture, forms of business/social ofganisations, creating and
	organisations, scaling, managing growth challenges, leadership and empowering teams. Managing the nascent
	organization, creating the right culture, structure. Financial and legal systems and compliance for start ups.
MBE C341	Venture Financing: Funding, M&A, Valuation Techniques Credit - 2
	The student would be able to determine the structure of capital and other funding requirements, and prepare definition for
	seed funding, start-up stage series B etc., by analyzing meir won and investor's gains and may nomen uns perspective. The
	course covers the various sources of funding, instruments, equity, debt, if O, funds, anger mivesting, i.e. funding, instruments, increased and acquisitions valuation techniques for various enterprise forms and stages, risk assessment and management, etc.
	Suggested Textbook:
	Aswath Damodaran, Investment Valuation: Tools and Techniques for Determining the Value of any Asset, 3rd
	Edition, Wiley Finance Series: New Delhi
	• Alex Wilmerding Term Sheets & Valuations: A Line by Line Look at the Intricacies of Term Sheets & Valutions,
	Aspatore Books Staff
MBE C342	Venture Growth Strategies Credit -2
	Planning for Growth: Disruptive and Growth Models; Acquisition; Collaborations and networks of innovation and scaling;
	License to grow; Franchising; International Expansions; Leadership for Performance; Growth Capabilities; Innovate to
	compete; Digital innovators; Brand Building: Marketing Enterprises across platforms; Online Selling; Social media
	leverage; People and Performance: Inspiring Teams; Recruitments and Maximising human performance. Cash flow and
	expansion: Trade financing; Credit Control; Digital Next Gen Workplace; Business automation;; Growth capital: Kaising
	capital; Access to funds.
MBE C351	High Performance Organisations Credit -2
	The course prepares students for creating ventures that achieve significant organizational glowin and executions.
	milestones and enables them to create figh perioritiative organisations that may active scale and commiscial success.
	The coverage of the course includes the characteristics of fight performance of gammarching for the course in achieving vision pregnizational goals mission pregnizing for high performance, competence
	mapping and capability models, balanced score card approach, milestones in organizational excellence.
MBE C352	Strategies For Competition And Quality Credit - 2
	The course focusses on enabling students to map and benchmark competition, create relevant organsiational mission and
	goals, develop competitive advantage and nurture their new ventures culture, build systems in terms of total quality and
	ensure monitoring of key aspects of venture development.
	Coverage includes the concepts of competition, competitive advantage and competitive forces, analyzing industry and key
	stakenolders including compeniors, customers and substitutes, investors, successor mane months of management, six sigma,
	service quality, relative customer value (RCV) mapping and benchmarking, NPS system.

# Common Management Admission Committee (DELHI TECHNOLOGICAL UNIVERSITY & NETAJI SUBHAS UNIVERSITY OF TECHNOLOGY) MBA Programme Batch 2019-21

# Revised Admission Schedule

S.	Events	Revised dates
Vo.	v	1 )
1.	Uploading of Information bulletin and Application form on DTU website	12/02/2019 (Tuesday)
2.	Last date of submitting the completely	28/04/2019 (Sunday)
3.	filled application form  Date of release of short-listed candidates	02/05/2019 (Thursday)
4.	for GD and Interview GD and Interview of short listed	From 06/05/2019 (Monday)
5.	candidates  Release of the list I of selected and	17/05/2019 (Friday)
6.	waitlisted candidates Reporting of candidates for First	25/05/2019 (Saturday) - 26/05/2019 (Sunday)
7.	Counselling Release of List II for admission from the	31/05/2019 (Friday)
1.5	waitlisted candidates against vacant/withdrawal seats	
8.	Reporting of candidates for Second	06/06/2019 (Thursday)
9.	Release of List III for admission from the waitlisted candidates against vacant/withdrawal seats	12/06/2019 (Wednesday)
10.	Reporting of candidates for Third	19/06/2019 (Wednesday)
11.	Release of list IV of selected candidates	03/07/2019/f.Wednesday)
12.		10/07/2019 (Wednesday)
13	Release of List V for admission from the waitlisted candidates against	17/07/2019 (Wednesday)
14		24/07/2019 (Wednesday)
15	Counselling LAST DATE OF ADMISSION	30/07/2019 (Tuesday)
16	Notification of Spot Round (if required)	08/08/2019 (Thursday)
17	Spot round	14/08/2019 (Wednesday)

# DELHI TECHNOLOGICAL UNIVERSITY DEPARTMENT OF DESIGN

Bachelor of Design: Scheme of Teaching & Examination

### Third Year 5th SEMESTER

**CREDITS: 22** 

S No.	Code	Course Title	Credit		Contac	ct Hours/	ours/Week		
				L	Т	S	Total		
1	DD301	Universal Design	4	1	0	6	7		
2	DD303	Design Thinking	4	2	0	4	6		
3	DD3XX	Elective-3	4	1	0	6	7		
4	OEXXX	Open Elective	4	2	1 3	-	(e		
5	DD311	Design Project-5	4	1	0	6	7		
6	DD313	Internship - 1	2						

### Third Year 6th SEMESTER

**CREDITS: 22** 

S No.	Code	Course Title	Credit		Contac	t Hours/	Week
		TE		L	Т	S	Total
1	'DD302	Sustainable Design	4	2	0	4	6
2	DD3XX	Design Management	4	2	0	4	6
3	DD3XX	Elective-4	4	1	0	6	7
4	DD3XX	Elective-5	4	1	0	6	7
5	DD312	Design Project-6	4			8	8
6	DD314	Internship - 2	2				

### Weights for Course Evaluation

S. No.	Course Type			Examination		Relative Weight				
	L	Т	S	ТН	ST	CWS	STS	MTE	ETE	STE
1	1	0	2	Yes	Yes	10	40	10	20	20
2	1	0	6	Yes	Yes	10	40	10	20	20
3	0	1	6	Yes	Yes	10	40	10	20	20

STE: Students semester work to be presented before jury.

CWS: Assignment based on lectures

STS: work done in studios

MTE / ETE: Written test based on lecture-6

Note: Field Study will be a part of Design Project 5 & System Design Project.

# DELHI TECHNOLOGICAL UNIVERSITY DEPARTMENT OF DESIGN

Bachelor of Design: Scheme of Teaching & Examination

### Fourth Year 7th SEMESTER

CREDITS:22

S No.	Code	Course Title	Credit		Contac	t Hours/	Week
1	DD401	-		L	Т	S	Total
1	DD401	Design Research	4	2	0	4	1
2	DD4XX	Elective - 6	1	1	0		6
3	DD4XX	Elective - 7	4	1	0	6	7
4	DD4XX	Elective - 8	4	1	0	6	7
-			4	1	0	6	7
3	DD4XX	Elective - 9	4	1			
6	DD413	Internship - 3	2	1	U	6	THE VETT L

### Fourth Year 8th SEMESTER

CREDITS:22

S No.	Code	Course Title	Credit		Contac	t Hours/V	Veek
1	DDWww			L	Т	S	Total
1	DDXXX	Design Seminar	2		100		
2	DDXXX	Design Degree Show	1		and AL and		
3	DD412	B Des Project	16	-	-	-	
	10.7	I CONTRACTOR	16	10	0	32	32

### Weights for Course Evaluation

S. No.	Course Type			Examination			Relative Weight				
	L	T	S	ТН	ST	CWS	STS	MTE	ETE	STE	
1	1	0	2	Yes	Yes	10	40	10	20	20	
2	1 992	0	6	Yes	Yes	10	40	10	20	20	
3	0	1	6	Yes	Yes	10	40	10	20	20	

STE: Students semester work to be presented before jury.

CWS: Assignment based on lectures

STS: work done in studios

MTE / ETE: Written test based on lecture

# DELHI TECHNOLOGICAL UNIVERSITY DEPARTMENT OF DESIGN

Bachelor of Design: Scheme of Teaching & Examination Electives

Third Year 5th SEMESTER

Elective- 3

S	Code	Course Title	Credi	Contact Hours/Week			
No.			t	L	Т	S	Total
1	DD321	Research Techniques in Cognition, Perception and Creativity	4	1	0	6	7
2	DD331	Typography - 2	4	1	0	6	7
3	DD341	Animation - 2	4	1	0	6	7
4	DD351	Taxonomy of Product Design	4	1	0	6	7

### Third Year 6th SEMESTER

Elective- 4

S	Code	Course Title	Credi	Con	Contact Hours/Week		
No.			t	L	T	S	
							Total
1	DD323	Psychology and Behaviour Science	4	1	0	6	7
2	DD333	Photography - 2	4	1	0	6	7
3	DD343	Usability Insights	4	1	0	6	7

### Elective- 5

S	Code	Course Title	Credi	Cont	Contact Hours/Week		
No.			t	L	T	S	Total
1	DD325	Data Visualization	4	1	0	6	7
2	DD335	Visual Narratives and Storytelling	4	1	0	6	7
3	DD345	Design and Programming	4	1	0	6	7

### Fourth Year 7th SEMESTER

Elective- 6

S No.	Code	Course Title	Credit		Contact Hours/Week			
1	DD22	N. Marie		L	Т	S	Total	
1	DD32 2	Model Making and Prototyping	4	1	0	6	7	
2	DD33 2	Graphic Design	4	Ĩ	0	6	7	
3	DD34 2	Augmented and Virtual Reality	4	1	0	6	7	

Elective- 7

S No.	Code	Course Title	Credi		Week		
1	DD224	Wile allows 1 state of	t	L	Т	S	Total
1	DD324	Mobility Design	4	1	0	6	7
2	DD334	New Media Studies	4	1	10	6	7
3	DD344	Advanced Material Processes and Finishes	4	1	0	6	7

Elective-8

S No.	Code	Course Title	Cred		Week		
1	DD226	V 0 V 1	it	L	T	S	Total
1	DD326	Applied Ergonomics	4	1	0	6	7
2	DD336	Advance Animation and Moving Image Design	4	1	0	6	7
3	DD346	Design for UX	4	1	0	6	7

Elective-9

S No.	Code	Course Title	Credit	Contact Hours/Week				
1	DD220	N 11 1 2 2 2		L	T	S	Total	
1	DD328	Medical Equipment Design	14	1	10	6	7	
2	DD338	Branding - 2	4	1	10		- /	
3	DD348	Service Design		1	- 0	0	17	
		T Service Besign	4	1	0	6	7	

### Weights for Course Evaluation

S. No.		Course	Гуре	Exa	mination		ight			
	L	Т	S	TH	ST	CWS	STS	delative We	ETE	STE
1	1	0	2	Yes	Yes	10	40	10	20	20
2	1	0	6	Yes	Yes	10	40	10	20	20
3	0	1	6	Yes	Yes	10	40	10	20	20

STE: Students semester work to be presented before jury.

CWS: Assignment based on lectures

STS: work done in studios

MTE / ETE: Written test based on lecture

Semester 5
Scheme of Teaching & Examination
(Core Subjects)

Course Title: Universal Design

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 5<sup>th</sup>

Aim: To understand the requirement of all set of users with and without disabilities

### Details of the Course

No	Contents	Contact weeks
1	Overview of universal design- timeline of UD, definition, Objectives, and its principles	
2	inclusive design, assistive technology, design for all etc.	2
3	Identification of user requirements, user inclusion, types of needs, framework to extract needs from user study, various frameworks & application of Universal Design.	5
4	Integration of sustainability, frugality with universal design to develop true universal products.	5
98	Total	14

Outcome: Students will understand and solve the problems associated with the diverse set of users in various domains like public & private space etc.

S.No	Name of Authors / Books / Publishers	Year
1	Preiser, Wolfgang F E, Ostroff, Elaine, Universal Design Handbook, McGraw Hill	2011
2	Levine, Danise, Universal Design New york, IDEA Publication	
3	Steinfeld Edward and Maisel Jordan Hairran 1 P.	2003
4	Steinfeld Edward and Maisel Jordana, Universal Design: Creating Inclusive environments Hekkert, Paul, Product experience, Elsevier	2012
		2008

Course Title: Design Thinking

**Contact Hours:** 

L: 2 T: 0 S: 4

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 5<sup>th</sup>

lit: 4

Aim: To understand and differentiate design thinking form other technical and conventional thinking.

### Details of the Course

S. No.	Contents	Contact weeks
1	Understanding how Design thinking is different from technical thinking Empathy, user stories, interpretive research, user journey	2
2	Visual representation of problem statements; contextualization and validation of a problem set.	3
3	Mapping solutions; partial solutions; incremental solutions	3
4	Brainstorming; Differential Discussion; group methods to generate ideas; solitary methods to generate ideas; Lateral Thinking	3
5	User Journey maps; User stories; activity mapping; feature matrix	3
	Total	14

Outcome: Ability to comprehend large scale problems and to come up with radical solution in relatively short time.

S.No	Name of Authors / Books / Publishers	Year
1	John Thackara, In the Bubble: Designing in a Complex World, The MIT Press	2005
2	Bruce Hanington, Bella Martin, Universal Methods of Design: 100 Ways to Research	2012
	Complex Problems, Develop Innovative Ideas, and Design Effective Solutions, Rockport	1
NF	Publishers	
3	Donald A. Norman, Living with Complexity, MIT Press	2010
4	Jeffrey Whitten and Lonnie Bentley, Systems Analysis and Design Method.	2005

## Semester 5 Scheme of Teaching & Examination (Elective - 3)

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notes that the rest colored from some of the problems and to come any the sold color of the color of the rest colored colors.

200_	John Christian I. and Parkey Pengeling in a Controlog World, The MIT Press	
	Branch Managers, Tella Viarra, Clairsquid Matheds of Dodget 100 Ways to Research Complex Problem, October 19, Indoordor (doct, and Dodget Efficiely Scholions, Rockets)	
	Published	
	Takensti A. Syawen, a etais with Complexity, Millioness	
2000	Attimes Whitten and Lemnic Bundley, Systems Analysis and Design Method	

-155-10:

Course Title: Research Techniques in Cognition,

Perception and Creativity

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 5<sup>th</sup>

Aim: To develop an analytical approach in understanding the User and use various tools to creatively arrive at user centered design solutions.

### Details of the Course

S. No.	Contents	Contact weeks
1.	Different Methods of understanding the user; Interviews, Questionnaires, Observation, Physiological Observation etc	3
2.	Measuring human behaviour and activity at behavioural and neural levels	3
3.	Interdisciplinary Approach for Cognitive Science and Experimental studies using Eye Tracking, EEG data for measuring Brainwave, Physiological responses like Blood Pressure, GSR, breathing in context of perception cognition and creativity and problem solving	4
4.	Research Investigation on a specific problem, Analysis and correlation of Data from various experiments with particular emphasis on understanding how to approach design research questions using scientific tools.	4
	Total	14

Outcome: Students will develop an interdisciplinary attitude towards problem solving.

S.No	Name of Authors / Books / Publishers	Year
1	Susan Weinschenk, Neuro Web Design, What makes them click?	2009
2	V. S. Ramachandran, The Tell-Tale Brain: A Neuroscientist's Quest for What Makes Us Human	2010
3	John Kounios and Mark Beeman, The Eureka Factor: Aha Moments, Creative Insight, and the Brain	2015
4	IMotions Academy Monographs	

**Contact Hours:** 

**Examination Duration (Hrs.)** 

Relative Weight:

Credit: 4 Semester: 5<sup>th</sup> Course Title: Typography - 2

L: 1 T: 0 S: 6

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To understand how to design text across a broad range of technologies, media, and context, thereby furthering education about the historical, technical and aesthetic aspects of text and typography.

### Details of the Course

S. No	Contents	Contact weeks
1	Type forms based on the research of typographic design history.	2
2	Typography usage to conceptualize and visualize complex bodies of information for a variety of communicative purposes, Expressive and communicative qualities of typographic forms using a variety of approaches and media, type and color, selection and arrangement of type for effective legibility and readability, Typography as a primary visual and illustrative element	4
3	Develop software skills to style, format and design professional type, explore using type in three dimensions—digitally and physically, technical aspects of organizing and formatting type as part of the production process for all media.	4
4	Developing, composing, and producing extended typographic project, Typography as personal æsthetic, expression, motivation and inspiration.	4
Mile.	Total .	14

Outcome: Appreciate the nuances and apply the techniques involved in professional typesetting so as to understand how type can be used as a primary method of visual design and communication.

S.No	Name of Authors / Books / Publishers	Year
1	Thinking with Type: A Critical Guide for Designers, Writers, Editors and Students by Ellen	2010
2	Type on Screen: A Critical Guide for Designers, Writers, Developers, and Students (Design Briefs)	2014
3	Grid systems in graphic design: A visual communication manual for graphic designers, typographers and three dimensional designers (English edition) by Josef Müller-Brockmann (Author)	1996

**Contact Hours:** 

**Examination Duration (Hrs.)** 

Relative Weight:

Credit: 4 Semester: 5<sup>th</sup> Course Title: Animation - 2

L: 1 T: 0 S: 6

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To understand how key visual communication design elements, design principles, media, materials, and manual and digital methods contribute to the creation of their own visual language.

### **Details of the Course**

S. No	Contents	Contact weeks
1	Understanding contemporary trends in animation making in terms of content.	14
2	Character animation- mechanics of biped walks, run, gestures etc.	
3	Creating special effects	
	Total	14

Outcome: Students will be able to demonstrate short animation movie.

S.No	Name of Authors / Books / Publishers	Year
1	Harold Whitaker and John Halas, Timing for Animation, Focal Press; 2 edition	2009
2	Preston Blair, Cartoon Animation, Walter Foster Publishing Inc.	1995
3	John Culhane, Disney's Aladdin – The Making of an Animated Film Hyperion, Disney Editions; Reprint edition (2 September 1993)	1993

Subject Code: DD313 **Contact Hours:** 

Examination Duration (Hrs.)

Relative Weight:

Credit: 4 Semester: 5th Course Title: Exploring the Taxonomy of Product Design T: 0 S: 6

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To advance knowledge and develop scholarship in design thinking and design methodology.

### Details of the Course

S. No	Contents	Contact weeks
1	Exploring systems of classification, morphology and Taxonomy. Advantages in managing change and evolution.	2
2	Products we operate: personal products, appliances, hand tools, machine tools, etc Products we play with: toys, sports equipment, reconfigurable products, etc	2
3	Products we live in: ladies bag, tool box, refrigerator, operation theater, kitchen,etc Products that are slaves: robots, etc	2
4	Products that collaborate with user: Deep learning products, AI based products, etc Products that enfold with time: Self sustaining growth oriented products, transformer products, movies, etc	2
5	Products that augment reality: Products that enhance senses, perception, feelings, understanding and experience, etc	2
6	Term Paper presentation	2
	Total	14

Outcome: A scholarly approach. Ability to advance knowledge in design.

S.No	Name of Authors / Books / Publishers	Year
) = 30 10	Taxonomy: The Classification of Biological Organisms (Heredity and Genetics) by Kristi Lew	2000
?	On Growth and Form: The Complete Revised Edition Paperback – by D'Arcy Wentworth Thomson	1992
	Organising Knowledge: Taxonomies, Knowledge and Organisational Effectiveness (Chandos Knowledge Management) by Patrick Lambe	2014
	Design Thinking Process & Methods 4th Edition by Robert A Curedale	2017

Semester 6 Scheme of Teaching & Examination (Core Subjects)

Course Title: Sustainable Design

**Contact Hours:** 

L: 2 T: 0 S: 4

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4
Semester: 6<sup>th</sup>

Aim: To understand the concerns with human and environment care and achieving these in a sustained manner.

### Details of the Course

S. No.	Contents	Contact
1	What makes the biological Ecosystem so creative and sustainable? Creativity & Care. Self-reliant, dependence and interdependence, Symbiosis in nature. Optimal use of material, energy and information. Optimized growth. Compatibility between form and function. Self-recovery. Upgradability. Enhancing propensity for growth. Technical design for functionality, emotional design for interactivity. Understanding design sophistication in nature.	4
2	Concept of wellness in nature. Independence, dependence and interdependence, Symbiosis in nature. 3P Diagram and beyond. Life-cycle analysis, Cradle-to-Cradle, Frugal Design Through Sustainability, Production, unfolding wholeness, Sustainability matrices. Material / Process / Design Trends, Assessment Tools & Techniques. System Design, networks and optimization.	4
3	Individual / group project exploring sustainability challenges and finding solutions. Student presentations.	6
KANN!	Total	14

Outcome: Students will develop an understanding of the different concerns pertaining to the environment and their role as a designer in achieving

S.No	Name of Authors / Books / Publishers	Year
1.	Documentaries on ecology, man-made world.	
2.	Bhamra, T, & Lofthouse, V, Design for sustainability, Grover Publication	2005
3.	Williams, D. E., Sustainable design: ecology, architecture, and planning. John Wiley &	2007
	Sons	2007

Course Title: Design Management

**Contact Hours:** 

L: 2 T: 0 S: 4

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Studio. 4

Credit: 4 Semester: 5<sup>th</sup> CWS-10 STS-40 MTE-10 ETE-20 STE-20

**Aim:** To develop an Entrepreneurial attitude of handling Design Projects and applying Design Management for an innovative environment in a company, process or consultancy.

### **Details of the Course**

S. No	Contents	Contact weeks
1	Perspectives on innovation and design management in companies, product & services; Creation of an innovative environment in a company, Market Oriented Innovation; Product Planning for the future, Disruptive Innovation; Briefs, Detailed Briefs and Concept Notes	3
2	Systems for innovation processes design management as an integrating tool in the company; Managing projects, clients and payments	3
3	Running a consultancy account for the role of innovation and design in society; apply approaches in design management to further develop the competitiveness of businesses with help from theories and models taken from design management	4
4	Design and Design management from an ethical perspective; critically discuss design management in relation to different ethical aspects such as gender and sustainability	4
	Total	14

### Outcome:

Learning methodology of managing resources and opportunities for design improvements and innovations in companies, startups and consultancies.

S.No	Name of Authors / Books / Publishers	Year
1	Best, K. Design management: managing design strategy, process and implementation, AVA publishing	2006
2	Cooper, R., Junginger, S., & Lockwood, T. (Eds.). The handbook of design management. A&C Black	2013
3	Martin, R. L, The design of business: Why design thinking is the next competitive advantage. Harvard Business Press.	2009

Semester 6 Scheme of Teaching & Examination (Elective - 4)

Course Title: Psychology and Behaviour Science

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Studio. 7

Credit: 4 Semester: 6<sup>th</sup> CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To develop an understanding about the Psychology and its importance in Design Process.

### **Details of the Course**

S. No	Contents	Contact weeks
	Tuto dusting to Development ID-1 ' O' D. 136 (1.1' D. 1.1)	
1.	Introduction to Psychology and Behaviour Science, Research Methods in Psychology	3
2.	Thinking form the view of Societal Structure, Social Life use of various tools such as	3
	Empathy Mapping, Application of Cognitive ease, Norms, surprises, and causes	
	How judgments happen Heuristics and biases. The law of small numbers etc	
3,	Application of different principles such as: Anchors, The outside view, Prospect theory, The	3
	Endowment effect, Rare events, Risk policies, Keeping score Reversals, Positive	
	Reinforcement etc	
4	Applying Behavioural Science and Psychology in Design Process in small projects;	5
	Development of Products, Services, Experiences etc	
COLUMN TO A STATE OF	Total	14

Outcome: Students will be able to come up with Design Solutions and Interventions by practical application of Psychology and Cognitive Sciences

S.No	Name of Authors / Books / Publishers	Year
1	Daniel Kahneman, Thinking Fast and Slow	2013
2	Dan Ariely, Predictably Irrational: The Hidden Forces That Shape Our Decisions	2010
3	Richard Thaler, Cass Sunstein Nudge: Improving Decisions about Health, Wealth, and Happiness	2008

Contact Hours:

**Examination Duration (Hrs.)** 

Relative Weight:

Credit: 4

Semester: 6<sup>th</sup>

Course Title: Photography - 2

L:1 T:0 S:6

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To learn the advance techniques of photography

### Details of the Course

S. No	Contents	Contact weeks
1	Focus beyond the basics i.e. advanced technical aspects, such as advanced camera settings and lens techniques. Enhance your photographic knowledge and mastery of subjects such as visual language, advanced composition and lighting.	14
COLUMN TO SERVICE	Utilise digital workflow processes to ensure maximum accuracy and output quality. high and slow speed photography, Image processing for various application- Satellite images, medical related images etc	
Outo	Total	14

Outcome: Develop technical skills and become familiar with the functions of the visual elements.

S.No	Name of Authors / Books / Publishers	Year
1	Spencer, D A (1973). The Focal Dictionary of Photographic Technologies. Focal Press. p. 454. ISBN 978-0133227192.	1973
2	Ascher, Steven & Pincus, Edward, The Filmmaker's Handbook: A Comprehensive Guide for the Digital Age, Plume; 4 Rev Upd edition (27 Nov. 2012)	2012
3	wade, Nicholas J.; Finger, Stanley (2001). "The eye as an optical instrument: from camera obscura to Helmholtz's perspective". Percention 30 (10): 1157-77	2001
4	Tom Porter ,Design Drawing techniques for architects, graphic designers and artists, Oxford Architectural Press,1991 Terence ed .Dalley, The complete guide to illustration & design, Phaidon, Oxford	1980
5	T. C. Wang, Pencil Sketching, John Wiley & Sons, 1997	1997

Course Title: Usability Insights

**Contact Hours:** 

T: 0 L: 1 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Credit: 4 Semester: 6th CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To develop an understanding of the different usability aspects related to Design

### **Details of the Course**

S. No	Contents	Contact weeks
1	History of product increase in complexity and usability since WW-2. Story of transition in human society form Man-Machine Interaction to Human-Computer Interaction.  Relationship between product complexity and mental workload.	3
2	Subjective and objective measurements of product complexity and mental workload. User centered design process for usable product design. Understanding users' mental models. Creation of Personas and scenarios.	3
3	Conduct of task analysis. Operational definitions of usability. Measurement of ease of use, efficiency and effectiveness of digital products. Design of interactive products from usability perspective. Development of user screeners; testing protocols and conduct of usability tests.	4
4	Usability Testing by creation of paper prototypes, wireframes, information architecture. Conduct of low fidelity tests, card sorting, reverse card sorting, affordance tests, high fidelity testing and brand testing.	4
STERROR	Total	14

Outcome: Students will be able to conduct various usability studies and experiments required for the Desgin and development of Products, Services, Experiences etc.

S.No	Name of Authors / Books / Publishers	Year
1	William Lidwill, Jill Butler, Kritina Holden, Universal Principles of Design: 100 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions, and Teach Through Design, Rockport Publisher	2003
2	Susan M. Weinschenk, 100 Things Every Designer Needs to Know about People, New Riders Publisher	2011
3	Jef Raskin, The Humane Interface: New Directions for Designing Interactive Systems, Addison Wesley Professional	2000
4	Steve Krug, Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability	2003

## Semester 6 Scheme of Teaching & Examination (Elective - 5)

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Outcomer Stolland of Products Services Experience and experiments and experiments required for the League and development of Products Services Experiences are

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Course Title: Data Visualization

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Credit: 4 Semester: 6th CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To understand techniques and methods for creating effective visualisation based on on principles from graphic design, visual art, perceptual psychology, and cognitive science

### Details of the Course

S. No	Contents	Contact weeks
1	Importance of data visualisation; Data and image models; Visualisation Design;	3
2	Color; Space; Data Analysis; Multi Dimensional data; Graphical Perception;	4
3	Visualisation Software; Interactive Visualisation; Animation in Visualisation	4
4	Mapping and cartography; Narrative; Text Visualisation	3
S-15/2	Total	14

Outcome: Students will be able to visualise different types of complex data in effective ways through exercises

S.No	Name of Authors / Books / Publishers	Year
1	Envisioning Information, E. Tufte. Graphics Press	1990
2	The Visual Display of Quantitative Information (2nd Edition). E. Tufte. Graphics Press,	2001
3	Data Visualisation: A Handbook for Data Driven Design, SAGE Publications	2019
4	Murray, Scott. Interactive Data Visualization for the Web: An Introduction to Designing with, "O'Reilly Media, Inc."	

Contact Hours:

Course Title: Visual Narratives and Storytelling

L:1 T:0 S:6

Examination Duration (Hrs.)

Relative Weight:

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4
Semester: 6<sup>th</sup>

Aim: Understanding the art of visual narrative and storytelling in order to communicate effectively and resonate with the audience

### Details of the Course

No	Contents	Contact weeks
1	Exploring Design possibilities design concerns, problems and solutions.	
2	characters in visual storytelling; Story structure	3
3	visual language; use of metaphors; Storyboard	4
1	Different media for storytelling and 51	3
	Different media for storytelling- ads, films, poster, comics etc.; Grammar and language for different media	4
	Total	14

Outcome: Exploring various media and various types of visual narratives and storytelling through exercises

S.No	Name of Authors / Books / Publishers	Year
1	Visual Storytelling and Narrative Structure by Stuart poynitz; Open Learning Agency,	
2	The Photographer's Story: The Art of Visual Narrative By Michael Freeman	
3	Storytelling in Video Games: The Art of the Digital Narrative By Amy M. Green	
4	Digital Storytelling: The Narrative Power of Visual Effects in Film  By Shilo T. McClean	

Course Title: Design and Programming

**Contact Hours:** 

T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Credit: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Semester: 6th

Aim: To develop Hardware and Software Prototyping skills in students keeping in mind the requirements for

### Details of the Course.

S. No	Contents	Contact weeks
1	Introduction to the fundamentals of computational thinking as well as skills in the design	2
	and implementation of software for creative expression and prototyping.	
2.	Introduction to tools for building interactive design applications through programming	2
	assignments; knowledge of programming concepts; and knowledge of various programming	
	languages for applying variables, functions, control flows, and algorithmic thinking etc.	
3.	Tools for Hardware and Electronic Prototyping. Arduino, Raspberry Pie etc	4
4.	Use of the Prototyping skills for Development of Small Projects.	6
	Total	14

Outcome: Students will develop an understanding to design through the development of code and use of hardware, allowing them to incorporate programming into their own design projects.

S.No.	Name of Authors / Books / Publishers	Year
1	Simon Monk, Programming the Raspberry Pi: Getting Started with Python	2012
2	Massimo Banzi, Getting Started with Arduino	2008
3	Narasimha Karumanchi, Data Structure and Algorithmic Thinking with Python	2015

Semester 7 Scheme of Teaching & Examination (Elective - 6)

Course Title: Model Making and Prototyping

**Contact Hours:** 

L:1 T:0 S:6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Studio: 4

Credit: 4 Semester: 6<sup>th</sup> CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To develop an understanding of prototyping and material knowledge

### Details of the Course

S. No	Contents	Contact weeks
1	Emphasis on the skills of workshop methods, hands on techniques, Characteristics of prototyping, How prototypes are used	3
2	Model making- principles and choices for model making, safety associated with model making	3
3	space and setup, workflow, tools	4
4	hands on with different materials	4
TO SERVICE SER	Total	14

Outcome: To understanding of the behaviour and properties of various prototyping materials to convert idea into manufacturable standards

S.No	Name of Authors / Books / Publishers	Year
1	J. Garratt, Design and Technology, Cambridge University Press, UK	2004
2	R. Thompson, Manufacturing Processes for Design Professional, Thames & Hudson, London	2007
3	Michael Ashby and Kara Johnson, Material and design, The Art and Science of Material Selection in Product Design, Butterworth Heinemann,	2002

Contact Hours:

Course Title: Graphic Design

S: 6

L: 1 T: 0

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 6<sup>th</sup>

Aim: To develop an understanding of the basics of Graphic design

### Details of the Course

S. No	Contents	Contact weeks
1	Introduction to Graphic design; Elements of Graphic design; Space; Unity; Text and Image;	3
2	Concepts of graphic design- layout, grid, composition, form, content, figure and ground, gestalt laws	4
3	Fonts and their properties- typeface anatomy, x-height, ascenders, descenders, kerning, tracking and leading	3
4	Integrating type and image, type as a visual identity, techniques of realising graphic design  Total	4
		14

Outcome: Students will be able to understand and apply fundamentals of Graphic design in challenging and unique design problems

S.No	Name of Authors / Books / Publishers	Year
1	A. Darley, Visual Degital Culture, Routledge, 2000	
2	M. A. Muser and D. Macleon, Art and Visual Environments, MIT Press, 1996	
3	R. Hollis, Concise History of Graphic Design, Thames & Hudson, 1994	
4	P. B. Meggs, Type and Image: the language of graphic Design, VNR, 1992	

Course Title: Augmented and Virtual Reality

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Credit: 4 Semester: 6th CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To bring into light an understanding of Augmented and Virtual Reality based devices and systems, design concerns, problems and solutions.

### Details of the Course

S. No	Contents	Contact weeks
1	Augmented and Virtual reality- Technology, platforms and their principles	3
2	AR and VR as a design medium.	3
3	Introduction to applicable concepts in optics, displays- head mounts and others, tracking, psychology and human factors	4
4	Review of existing designs using case-studies.	4
	Total	14

Outcome: Students will develop an understanding about different Augmented / Virtual Reality Devices.

S.No	Name of Authors / Books / Publishers	Year
1	Jerald, J. The VR Book: Human-Centered Design for Virtual Reality	2011
2	Sherman, W.R., Craig, A.B. Understanding Virtual Reality: Interface, Application, and Design	2011
3	Sherman, W.R., Craig, A.B., Will, J.D. Developing Virtual Reality Applications: Foundations of Effective Design	2003
4:	Paul Mealy, Virtual & Augmented Reality For Dummies	2018

Semester 7 Scheme of Teaching & Examination (Elective - 7)

Course Title: Mobility Design

**Contact Hours:** 

L:1 T:0 S:6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

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Credit: 4
Semester: 7<sup>th</sup>

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To develop an understanding of space around us and enhance accessibility and usability.

### Details of the Course

S. No	Contents	Contact weeks
1	History of transportation, technology trends in transportation and futuristic predictions.  Types of personal vehicles, mass transportation vehicles, their benefits and challenges in design. Trends and styling of two wheelers and four wheelers.	3
2	Material and finish considerations in styling. Use of mood boards and cultural trends in transportation design. Vehicle design for rural India. Design projects and exercises.	3
3	Understanding different segments of design practice in transportation. Different role of designers in Automobile Industry. Design of human powered vehicles, Two wheelers design,	4
4	Design of four wheelers, future of transportation, Styling, Professional practice: CAS and Clay.	4
	Total	14

Outcome: Understanding the need to analyze and utilize spaces i.e. moving as well as stationary

S.No	Name of Authors / Books / Publishers	Year
1	John Whitelegg, Mobility: A new urban design and transport planning philosophy for a sustainable future	2016
2	Michael Jhon Gorman, Buckminster Fuller: Designing for Mobility	2005
3	Everly R. Kimes; Pioneers, Engineers, and Scoundrels: The Dawn of the Automobile in America. Publisher: SAE International.	2004
4	L. J. K Setrigh: The designers: Great automobiles and the men who made them. Publisher: Follett Pub. Co.	1976
5	Michael Lamm, Dave Holls: A Century of Automotive Style: 100 Years of American Car Design Publisher: Lamm-Morada Pub Co; 2nd edition, Dec.	1996

Contact Hours:

**Examination Duration (Hrs.)** 

Relative Weight:

Credit: 4 Semester: 7th Course Title: New Media Studies

L: 1 T: 0 S: 6

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To understand New Media in Design, the issues and impact on society,

### Details of the Course

S. No	Contents	Contact
	Introduction to New Media; Relationship with old media and other cultural forms like cinema and visual cultures. Techniques from old Media relevant to new Media- Frame, Collage, Viewpoints, etc.	3
2	Principles of New Media; Interface and Culture Specific Interface; Inter communicative aspects; New Media Object: Digital Dialectic	4
3	Representation in New Media; Variability; Automation; Discrete Representation; Numerical Representation; Database; Remediation;	4
4	Forms of New media;	
	Total	3
447		14

Outcome: Exploring design possibilities, design concerns, problems and solutions in new media

S.No	Name of Authors / Books / Publishers	Year
1	L. Manovich, The Language of New Media, MIT Press, 2001.	2001
2	Lister, M., New Media: A Critical Introduction, Routledge, 2003	1
3	M. Hansen, New Philosophy for New Media, MIT Press, 2004	2003
1	P. Lunenfeld (ed.) The Digital Dialectics New F.	2004
100	P. Lunenfeld (ed.), The Digital Dialectic: New Essays on New Media, MIT Press, 1999.	1999

Course Title: Advanced Material Processes and Finishes

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 7<sup>th</sup>

Aim: To understand the other important techniques to develop idea into realization

### **Details of the Course**

S. No	Contents	Contact weeks
1	Understanding properties and selection of natural and manmade	3
	materials including metals, plastics, ceramics, composites and natural materials.	
2	Understanding various manufacturing and prototyping methods including digital	3
	manufacturing/ prototyping. Hands on product realization exercises involving selection of	
	materials and manufacturing processes.	
3	Additive and Subtractive Processes, Die and mould manufacturing methods including	4
	surface treatment and finishing processes.	
4	Prototyping projects involving CNC, 3D Printing, Vacuum forming, etc.	4
Robbies,	Total	14

Outcome: Ability to design products which are seemingly hard to manufacture using other new tools and techniques of manufacturing processes.

S.No	Name of Authors / Books / Publishers	Year
1	Vijay K. Jain, Advanced Machining Processes. Allied Publishers, New Delhi.	2007
2	P. C. Pandey and H.S. Shan, Modern Machining Processes, Tata McGraw-Hill, New Delhi.	2007
3	G.F. Benedict, Nontraditional Manufacturing Processes, Marcel Dekker Inc., New York.	1987
4	McGeough, Advanced Methods of Machining, Chapman and Hall, London.	1998
5	Paul De Garmo, J.T. Black, and Ronald A. Kohser, Material and Processes in Manufacturing, Prentice Hall India.	2001

# Semester 7 Scheme of Teaching & Examination (Elective - 8)

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1005	Programme Committee of the Remod A. Kinhala Strate at the Programme in	
	Commission improve the last	

Course Title: Applied Ergonomics

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 7<sup>th</sup>

Aim: To understand how users handle objects physically as well as mentally

### Details of the Course

S. No	Contents	Contact weeks
1	Definition, origin, scope and goals of ergonomics as a field of study. Examples of applications of ergonomics in design.	2
2	Types of data from human at physical, physiological, cognitive and affective levels. Data gathering and analysis techniques.	2
3	Use of descriptive and inferential statistics in ergonomic data. Applications of mean, median, mode and percentile in anthropometry. Use of anthropometry in workstation design.	3
4	Human physiological potentials and limitations in terms of load carrying capacity. Concept of comfort, fatigue and stress.	3
5	Design for the cognitive user. Concept of mental workload. Cognitive perspective in control panel design and graphical user interface design.	4
	Total	14

Outcome: Understanding how humans physically interact with product and their mental model

S.No	Name of Authors / Books / Publishers	Year
1	Dr. Debkumar Chakraborty, Indian Anthropometric Dimensions For Ergonomic Design Practice, National Institute of Design	1997
2	J. Dul, and B. Weerdmeester, Ergonomics for beginners, a quick reference guide, Taylor & Francis	1993
3	C. D. Wicknes, S. E. Gordon, and Y. Liu, An Introduction to Human Factors Engineering, Longman, New York	1997
4	P.W. Jordan and W.S.Green, Human Factors in Product Design: current practice and future trends, Taylor & Francis, London	1999

Contact Hours:

Course Title: Advance Animation and Moving Image Design

S: 6

**Examination Duration (Hrs.)** 

Relative Weight:

Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 7th

Aim: Experiment with a range of techniques and approaches to animation

### Details of the Course

S. No	Contents	Contact weeks
1	Creating dramatic flow, planing, pacing, sequencing, organizing visula flow anmd continuity in storyboards	14
2 3	Coordinating character, scene length, pace of action, Stop-motion animation production post production techniques  Total	
	Autal Control of the	14

Outcome: Demonstrate an understanding of a range of animation techniques

S.No	Name of Authors / Books / Publishers	Year
1	Robert Russett and Cecile Starr, Experimental Animation, Origins of a New Art A Da Capo Paperback, NY	1998
2	Michael Frierson, Clay Animation: American Highlights 1908 to Present, Twayne Publishers	1994
3	Jeffrey Scott, How to Write for Animation, Overlook Press	2002
4	Chris Patmore; The Complete Animation Course: The Principles, Practice, and Techniques of Successful Animation, Barron's Educational Series, 1st	2003

Course Title: Design for UX

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Studio. 4

Credit: 4 Semester: 7<sup>th</sup> CWS-10 STS-40 MTE-10 ETE-20 STE-20

Aim: To develop an understanding about the various User Experience Techniques and Principles

#### Details of the Course

S.No	Contents	Contact weeks
1	Importance of user experience approach in design.	2
2	Methods to understand users' experiences. Modeling of user behaviors. Cognitive, affective and cultural perspectives in experiences.	2
3	Consideration for human experiences in interaction design. Methods of direct, indirect, subjective and objective measurements of human experience. Issues of reliability and validity in experience measurement.	3
	Qualitative interview techniques for gathering user motivations and emotions. Analysis of qualitative experiential data from users. Gender and cultural biases in experience measurements.	3
4	Management of psychological space in user experience testing setups. Development of user experience strategy, creation of user interfaces and testing of digital products from experiential perspective.	4
	Total	14

Outcome: Application of UX Design for solving Practical probelms.

S.No	Name of Authors / Books / Publishers	Year
1	Daniel Kahneman, Thinking Fast and Slow	2011
2	Mike Kuniavsky, Observing the User Experience: A Practitioner's Guide to User Research, Morgan Kaufmann Publisher	2003
3	Dan Ariely, Predictably Irrational	2008
4	Susan M. Weinschenk, 100 Things Every Designer Needs to Know about People, New Riders Publisher	2011

Semester 7 Scheme of Teaching & Examination (Elective - 9)

Course Title: Medical Equipment Design

**Contact Hours:** 

L: 1 T: 0 S: 6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

Credit: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Semester: 7th

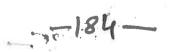
Aim: The course gives glimpse of innovating in the space of healthcare with hands on approach to identification of unmet clinical needs, invention and implementation of such technologies and also inculcate the entrepreneurial character in the students.

#### Details of the Course

S. No	Contents	Contact weeks
1	Introduction to Medical Equipment Design. Various design principles and tools that builds foundation for understanding real meaning of user centric design process.	3
2	(Identify) Needs Finding, Observation and Problem Identification and Need Statement development Treatment options, Competitive landscape, Market Analysis. Case Study.	3
3	(Invent) Concept Generation, Ideation and Brainstorming, Concept Screening, Concept Selection, Basics of IP. Prototyping, Business Model, Case Study.	4
4	(Implement) Moving forward, R&D strategies, Funding Resources, Business Plan Development, Clinical Strategy. Case Study.	4
	Total	14

Outcome: Ability to identify clinical needs and move in a stepwise approach through inventing and planning the implementation of a marketable solution.

S.No	Name of Authors / Books / Publishers	Year
1	Paul G. Yock, Biodesign: The Process of Innovating Medical Technologies, Second Edition	NA
2	Peter J. Ogrodnik, Medical Device Design: Innovation from Concept to Market, First edition	NA
3	Badnjevic. A, Inspection of Medical Devices for Regulatory purpose, Springer	2018
4	Becker Karen M, Clinical Evaluation of Medical Devices, Humana Press	NA



Contact Hours:

Examination Duration (Hrs.)

Relative Weight:

Credit: 4

Course Title: Branding - 2

L: 1 T: 0 Studio: 4

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4
Semester: 7<sup>th</sup>

Aim: To understand why branding is important and essential for any firm to market the goods

### Details of the Course

S. No	Contents	Contact weeks
1	To identify visual design problem specifically in branding	3
2	Structure of branding communicable massage for 1	
3	Structure of branding, communicable message for audience through various mediums brand positioning, case studies	3
4	Human perception related to branding	4
( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	Total	4
		14

Outcome: Understanding of why organizations invest in maintaining their identity Knowledge of Branding and Identity design process

S.No	Name of Authors / Books / Publishers	Year
1	Paul M., Visual Communication: Images with Messages	2006
2	Margaret Mark, Carol Pearson, the Hero and the Outlaw: Building Extraordinary Brands through the Power of Archetypes, McGraw Hill,	2001
3	John Murphy, (1988) "BRANDING", Marketing Intelligence & Planning, Vol. 6 Issue:	1988
4	Colin Jevons, (2005) "Names, brands, branding: beyond the signs, symbols, products and services", Journal of Product & Brand Management, Vol. 14 Issue: 2, pp.117-118	2005

Course Title: Service Design

**Contact Hours:** 

L:1 T:0 S:6

**Examination Duration (Hrs.)** 

Studio: 4

Relative Weight:

CWS-10 STS-40 MTE-10 ETE-20 STE-20

Credit: 4 Semester: 7<sup>th</sup>

Aim: To understand about Service Design and application in Design Projects.

### Details of the Course

S. No	Contents	Contact weeks
1	Introduction to Services; tying together humans, digital, and physical interactions	3
2	Stakeholder Analysis; Providing insights into the relationships between people, technology and design; Learning from different case studies.	3
3	Delivering Services form the view of design thinking; understanding people's needs from a holistic view. Systems approach to service design.	4
4	Small projects for intervention from the view point of Service Design	6
	Total	14

Outcome: Use of Service Design principles for applied problem solving

S.No	Name of Authors / Books / Publishers	Year
1	Robert Curedale, Service Design: 250 Essential Methods	2013
2	Robert Curedale, Design Research Methods: 150 Ways to Inform Design	2013
3	Lucy Kimbell, The Service Innovation Handbook: Action-oriented Creative Thinking Toolkit for Service Organizations	2015



# DELHI TECHNOLOGICAL UNIVERSITY

(Formerly Delhi College of Engineering) Shahbad Daulatpur, Main Bawana Road, Delhi-42

F.No. DTU/Reg/Notification/2017-18/4503

Dated: 21.01.2019

# **Notification**

Subject: Annual Fee of all the programs for the students taking admission in the Academic Session 2019-20.

The Competent Authority has approved the Annual Fee structure of the following programs for the students taking admission in the Academic Session 2019-20:-

- A. Bachelor of Technology (B.Tech) (Full Time)
- B. Bachelor of Technology (B.Tech) (Lateral Entry)
- C. Bachelor of Technology (B.Tech) (Evening)
- D. Bachelor of Design (B.Des)
- E. Bachelor of Business Administration (BBA) & B.A Economics (H)
- F. Ph.D (Full Time / Part Time)
- G. Master of Technology (M.Tech) (Full Time)
- H. Master of Technology (M.Tech) (Part Time)
- I. Master of Business Administration (Full Time)
- J. Executive MBA
- K. DASA Students
- L. International Students
- M. Withdrawal Policy

\* 7. 2

# (A). Bachelor of Technology (B.Tech) (Full Time)

S.No.	Particulars	Fee in AY2019-20 (in Rs.)	Fee in AY2020-21 (in Rs.)	Fee in AY2021-22 (in Rs.)	Fee in AY2022-23 (in Rs)
1.	Tuition Fee	99,500	1,14,500	1,30,500	1,40,300
2.	Non Govt. Component		2.0		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
2.1	Student Welfare fee (Co-curricular Activities, Training & Placement, Extra Curricular Activities, Annual Gathering, Students welfare,	20,000	20,000	20,000	20,000
AN	Institutional Development, Outsourcing, conference, seminar, workshop, innovative projects, skill development activities and Misc. Expenditure on unspecified items)		A res		
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)		35,000	35,000	36,000
2.3	Economically weaker section fund	5,000	5,000	5,000	7,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.)		15,000	15,000	15,000
2.5	Premium amount for medi-claim of student (per annum)	500	500	500	700
1140	Total	1,66,000	1,90,000	2,06,000	2,19,000

# (B). Bachelor of Technology (B.Tech) (Lateral Entry)

S.No.	1 ai ticulais	Fee in AY2019-20 (in Rs.)	Fee in AY2020-21 (in Rs.)	Fee in AY2021-22 (in Rs.)
1.	Tuition Fee	99,500	1,23,500	1,30,500
2.	Non Govt. Component			1) 9°
2.1	(Co-curricular Activities, Training & Placement, Extra Curricular Activities, Annual Gathering, Students welfare,	20,000	20,000	20,000
	Institutional Development, Outsourcing, conference, seminar, workshop, innovative projects, skill development activities and Misc. Expenditure on unspecified items)		, *	
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)	1 × 1	28,000	35,000
2.3	Economically weaker section fund	5,000	5,000	5,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.)		13,000	15,000
2.5	Premium amount for medi-claim of student (per annum)	A	500	500
	Total	1,66,000	1,90,000	2,06,000

Fee Notification for student taking admission in Academic Year 2019-20

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# (C). Bachelor of Technology (B.Tech) (Evening)

S.No.	Particulars	Fee in AY2019-20 (in Rs.)	Fee in AY2020-21 (in Rs.)	Fee in AY2021-22 (in Rs.)	Fee in AY2022-23 (in Rs.)
1.		86,500	90,000	98,500	1,00,000
2.	Non Govt. Component	100 E	18 W S		4 7014
2.1		16,000	16,000	16,000	16,000
	(Co-curricular Activities, Extra Curricular		í.	D 80	
	Activities, Annual Gathering, Students	04 04 12 <b>8</b> 004			. !!
	welfare, Institutional Development,			R <sub>B</sub> =	0 0 B
2	Outsourcing, conference, seminar,		in a main	31	3 1 4
	workshop, innovative projects, skill	200		8	, °
	development activities and Misc.	12		100 5 20	
. 8	Expenditure on unspecified items)	2 3	71 334 1		
2.2	Facilities & Services Charges	16,000	21,000	21,000	21,000
	(Research initiatives, training programmes,	aries to	F 5		18. *
	Awards, automation, facilities,		7,2 17		
	entrepreneurship activities and any misc.		32.3		6.4
	expenditure on unspecified items)				
2.3	Economically weaker section fund	500	500	500	500
2.4	Examination fee	11,000	12,000	12,000	12,000
	(Examination Infrastructure strengthening,	2 00	1 - 50	ā .	in a ry c
	expenditure on examination activities,	10 90			
	confidential printing etc.)			jan se <sup>rat</sup> s	a and many
2.5	Premium amount for medi-claim of student	500	500	500	500
	(per annum)	Target and	10 14	3.	
	Total	1,30,500	1,40,000	1,48,500	1,50,000

## (D). Bachelor of Design (B.Des)

S.No.	Particulars	Fee in AY2019-20 (in Rs.)	Fee in AY2020-21 (in Rs.)	Fee in AY2021-22 (in Rs.)	Fee in AY2022-23 (in Rs)
1	Tuition Fee	99,500	1,14,500	1,30,500	1,40,300
2.	Non Govt. Component				
2.1	Student Welfare fee	20,000	20,000	20,000	20,000
	(Co-curricular Activities, Training & Placement, Extra Curricular Activities, Annual Gathering, Students welfare,	n n = - «			ok Person
	Institutional Development, Outsourcing, conference, seminar, workshop, innovative projects, skill development activities and Misc. Expenditure on unspecified items)			\$ + <sub>2</sub>	8
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)		35,000	35,000	36,000
2.3	Economically weaker section fund	5,000	5,000	5,000	7,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.)	13,000	15,000	15,000	15,000
2.5	Premium amount for medi-claim of student (per annum)	500	500	500	700
	Total	1,66,000	1,90,000	2,06,000	2,19,000

Fee Notification for student taking admission in Academic Year 2019-20



# (E). Bachelor of Business Administration (BBA) & B.A Economics (H)

	Particulars	Fee in AY 2019-20 (Rs.)	Fee in AY 2020-21 (Rs.)	Fee in AY 2021-22 (Rs.)
. 1.	Tuition Fee	33,500	41,500	45,000
2.	Non Govt. Component		0	2
2.1	Student Welfare Fee (Co-curricular activities, Training & placement, Extra Curricular Activities, Annual Gathering, Students welfare, Institutional Development, outsourcing, conference,	15,000	15,000	15,000
	seminar, workshop, innovative projects, skill development activities and, Misc. Expenditure on Unspecified Items)			e a so
2.2	Facilities & Services Charges (Research	15,000	15,000	15,000
	initiatives, training programmes, Awards, automation, facilities, entrepreneurship		** **	
	activities and any misc. expenditure on unspecified items)	1		
2.3	Economically weaker section fund	5,000	5,000	5,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.	13,000	13,000	13,000
2.5		500	500	500
-	GRAND TOTAL	82,000	90,000	93,500

## (F). Ph.D (Full Time / Part Time)

S.No.	Particulars	Fee in AY 2019-20 (Rs.)	Fee in AY 2020-21 and onwards (Rs.)
1.	The academic staff of DTU DCE staff (R.19.1) and Project staff pursuing Ph.D as in R.19.11	15,000	5,000
2.	Other Full Time / Part Time candidates	25,000	10,000

# (G). Master of Technology (M.Tech) (Full Time)

S.No.	Particulars	Fee in AY 2019-20 (Rs.)	Fee in AY 2020-21 (Rs.)
1.	Tuition Fee	1,05,500	1,05,000
2.	Non Govt. Component		*e+ , = *
2.1	Student Welfare Fee (Co-curricular activities, Training & placement, Extra Curricular Activities, Annual Gathering, Students welfare, Institutional Development, outsourcing, conference, seminar, workshop, innovative projects, skill development activities and, Misc. Expenditure on Unspecified Items)		18,000
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)  Economically weaker section fund	25,000 5,000	25,000 5,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.	12,000	12,000
2.5	Premium amount for mediclaim of student (per-annum)  GRAND TOTAL	500 1,66,000	500 1,66,000

# (H). Master of Technology (Part Time)

S.No.	Particulars	Fee in AY 2019-20 (Rs.)	Fee in AY 2020-21 (Rs.)	Fee in AY 2021-22 (Rs.)
1.	Tuition Fee	99,500	99,500	99,500
2.	Non Govt. Component	ea <sub>p</sub> se a		A Y
2.1	Student Welfare Fee (Co-curricular activities, Training & placement, Extra Curricular Activities, Annual Gathering, Students welfare, Institutional Development, outsourcing, conference, seminar, workshop, innovative projects, skill development activities and, Misc. Expenditure on Unspecified Items)	20,000	20,000	20,000
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)	28,000	28,000	28,000
2.3	Economically weaker section fund	5,000	5,000	5,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.	13,000	13,000	13,000
2.5	Premium amount for mediclaim of student (per-annum)	500	500	500
	GRAND TOTAL	1,66,000	1,66,000	1,66,000

# (I). Master of Business Administration (MBA) (Full Time)

S.No.	Particulars	Fee in AY 2019-20 (Rs.)	Fee in AY 2020-21 (Rs.)
1.	Tuition Fee	1,03,500	1,19,500
2.	Non Govt. Component		
2.1	Student Welfare Fee (Co-curricular activities, Training & placement, Extra Curricular Activities, Annual Gathering, Students welfare, Institutional Development, outsourcing, conference, seminar, workshop, innovative projects, skill development activities and, Misc. Expenditure on Unspecified Items)	20,000	20,000
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)	25,000	30,000
2.3	Economically weaker section fund	5,000	5,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.	12,000	15,000
2.5	Premium amount for mediclaim of student (per-annum)	500	500
2	GRAND TOTAL	1,66,000	1,90,000

### (J). Executive MBA (EMBA)

S.No.	Particulars	Fee in AY 2019-20 (Rs.)	Fee in AY 2020-21 (Rs.)
1.	Tuition Fee	1,70,000	1,75,000
2.	Non Govt. Component	N .	
2.1	Student Welfare Fee (Co-curricular activities, Extra Curricular Activities, Annual Gathering, Students welfare, Institutional Development, outsourcing, conference, seminar, workshop, innovative projects, skill development activities and, Misc. Expenditure on Unspecified Items)	22,000	22,000
2.2	Facilities & Services Charges (Research initiatives, training programmes, Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)	22,000	22,000
2.4	Examination fee (Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.	12,000	12,000
2.5	Premium amount for mediclaim of student (per-annum)	500	500
	GRAND TOTAL	2,26,500	2,31,500

Fee Notification for student taking admission in Academic Year 2019-20

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.No	Particulars		Fee in: AY 2020-21		Fee in AY 2022-23
			2 8 .	=	8 <sub>1</sub>
.1.	Tuition Fee	^		79.1	
	(a) Foreign Nationals except from SAARC and ASEAN countries	\$ 8000	\$ 8000	\$ 8000	\$ 8000
E C	(b) Foreign Nationals from SAARC and ASEAN Countries (The candidates from Nepal and Bhutan can submit their fees in equivalent Indian Rupees. However, they will be required to get Exchange Rate Certificate from the bankers and submit the		\$ 4000	\$ 4000	\$ 4000
	same)			7 1 20 200	7 1 10 0
£	(c) Children of Indians workers in Gulf Countries (CIWG) through DASA	Rs. 99,500	Rs. 1,14,500	Rs. 1,30,500	Rs. 1,40,3
	Non Govt. Component for 1(a), 1(b) & 1 (c)	9 90	0 00		100
2.1	Student Welfare fee	Rs.20,000	Rs.20,000	Rs.20,000	Rs, 20,000
	(Co-curricular Activities, Training & Placement, Extra Curricular Activities, Annual Gathering, Students welfare, Institutional Development,		2 m2 d		g 11 6
æ	Outsourcing, conference, seminar, workshop, innovative projects, skill development activities and Misc. Expenditure on unspecified items)	F 2		73 5	W
2.2	Facilities & Services Charges	Rs.28,000	Rs.35,000	Rs.35,000	Rs, 36,00
7,	(Research initiatives, training programmes,	1			8
	Awards, automation, facilities, entrepreneurship activities and any misc. expenditure on unspecified items)	6.2			
2.3	Economically weaker section fund	Rs.5,000	Rs.5,000	Rs.5,000	Rs.7,000
2.4	Examination fee	Rs.13,000	Rs.15,000	Rs.15,000	Rs.15,00
	(Examination Infrastructure strengthening, expenditure on examination activities, confidential printing etc.)			War in	
2.5	Premium amount for medi-claim of student (per annum)	Rs.500	Rs.500	Rs. 500	Rs. 700
	Sub Total (2.1 to 2.5)	Rs.66,500	Rs.75,500	Rs.75,500	Rs.78,70
B.	Grand Total (1 & 2):	***************************************			= 12
	(a) Foreign Nationals except from SAARC and	\$ 8000 +	\$ 8000 +	\$ 8000 +	\$ 8000 +
	ASEAN countries	Rs. 66,500	Rs.75,500	Rs.75,500	Rs.78,70
	. ,	y e	\$ 4000 ± Rs.75,500	\$ 4000 + Rs.75,500	\$ 4000 + Rs.78,70
	same) (c) Children of Indians working in Gulf Countrie (CIWG) through DASA	s Rs. 1,66,000	Rs. 1,90,000	Rs. 2,06,000	Rs. 2,19,

Fee Notification for student taking admission in Academic Year 2019-20

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### (L) International Students

# (i) Annual Tuition Fee for UG Students

S.No	Particulars	Fee in AY 2019-20	Fee in AY 2020-21	Fee in AY 2021-22	Fee in AY 2022-23
1.	Direct Admission for Foreign Nationals: Applications routed through Govt. of India agencies	USD 5000	USD 5000	USD 5000	USD 5000
	Foreign Nationals from SAARC and ASEAN Countries (routed through Govt. of India Agencies)	USD 2500	USD 2500	USD 2500	USD 2500
2.	Direct Admission for Foreign Nationals – Directly applied to DTU	USD 5000	USD 5000	USD 5000	USD 5000
	Foreign Nationals from SAARC and ASEAN Countries (directly applied to DTU)	USD 2500	USD 2500	USD 2500	USD 2500

## (ii) Annual Tuition Fee for PG Students

S.No	Particulars	Fee in AY 2019-20	Fee in AY 2020-21
1.	Direct Admission for Foreign Nationals: Applications routed through Govt. of India agencies	USD 5000	USD 5000
	Foreign Nationals from SAARC and ASEAN Countries (routed through Govt. of India Agencies)		USD 2500
80 H	Direct Admission for Foreign Nationals – Directly applied to DTU	USD 5000	USD 5000
2.	Foreign Nationals from SAARC and ASEAN Countries (directly applied to DTU)		USD 2500

### (iii) Annual Tuition Fee for Ph.D Students

9	Fee in AY 2019-20	Fee in AY 2020-21 and onwards	35
Ph.D	USD 2500	USD 1000	

### (M) Withdrawal Policy (For A to J)

S.No.	Percentage of Refund of aggregate fee *	Point of Time when Notice of withdrawal of admission is served to HEI
1	100%	15 days before the formally notified last date of admission
2.	80%	Not more than 15 days after the formally notified last date of admission
3.	50%	More than 15 days but less than 30 days after formally notified last date of admission.
4.	00%	More than 30 days after formally notified last date of admission.

<sup>\*(</sup>Inclusive of Tuition fees and Non Govt. Component).

Student permitted for semester/year withdrawal as per ordinance has to pay the fees for the semester/year for which he/she has been granted withdrawal. However, he/she will not be charged the fees when he/she is completing his/her semester/year.

This issues with the prior approval of the Competent Authority.

(Prof. Samsher) Registrar

F.No. DTU/Reg/Notifications/2017-18/4503

Dated: 21.01.2019

Copy to the:

- 1. PA to VC for kind information of the Hon'ble Vice Chancellor.
- 2. PA to Pro VC (I) for kind information of the Pro Vice Chancellor
- 3. PA to Pro VC (II) for kind information of the Pro Vice Chancellor
- 4. All the Deans & Heads of the Academic Department of DTU
- 5. All Associate Deans/ Associate Heads
- 6. Controller of Examination
- 7. OSDs, East Delhi Campus, DTU.
- 8. All Branch In-charges
- 9. Head (Computer Center): with a request to upload on the University website.

(Prof. Samsher) Registrar

Fee Notification for student taking admission in Academic Year 2019-20

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# 3.4.2 Delhi Technological University

XE.															
Branch →	ECE	COE	ME	EE	PIE	CE	ENE	РСТ	IT	вт	SE	MA M	EP	MCE	Total
Category				- 02	22	16	23	23	47	23	47	23	36	46	732
GNGND	70	139	93	93	23	46		1	2	1	3	2	2	2	41
GNCWD	4	7	5	5	2	3	2		3	2	2	1	2	3	41
GNPDD	4	8	5	5	1	2	1	2	13	7	13	7	11	13	218
SCGND	21	41	28	27	8	14	7	8		1	1	0	1	1	12
SCCWD	1	2	2	1	0	0	1	0	1		1	1	0	1	12
SCPDD	1	3	1	2	0	1	0	0	1	0	7	3	6	7	109
STGND	11	21	13	13	3	7	3	4	7	4		1	0	0	6
STCWD	1	1	1	1	0	0	0	0	0	0	1	_	0	0	6
STPDD	0	1	1	1	1	· 1	0	0	1	0	0	0		25	
OBGND	38	75	50	49	12	25	13	12	24	12	25	12	19		391
OBCWD	2	4	3	3	1	1	1	0	1	1	2	1	1	1	22
OBPDD	2	4	2	3	1	2	0	1	2	1	1	1	1	1	22
GNGNO	12	25	16	16	4	8	4	4	9	4	8	4	6	9	129
GNCWO	1	1	1	1	0	0	0	- 0	0	0	0	1	1	1	7
GNPDO	1	1	1	1	0	1	1	0	0	0	1	0	0	0	7
SCGNO	4	7	5	5	1	3	1	2	2	1	2	1	2	3	39
sccwo	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
SCPDO	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
STGNO	2	3	2	2	1	1	1	1	1	1	1	0	1	2	19
STCWO	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
STPDO	0	+	0	1	0	0	0	0	0	0	0	0	0	0	1
OBGNO	7	14	9	8	2	4	2	2	5	2	4	2	4	4	69
овсмо	0		1	1	0	1	0	0	0	0	0	0	. 0	1	4
OBPDO	1	1	0	1	0	0	0	0	1	0	0	0	0	0	4
GNSGD	i		1	1	1	1	1	1	1	1	1	1	1	1	14
GNTPO	1	_	1	1	1	1	1	1	1	1	1	1	1	1	14
KM	+-	ــــــــــــــــــــــــــــــــــــــ		-				1							1
TOTAL	185	362	242	242	62	122	62	62	122	62	122	62	95	122	1925

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# Delhi Technological University (DTU) (2018–19) (JAC)

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Branch → Category	ECE	COE	ME	EE	PIE	CE	ENE	PCT	IT	ВТ	SE	MAM	EP	MCE	Tota
GNGND	70	139	02	03	32	10	22		47		477				
GNCWD	4	7	93	93	23	46	23	23	47	23	47	23	36	46	732
GNPDD	4		5	5	2	3	2	1	2	1	3	2	2	2	41
SCGND	21	8	5	5	1	2	1	2	3	2	2	1	2	3	41
SCCWD	-	41	28	27	8	14	- 7	8	13	7	13	7	11	13	218
SCPDD	1	2	2	1	0	0	1	0	1	1	1	0	1	1	12
	1	3	1	2	0	1	0	0	1	0	1	1	0	1	12
STGND	11	21	13	13	3	7	3	4	7	4	7	3	6	7	109
STCWD	1	1	1	1	0	0	0	0	0	0	1	1	0	0	6
STPDD	0	1	1	1	1	1	0	0	1	0	0	0	0	0	6
OBGND	38	75	50	49	12	25	13	12	24	12	25	12	19	25	391
OBCWD	2	4	3	3	1	1	1	0	1	1	2	1	1	1	22
OBPDD	2	4	2	3	1	2	0	1	2	1	1	1	1	1	22
GNGNO	12	25	16	16	4	8	4	4	9	4	8	4	6	9	129
GNCWO	1	1	1	1	0	0	0	0	0	0	0	1	1	1	7
GNPDO	1	1	1	1	0	1	1	0	0	0	1	0	0	0	7
SCGNO	4	7	5	5	1	3	1	2	2	1	2	1	2	3	
sccwo	0	1	1	0	0	0	0	0	0	Ð	0	0	0	0	39
SCPDO	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
STGNO	2	3	2	2	1	1	1	1	1	1	1	0	1	2	2
STCWO	0	. 1	0	0	0	0	0	0	0	0	0	0			19
STPDO	0	0	0	1	0	0	0	0	0	0	0	0	O O	0	1
OBGNO	7	14	9	8	- 2	4	2	2	5	2	4		_	0	1
овсwо	0	0	1	1	0	1	0	0	0	0		2	4	4	69
OBPDO	1	1	0	1	0	0	0	0	1	0	0	0	0	1	4
GNSGD	1	1	1	1	1	1	1	1			0	0	0	0	4
GNTPO	1	1	1	1	1	1	1	1	1	1	1,,	1	1	1	14
КМ					-			1	1	1	1	1	1	1	14
TOTAL	185	362	242	242	62	122	62	62	422		T				01
				-72	02	122	02	62	122	62	122	62	95	122	1925

## Seat Marris

Ĺ	Discipline	ECE	COL	ME;	EE	PIE	CF	EVE	nission	IT	Alman manager frames of	the management	to the more a digree was	-	
M1	DASA (5%)	9.	18	12	12	***********************		Lave	FCI	11	BT	SE	MAM	EP	MCE
M2	ICCR (3%)	6	11	7	72 07	, 3	.0	3	3	6	3	6	3	4	6 )
	alSAARC/A	a. Ilha	4 m	1	- 07	- Z	: <u>4</u>	- 2	2	4.	2	4	2	3	4
МЗ	SEAN (4%) b)Excluding:	7	1.5	10	10	2	5	2	2	5	2	5	2	3	5
ivio	(SAARC/ ASEAN) (3%)	6	11	7	7	2	4	2	2	4	2	. 4	2	3	

### Delhi Technological University (Formerly Delhi College of Engineering)

Estd. by the Government of NCT of Delhi vide Delhi Act 6 of 2009)

Vision

To be a world class university through education, innovation and research for the service of humanity.

Mission

- To establish centres of excellence in emerging areas of science, engineering, technology,
- management and allied areas. To foster an ecosystem for incubation, product development, transfer of technology and entrepreneurship.
- To create environment of collaboration, experimentation, imagination and creativity.
- To develop human potential with analytical abilities, ethics and integrity.
- To provide environment friendly, reasonable and sustainable solutions for local & global needs.

#### **About Institute**

Delhi Technological University (formerly known as Delhi College of Engineering) is one of the most well-known engineering institutions of India, with over 75 years of glorious tradition behind it. A nonaffiliating, leading and research University, DTU is policed to create an environment of synergetic partnership between academia and industry. It aims to cause a major departure from the conventional system of education and research and aspires to imbibe a culture of scientific research and education by providing a seamless environment for integration of science and engineering. The University also endeavours to provide the thrill of a corporate R & D environment with a planned focus on industrially relevant projects and technology incubation.

The University lays great emphasis on assisting students in the development of character on selfconfidence with management traits. To achieve these goals the curriculum stresses upon self-learning, creative thinking, critical evaluation, spirit of inquiry and imbibing the culture of lifelong learning. Students are encouraged to undertake design, development, construction, production, managerial and entrepreneurial activities, and higher studies in their chosen or allied interdisciplinary fields of study.DTU has consistently been ranked among the top engineering institutions of the country in reputed surveys.

Fee Concession for Students Belonging to Economically Weaker Sections

Fee concession is available to all the desirous and eligible students of DTU. The students whose family income from all sources is less than Rs.4,50,000/- per annum are eligible for fee concession. In the year 3017-18, fee concession of more than Rs. Lerore was extended to the economically weaker section Rs 175 Crore

More information about DTU can be accessed at www.dtu.ac.in.

Rs. 3 Crotes (three croves)

