



DELHI TECHNOLOGICAL UNIVERSITY

MINUTES

of

29th Meeting

ACADEMIC COUNCIL

Date : 23.07.2021

Time : 11:00 A.M.

**Venue : Through Video Conferencing
(Online)**

DTU Campus, Shahbad Daulatpur, Bawana Road, Delhi-110042

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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-XIII

Dated :

Minutes of the 29th meeting of the Academic Council held online on
23.07.2021 at 11:00 A.M.

The following members were present:

1. Prof. Yogesh Singh, Vice Chancellor, Delhi Technological University and Chairperson, Academic Council.
2. Prof. Neharika Vohra, Vice Chancellor, Delhi Skill & Entrepreneurship University, Dwarka, Delhi.
3. Prof. D.P. Goyal, Director, Indian Institute of Management, Shilong.
4. Prof. J.P. Saini, Vice Chancellor, Netaji Subhash University of Technology, Delhi (nominee of University Grants Commission)
5. Prof. B.R. Chahar, Professor, Civil Engineering, Indian Institute of Technology, Delhi (nominee of All India Council for Technical Education)
6. Sh. Rajesh Mathur (FICCI nominee).
7. Prof. R.S. Mishra, Dean (Outreach & Extension Activities)
8. Prof. Ashutosh Trivedi, Dean (Industrial Research Development)
9. Prof. S.C. Sharma, Dean Academic (PG)
10. Prof. Madhusudan Singh, Dean Academic (UG), Registrar and Member Secretary, Academic Council, DTU
11. Prof. Vishal Verma, Dean, International Affairs.
12. Prof. Narendra Kumar, Dean, Student Discipline & Chief Warden.
13. Prof. Rajesh Rohilla, Dean, Alumni Affairs and Head, T&P.
14. Prof. S. Indu, Dean (Student Welfare)
15. Prof. S.K. Singh, Head, Environmental Engineering Department
16. Prof. V.K. Minocha, Head, Civil Engineering Department
17. Prof. S. K. Garg, Head, Mechanical Engineering Department
18. Prof. Rinku Sharma, Head, Applied Physics Department
19. Prof. S.G. Warkar, Head, Applied Chemistry Department
20. Prof. S. Sivaprasad Kumar, Head, Applied Mathematics Department
21. Prof. Kapil Sharma, Head, Department of Information Technology
22. Prof. Rajni Jindal, Head, Computer Science & Engineering Department
23. Prof. Ruchika Malhotra, Head, Software Engineering Department
24. Prof. N. S. Raghava, Head, Electronics & Communication Department
25. Dr. Nand Kumar, Head, Department of Humanities
26. Prof. Pravir Kumar, Head, Department of Bio-Technology
27. Prof. Ranganath M. S., Head, Department of Design
28. Dr. Archana Singh, Head, Delhi School of Management

29. Prof. Naokant Deo, In-charge, B.Tech (Evening) Department
30. Prof. Amit Mookerjee, Head, University School of Management and Entrepreneurship
31. Sh. Kamal Pathak, Controller of Examinations
32. Prof. Pragati Kumar, Professor, Electrical Engineering Department
33. Prof. Reeta Wattal, Professor, Mechanical Engineering Department
34. Sh. Rajesh Birok, Associate Professor, Electronics and Com.
35. Dr. M. Jayasimhadri, Assistant Professor, Applied Physics Department
36. Ms. Divya Narayan, Head, Computer Centre

Following persons were invited to attend the meeting as special invitee:

1. Prof. Nirendra Dev, Director, IQAC
2. Dr. Girish Kumar, Chief Executive Officer, DTU-Innovation and Incubation Foundation
3. Sh. D.P. Dwivedi, Consultant, Finance & Planning
4. Prof. Rajeshwari Pandey, Associate Dean Academic (UG)
5. Dr. Rishu Chaujar, Associate Dean, Academic (PG)
6. Prof. Neeta Pandey, Electronics & Communication Department

Prof. Bhim Singh, Electrical Engineering Department, Indian Institute of Technology, Delhi could not attend the meeting due to his pre-occupations.



Agenda 29.1 : Opening Remarks by the Chairperson.

The Chairman, Academic Council welcomed all the members of the Academic Council in its 29th meeting. He also congratulated and conveyed his best wishes of GURU PURNIMA. He informed that during COVID-19 pandemic, the University faced many challenges in smooth conduct of academic and research activities. The University was able to switch into online learning and examination mode to mitigate the challenges posed by Corona Virus. The Chairperson conveyed his thanks to all for timely completion of all the academic activities during ongoing COVID-19 pandemic. The Chairperson apprised the members that admissions to various UG and PG programmes for the academic year 2021-22 have been started and likely to complete soon. He informed that the online classes will start from 2nd August, 2021 onwards. Also it is planned to start some of the projects in offline mode.

The Chairperson, Academic Council thanked the Training and Placement team, specially Dr. Rajesh Rohilla, Head, Training and Placement Department for achieving the best placement record even during the COVID-19 pandemic situations. Details of placement record is as under:

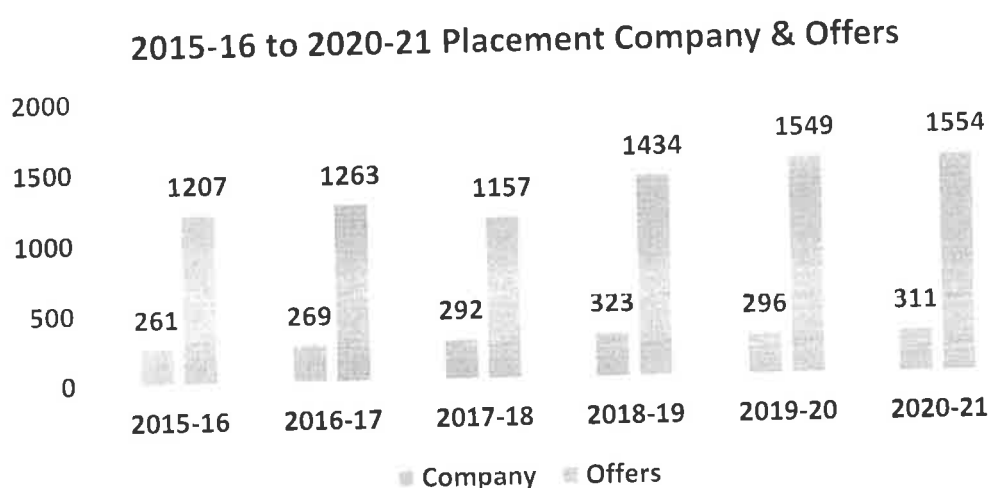
Placement Statistics 2020-21 (as on 22.07. 2021)	
No. of Companies	311
No. of offers	1554
Highest CTC	51.75 LPA-ATLASSIAN (6 Selections)
No of offers above 20 lacs	194
No of offers between 10 and 20 lacs	517
Average CTC till date	12.17 Lakh per Annum
Median CTC till date	9 Lakh per Annum

Major Recruiters		
Company	No. of offers	Stipend (Rs. Per Month)
Sprinklr	13	2,00,000
Uber	4	1,60,000
Arcesium	1	1,00,000
DE Shaw	2	1,00,000
Google	7	98,000
Morgan Stanley	4	87,000
Microsoft	21	80,000
Goldman Sachs	3	80,000
Accenture	5	50,000

Internship Statistics 2020-21 (as on 22.07.2021)	
No. of internships	365
No. of companies	83
Highest stipended	2 lacs pm (Sprinklr -13 offers @2 lacs)
No. of stipend above Rs 50,000	136

Placement Statistics 2021-22 (as on 22.07. 2021)	
Total no of offers	38
No of students placed	37
Highest CTC	45 LPA (Microsoft)
Average salary	24.61 LPA
Median Salary	22.68
No of offers above 20 lacs	31

2015-16 to 2020-21 Placement Company & Offers		
Year	Company	Offers
2015-16	261	1207
2016-17	269	1263
2017-18	292	1157
2018-19	323	1434
2019-20	296	1549
2020-21	311	1554



The Chairperson apprised the members that the University shall continue to achieve better placement records in coming years.

Agenda 29.2 : Confirmation of the minutes of the 28th meeting of Academic Council held on 30.04.2021.

It was submitted to the Academic Council that the minutes of the 28th meeting of Academic Council held on 30.04.2021, were circulated among all the members vide forwarding no. F.DTU/ORG/AC/Meeting/01(1)/2010/Vol-XII dated 07.05.2021 for confirmation.

No comments have been received from any of the members.

Decision : The Academic Council confirmed the minutes of 28th meeting of the Academic Council.

Agenda 29.3 : Action taken report on the decisions taken in the 28th meeting of the Academic Council.

Action Taken Report on the decisions taken in the 28th meeting of the Academic Council held on 30.04.2021 was presented before the Council as below:

S. No.	Agenda Item	Decision	Action Taken by Council Branch	Compliance Report
28.1	Opening remarks by the Chairperson.	Points mentioned are taken on record.	Noted.	No action required.
28.2	Confirmation of the minutes of the 27 th meeting of Academic Council held on 19.02.2021.	The Academic Council confirmed the minutes of 27 th meeting of the Academic Council.	Noted.	No action required.
28.3	Action taken report on the decisions taken in the 27 th meeting of the Academic Council.	The Academic Council took the action taken report on record.	Noted.	No action required.
28.4	To consider and approve the proposal for starting of M. Tech. in Industrial Engineering & Management in the Department of Mechanical Engineering from the academic year 2021-22.	The Academic Council considered and recommended the proposal for starting of M. Tech. in Industrial Engineering & Management in the Department of Mechanical Engineering from the academic year 2021-22 to the Board of Management for its approval.	Decision taken by the BOM vide agenda no. 43.4 conveyed to HOD, Mechanical Engineering vide letter no. 147 dated 07.06.2021.	AICTE approval for starting the programme is awaited.
28.5	To consider and approve the proposal for starting of M. Tech. in Energy System and Management under Centre for Energy and Environment in the Department of Mechanical Engineering from the academic year 2021-22.	The Academic Council considered and recommended the proposal for starting of M. Tech. in Energy System and Management under Centre for Energy and Environment in the Department of Mechanical Engineering from the academic year 2021-22 to the Board of Management for its approval.	Decision taken by the BOM vide agenda no. 43.5 conveyed to HOD, Mechanical Engineering vide letter no. 180 dated 07.06.2021.	AICTE approval for starting the programme is awaited.
28.6	To consider and approve the proposal for starting of M. Tech. in Computer-Aided Analysis and Design in the	The Academic Council considered and recommended the proposal for starting of M. Tech. in	Decision taken by the BOM vide agenda no. 43.6 conveyed to	AICTE approval for starting the programme is awaited.

	Department of Mechanical Engineering from the academic year 2021-22.	Computer-Aided Analysis and Design in the Department of Mechanical Engineering from the academic year 2021-22 to the Board of Management for its approval with following modification: <i>In the heading "Essential Qualifications", B.Tech in Engineering Physics and B.Tech in Design to be removed.</i>	HOD, Mechanical Engineering vide letter no. 147 dated 07.06.2021.	
28.7	To consider and approve the proposal for change of curriculum scheme of M.Sc. Biotechnology and proposal of Generic Electives Syllabi.	The Academic Council considered and approved the proposal for change of curriculum scheme of M.Sc. Biotechnology and proposal of Generic Electives Syllabi.	Decision conveyed to Dean, Academic (PG) vide letter no. 593 dated 03.06.2021.	These general electives (GEs) have been included in the curriculum..
28.8	Formal registration to following Ph.D. Students upon successful completion of course work and comprehensive examinations and approval of research Plan by respective DRCs.	The Academic Council considered and approved the formal registration of 33 candidates and confer their candidacy for Ph.D. program.	Decision conveyed to Dean, Academic (PG) vide letter no. 594 dated 03.06.2021.	Registration letters have been issued to Ph.D scholars.
28.9	Cancellation/Withdrawal of admission during Feb. to April 2021 from Ph.D. programme.	The Academic Council approved the cancellation of admissions of above mentioned 12 candidates.	Decision conveyed to Dean, Academic (PG) vide letter no. 595 dated 03.06.2021.	Cancellation & withdrawal order issued.
28.10	Rationalization of intake in 05 undergraduate programs (Computer Science & Engg, Information Technology, Software Engg, Mathematics & Computing Engg and Electronics & Communication Engg).	The Academic Council considered and recommended the matter of rationalization of intake in 05 undergraduate programs (Computer Science & Engg., Information Technology, Software Engg., Mathematics & Computing Engg. and Electronics & Communication Engg.) to the Board of Management for its approval.	Decision taken by the BOM vide agenda no. 43.9 conveyed to Dean, Academic-UG vide letter no. 148 dated 07.06.2021.	Notification no. 105(817)/DTU/ Acad-UG/2020-21/10493-502 dated 23.06.2021 has been issued.

28.11	To consider the recommendations of the committee to re-examine the existing rules for change of name of student in academic records.	The Academic Council considered and recommended the matter regarding re-examine the existing rules for change of name of student in academic records to the Board of Management for its approval.	Decision taken by the BOM vide agenda no. 43.11 conveyed to Dean, Academic-UG vide letter no. 150 dated 07.06.2021.	Notification no. 105(817)/DTU/ Acad-UG/2020-21/10463-70 dated 21.06.2021 has been issued.
28.12	Approval for Recruitment Regulations for appointment to the post of Professor, Associate Professor and Assistant Professor in the discipline of MBA- Innovation, Entrepreneurship and Venture Development.	The Academic Council considered and recommended Recruitment Regulations for appointment to the post of Professor, Associate Professor and Assistant Professor in the discipline of MBA- Innovation, Entrepreneurship and Venture Development. to the Board of Management for its approval.	Decision taken by the BOM vide agenda no. 43.12 conveyed to Head, USME vide letter no. 151 dated 07.06.2021.	Notifications no. 1/DTU/Rectt./ Notification/2016-17/1755, 1756 & 1757 dated 15.07.2021 have been issued.
28.13	To consider and approve the proposal for starting of M. Tech. in Data Science in the Department of Software Engineering from the academic year 2021-22.	The Academic Council considered and recommended the proposal for starting of M. Tech. in Data Science along with Scheme of Teaching and Evaluation in the Department of Software Engineering from the academic year 2021-22 to the Board of Management for its approval.	Decision taken by the BOM vide agenda no. 43.7 conveyed to HOD, Software Engg. vide letter no. 181 dated 07.06.2021.	AICTE approval for starting the programme is awaited.
28.14	Approval for minor Changes in Scheme of B.Tech Software Engineering.	The Academic Council considered and approved the minor changes in Scheme of B Tech Software Engineering applicable to the students admitted from 2020-21 onwards.	Decision conveyed to HOD (Software Engg.) vide letter no. 596 dated 03.06.2021.	Implemented.
28.15	To consider the Guidelines to Determine Seniority of the University Teacher in the University/ Department/ Discipline.	The Academic Council considered and recommended the Guidelines to Determine Seniority of the University Teacher in the University/Department/Discipline to the Board of Management for its approval.	The Board of Management has approved the Statute (Sixth), 2021 regarding Determination of Seniority of University	DTU Statute (Sixth), 2021 has been sent to the Government for gazette notification.

			Teachers in the Department/Discipline/University.	
28.16	<p>Matter for Ratification.</p> <p>i. Ratification for M. Tech. Part-Time Eligibility criteria for the academic session 2021-22.</p> <p>ii. Degree offered in B.Tech (Software Engineering) and M.Tech (Software Engineering).</p> <p>iii. Fee Structure for various UG/PG programmes 2021-2022.</p>	The Academic Council ratified the above three actions taken by the University.	Decision conveyed to Dean, Academic (UG/PG) and HOD (SE) vide letter no. 597, 598, 599 dated 03.06.2021.	No further action required.
28.17	Any other item with the permission of the Chair.	The Academic Council considered and approved the Admission Brochure of Ph.D. programme for the session 2021-22.	Decision conveyed to Dean, Academic (PG) vide letter no. 600 dated 03.06.2021.	Admissions for Ph.D. programmes have been completed.
28.17 (1)	Admission Brochure of Ph.D. programme for session 2021-22.			

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

Agenda 29.4 : Approval for Academic Calendar for UG and PG Programs (excluding 1st year B.Tech./ B.Tech. (Cont. Edu.)/ BA(Eco)H /BBA Programs) : Odd Semester (Academic Year-2021-2022).

It was submitted to the Academic Council that the Dean, Academic (UG) submitted the Academic Calendar for UG and PG programmes for the session 2021-2022 Odd semester as below:

Academic Calendar for UG and PG Programs (excluding 1 st year B.Tech./ B.Tech. (Cont. Edu.)/ BA(Eco)H /BBA Programs) : Odd Semester (Academic Year-2021-2022)		
S.N	Activity	Date
1.	Teaching Starts	02.08.2021
2.	Minor Class Tests I & II	On any working day
3.	Submission of Proposal to the concerned faculty for *MTE component for courses having ETE	07.09.2021
4.	Submission of Proposal to the concerned faculty for ** PRE component for courses having PRE	
5.	Class Test – I & Practical Test – I (On any working day with prior information to the Students)	Between 01.09.2021 & 10.09.2021
6.	1 st Review of *MTE components for courses having MTE	07.10.2021
7.	1 st Review of ** PRE component for courses having PRE	
8.	Class Test – II & Practical Test – II (On any working day with prior information to the Students)	Between 11. 10.2021 & 22.10.2021
9.	Submission & Evaluation of *MTE component for courses having MTE	Between 02.11.2021 & 12.11.2021
10.	Submission & Evaluation of ** PRE component for courses having PRE	
11.	Presentation/Viva -Voce Examinations for courses having PRE	
12.	Class Test – III & Practical Test – III (On any working day with prior information to the Students)	Between 09.11.2021 & 22.11.2021
13.	Teaching Ends	22.11.2021
14.	Online Submission of Marks of All Components of Evaluation	25.11.2021
15.	Online Submission of Grades to Examination Branch by Course Coordinators	26.11.2021
16.	Declaration of Results	30.11.2021

* MTE Components (Any one of the following to be decided by the faculty)

1. Innovative Work in the form of Small Project, Startup Idea, Collaborative Projects, Automation, Simulation, Case study, Solutions to Real time social, economic and technical problems etc. (group of maximum 2 students)
2. Poster Presentation based on research papers
3. Annotated Bibliography
4. Graphical Abstract/Audio-Visual Content of Respective Course
5. Writing Review Report of Research Papers (Minimum 4-5 Papers)

** PRE components Innovative Practical Work in the form of Small Project, Lab/Task based Simulation/ Automation, Collaborative Projects etc. (group of maximum 2 students)

Decision : The Academic Council considered and approved the Academic Calendar for UG and PG Programs (excluding 1st year B.Tech./ B.Tech. (Cont. Edu.)/ BA(Eco)H /BBA Programs) : Odd Semester (Academic Year-2021-2022). The Council also advised that the Academic Calendar for Ph.D programme should be followed on the same line and the classes in Academic Year 2021-22 odd semester would be conducted in online mode.

Agenda 29.5 : Approval for Seat Matrix of various UG programmes.

The seat matrix for various undergraduate programmes of the University was proposed for the academic year 2021-22 for approval of the Academic Council as under:

BBA Seat Matrix (2021-22)

Category	No. of Seats	Total Seats
GNGND	57	62
GNCWD	3	
GNPDD	2	
SCGND	20	22
SCCWD	1	
SCPDD	1	
STGND	12	12
STCWD	0	
STPDD	0	
OBGND	35	39
OBCWD	2	
OBPDD	2	
EWGND	18	18
EWCWD	0	
EWPD	0	
GNGNO	10	11
GNCWO	0	
GNPDO	1	
SCGNO	4	4
SCCWO	0	
SCPDO	0	
STGNO	2	2
STCWO	0	
STPDO	0	
OBGNO	7	7
OBCWO	0	
OBPDO	0	
EWGNO	3	3
EWCWO	0	
EWPDO	0	
TOTAL		180
Kashmiri Migrant* (KM)	1	2
Single Girl Child*	1	
Total		182

*Supernumerary

B.A. (Economics) H. Seat Matrix 2021-22

Category	No. of Seats	Total Seats
GNGND	57	62
GNCWD	3	
GNPDD	2	
SCGND	20	22
SCCWD	1	
SCPDD	1	
STGND	12	12
STCWD	0	
STPDD	0	
OBGND	35	39
OBCWD	2	
OBPDD	2	
EWGND	18	18
EWCWD	0	
EWPDD	0	
GNGNO	10	11
GNCWO	0	
GNPDO	1	
SCGNO	4	4
SCCWO	0	
SCPDO	0	
STGNO	2	2
STCWO	0	
STPDO	0	
OBGNO	7	7
OBCWO	0	
OBPDO	0	
EWGNO	3	3
EWCWO	0	
EWPDO	0	
TOTAL		180
Kashmiri Migrant* (KM)	1	2
Single Girl Child*	1	
Total		182

*Supernumerary

Seat Matrix of JAC B.Tech. 2021-22

Branch	ECE	COE	ME	EE	PIE	CE	ENE	CHE	IT	BT	SE	MA M	EP	MCE	Total
Category↓															
EWGND	18	37	24	23	5	12	6	6	13	5	13	5	9	13	189
EWCWD	1	2	1	1	0	1	0	1	1	0	1	1	0	1	11
EWPPD	1	2	1	1	1	0	1	0	1	1	1	0	1	1	12
GNGND	74	149	94	94	22	47	24	23	56	24	56	23	36	56	778
GNCWD	4	7	5	5	2	2	1	1	3	1	3	2	2	3	41
GNPDD	4	8	4	5	1	3	1	2	3	2	3	1	2	3	42
SCGND	27	55	34	34	9	17	9	8	21	8	21	8	14	21	286
SCCWD	2	3	2	2	0	1	1	0	1	1	1	0	1	2	17
SCPDD	1	3	2	2	1	1	0	1	2	0	1	1	0	1	16
STGND	14	28	17	17	4	8	4	5	10	5	11	4	6	10	143
STCWD	1	2	1	1	0	0	0	0	0	0	1	1	0	1	8
STPDD	1	1	1	1	1	1	0	0	1	0	0	0	1	0	8
OBGND	50	100	62	62	16	32	15	15	37	15	37	15	24	37	517
OBCWD	3	6	4	3	1	1	1	1	2	1	2	1	1	2	29
OBPDD	3	5	3	3	1	2	1	1	2	1	2	1	1	2	28
EWGNO	3	6	4	4	1	2	1	1	2	1	2	1	2	3	33
EWCWO	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
EWPDO	0	1	0	1	0	0	0	0	0	0	1	0	0	0	3
GNGNO	13	27	17	16	5	8	4	4	10	4	10	4	5	10	137
GNCWO	1	2	1	1	0	0	0	0	0	0	0	0	1	1	7
GNPDO	1	1	1	1	0	1	0	0	1	0	1	1	0	0	8
SCGNO	5	9	6	6	1	3	2	2	3	2	4	2	3	3	51
SCCWO	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
SCPDO	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
STGNO	2	4	3	3	1	2	1	1	2	1	2	1	1	1	25
STCWO	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2
STPDO	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
OBGNO	9	17	11	12	3	5	2	3	6	3	6	3	4	7	91
OBCWO	0	1	1	0	0	1	0	0	1	0	1	0	0	0	5
OBPDO	0	1	0	1	0	0	1	0	0	0	0	0	1	1	5
Total Intak	240	480	300	300	75	150	75	75	180	75	180	75	115	180	2500
GNSGD*	1	1	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	1	14
Grand Total	242	482	302	302	77	152	77	77	182	77	182	77	117	182	2528
KM*															1
TOTAL															2529

Bachelor of Design SEAT MATRIX 2021-22

Category	Delhi			Outside Delhi			Total
		CW	PD		CW	PD	
General	39	2	1	7	0	0	49
OBC	25	1	1	5	0	0	32
SC	14	0	1	3	0	0	18
ST	8	0	0	1	0	0	9
EWS	10	0	0	2	0	0	12
Total	96	3	3	18	0	0	120
SG	1	-	-	-	-	-	1
TP	1	-	-	-	-	-	1
KM	1	-	-	-	-	-	1
Grant total	-	-	-	-	-	-	123

Decision : The Academic Council considered and approved the Seat Matrix of various Undergraduate programmes of the University as proposed.



Agenda 29.6 : Approval for change in Subject Codes of three Minor Electives Papers.

It was submitted to the Academic Council that the Department of Humanities proposed to change in Subject Codes of three Minor Electives Papers of B.Tech as under:

Sl. No.	Subject	Code	Revised Code
1.	Microeconomics	HU202	HU 312
2.	Basic Communication Skills	HU 205	HU 317
3.	Professional Writing Skills	HU 206	HU 318

It was observed that some typographical error was found in the Existing Codes HU 205 and HU 206. Accordingly, the above table has been revised as under:

Sl. No.	Subject	Code	Revised Code
1.	Microeconomics	HU202	HU 312
2.	Basic Communication Skills	HU 225	HU 317
3.	Professional Writing Skills	HU 226	HU 318

Decision : The Academic Council considered and approved for change in Subject Codes of three Minor Electives Papers as per the revised table above.

Agenda 29.7 : To consider the recommendations of committee constituted to review the Scheme of Examination implemented in academic year 2020-2021 for continuous assessment.

It was submitted to the Academic Council that the University follows a common scheme of teaching and evaluation for all UG and PG programmes through various assessment components viz. CWS/, PRS/STS, MTE, ETE, PRE/STE, etc. As per the scheme of teaching and evaluation the components like CWS/, PRS/STS follow the continuous assessment method whereas MTE/ETE/PRE/STE are conducted one time.

From AY 2020-21 due to COVID 19, the teaching learning process and assessment for all programs was shifted to online mode and a common assessment method for MTE and ETE components was rolled out after due approval of academic council in its 24th meeting vide agenda item no. 24.4. However, the assessment for CWS, PRS/STS was done by respective faculty as per past practice.

A committee was constituted by the Competent Authority vide office order no. DTU/2018/Secrecy/Audit of QP/07/4001-4030 dated March 30, 2021 under the chairpersonship of Prof. Neeta Pandey to audit the question papers of all programmes in accordance with the guidelines for setting of good quality question papers. Further, as per minutes of the 46th Meeting of all Deans/HoDs held on 07-May-2021 at 09:00 PM through Online mode notified vide F.No. DTU/Registrar/Minutes/2019-20/4871-A dated 08th May 2021, this committee was also assigned the responsibility **to review the scheme of Examination implemented in academic year 2020-2021 for continuous assessment.** The committee reviewed scheme of examination implemented in academic year 2020-2021 for continuous assessment. After due deliberations through several meetings the committee unanimously recommended that while evaluating performance of students the focus should be on regular formative assessment for learning rather than the summative assessment and proposed following methods for evaluation of various components (CWS, PRS/STS, MTE, ETE and PRE/STE) for AY 2021-2022 (odd semester):

A. For courses having CWS, PRS/STS, MTE, ETE

S.No	Evaluation Component	Assessment	Courses with Practical Component		Courses without Practical Component	
			Weightage / Marks		Weightage / Marks	
1.	CWS	1. Homework Assignments 2. Pop Up/Gaming Quizzes 3. Recognition Type Assessment (MCQs, Matching, Classifying, True/False, Assertion/Reason) 4. Preparing questions from a session and answering the same by the students in a stipulated time 5. Open Book Tests 6. Creative Assignments such as recorded interviews of stakeholders, case studies etc. 7. Oral Rapid Fire Questions/ Class Response	15X1	15	25X1	25
2.	PRS	1. Conduct of Experiments, maintenance of lab record and evaluation thereof based on viva-voce and presentations. 2. Innovative Practical Work in the form of Small Project, Lab/Task based Simulation/ Automation, Collaborative Projects etc. (group of max 2 students)	25X1	25		
3.	MTE	1. Innovative Work in the form of Small Project, Startup Idea, Collaborative Projects, Automation, Simulation, Case study, Solutions to Real time social, economic and technical problems etc. (group of maximum 2 students) 2. Poster Presentation based on research papers 3. Annotated Bibliography 4. Graphical Abstract/Audio-Visual Content of Respective Course 5. Writing Review Report of Research Papers (Minimum 4-5 Papers)	20 X 1	20	25 X 1	25

4.	ETE	3 Class Tests Best 2 will be considered for evaluation.	15 x 2	30	20 x 2	40
		2 Minor Class Tests in the form of Quizzes, Short Answer Questions, MCQs, Open Ended/Essay Questions, etc. Better of the two will be considered for evaluation.	10 x 1	10	10 x 1	10
Maximum Marks				100		100

Note :

- Modes of assessment suggested under CWS and MTE are of indicative nature. Faculty has flexibility to use similar style, however, the deviations (if any) shall be discussed with subject coordinator and approved by respective BoS of the department.
- The number of components to be used for evaluation shall be as follows:
 - CWS: At least three out of components mentioned in above Table.
 - MTE: Any one of components mentioned in above Table.

B. For courses having PRS and PRE components only

For assessment of the courses like Engineering Graphics, Workshop Practice and FECs like Physical Education, Sports, Yoga, Music, etc. bearing practical components only, the evaluation may be done as per following table:

practical components only, the evaluation may be done as per following

S.No.	Component	Assessment	Weightage / Marks	
1	PRS	3 Practical Tests/Presentation /Group Discussion/ Case Studies/Quizzes/Game type activities after every 4 weeks. Best 2 will be considered for evaluation.	15 x 2	30
		Conduct of Experiments/Activities, maintenance of record and evaluation thereof based on viva-voce and presentations.	20 x 1	20
2	PRE	Innovative Practical Work in the form of Small Project, Lab/Task based Simulation/ Automation, Collaborative Projects etc. (group of max 2 students)	30 X 1	50
		2. Presentation/Viva -Voce Examinations	20 X 1	
		Maximum Marks		
				100

Note: Modes of assessment suggested under PRS and PRE are of indicative nature. Faculty has flexibility to use similar style, however, the deviations (if any) shall be discussed with subject coordinator and approved by respective Board of Studies of the department.

NOTE: Below is a description about the Assessment Methods under various Evaluation Components mentioned in the Tables above:

<u>Assessment Mode</u>	<u>Nature of Evaluation</u>
Open Book Tests	Students allowed to get books of their choice for reference
Annotated Bibliography	1. A citation to the article, chapter, or other work 2. Qualifications of the author or authors. 3. Mention of the methods the authors used. 4. A summary of the argument and/or findings. 5. Evaluation of the work
Case Study	Students analyze a given case (real or fictional) and come to solutions regarding some given issues or questions
Rapid Fire Questions	Questions on a topic asked very quickly and also answered very fast
Graphical Abstract	Pictorial representation of a topic/unit/course or its audio-visual representation
Poster Presentation	Presentation of research information gathered from research papers in the form of a paper poster which others can view

- C. All the examination components namely CWS, MTE, PRS and ETE per course be taken up by the same faculty preferably.
- D. Implementation guidelines for Course teacher and course Coordinators with respect to above recommendations are as below:

Important Instruction for Course teacher and course Coordinators

1. FOR MTE, CWS AND PRS

- (a) The faculty may opt for any one or more assessment options under different components as mentioned in the table above.
- (b) The Evaluation Components and the tentative schedule for Class Tests should be submitted with the lesson plan/course outline prior to the start of semester to the department as well as to the students which reflects preparation for the class, seriousness and quality of effort.

2. FOR CLASS TESTS AND MINOR CLASS TESTS

- (a) All Class Tests shall be either subjective or in mixed-mode i.e. combination of subjective and MCQs. All Class Tests and Minor Class Tests may be scheduled after two weeks from the commencement of the semester depending on the learning curve of the students.
- (b) The question papers of class test should have questions with different difficulty levels and shall be based on varying order of thinking skills in accordance with the following:

- (i) The question paper set should have approximately 35% Easy questions, 30% Moderate questions and 35% Difficult questions.
- (ii) In addition to this, the Bloom's Taxonomy Levels should also be applied and taken care of while setting the question paper such that there should be around 30% questions based on Initial Cognitive Levels.
- (iii) (Remember and Understand), approx. 50% questions based on Intermediate Cognitive Levels (Apply and Analyse) and around 20% questions based on Higher Cognitive Levels (Evaluate and Create), wherever applicable.

(c) The duration of every Class Test should be 45-60 minutes and that of every Minor Class Test should be 15-20 minutes.

E. In view of promoting the faculty centric continuous assessment scheme as recommended in NEP 2020 and also by various education regulators, the centrally conducted MTE and ETE may be substituted by continuous evaluation at the level of individual faculty. For courses where there are more than one sections taught by different teachers the final grading, for that course, should be done section wise.

Chairman, Academic Council congratulated Prof. A.Trivedi, Dean (IRD) and Prof. Neeta Pandey for their extraordinary efforts and commitment to prepare the above Scheme of Examination.

Decision : The Academic Council considered and approved the recommendations of committee constituted to review the Scheme of Examination implemented in academic year 2020-2021 for continuous assessment. The modified scheme of teaching and examinations shall be applicable in academic year 2021-2022 (odd semester).

Agenda 29.8 : 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 the Dean, Academic (PG) has forwarded a list of **16 candidates** to consider their registration for Ph.D. candidature upon successful completion of course work and comprehensive examinations and approval of Research Plan by respective DRCs. List of the candidates (department-wise) is placed below:

Department of Applied Chemistry

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Leela Gautam	2K19/PHDAC/03	Applied Chemistry	01.04.2021

Department of Biotechnology

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Anisha Kathpalia	2K18/PHDBT/16	Biotechnology	09.04.2021
2	Sweeti	2K18/PHDBT/504	Biotechnology	09.04.2021
3	Navneet Chaudhary	2K18/PHDBT/09	Biotechnology	09.04.2021

Department of Electrical Engineering

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Upma Singh	2K19/PHDEE/17	Electrical Engineering	31.03.2021

Department of Environmental Engineering

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Harsh Pipil	2K19/PHDEN/02	Environmental Engineering	13.04.2021
2	Shivani Yadav	2K19/PHDEN/06	Environmental Engineering	13.04.2021

Department of Humanities

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Saroj Bala	2K18/PHDHU/505	Humanities	28.11.2020

Department of Mechanical Engineering

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Varsha Mishra	2K19/PHDME/05	Mechanical Engineering	19.10.2020
2.	Rakesh Kumar	2K18/PHDME/05	Mechanical Engineering	18.06.2021
3.	Satish Kumar	2K18/PHDME/23	Mechanical Engineering	04.03.2021

Department of Electronics & Communication Engineering

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Bhavana Sharma	2K19/PHDEC/02	ECE	15.04.2021
2.	Paritosh Chamola	2K19/PHDEC/08	ECE	13.05.2021
3	Mohit Tyagi	2K18/PHDEC/510	ECE	29.06.2021

Applied Mathematics

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Ashish Kumar Garg	2K18/PHDAM/503	Applied Math	24.03.2021

Civil Engineering

Sr. No.	Name of the Candidate	Roll No	Name of the Department	Date of the SRC
1	Abhishek Prakash Paswan	2K18/PHDCE/501	Civil Engineering	21.06.2021

Decision : The Academic Council considered and approved the formal registration of 16 candidates and confer their candidacy for Ph.D. programme.

Agenda 29.9 : Cancellation/Withdrawal of admission during January to February 2021 from Ph.D. programme.

It was submitted to the Academic Council that the certain admissions have been withdrawn during January-February 2021 from Ph.D programme. The list of the students who cancelled their registration is given below:

S. No.	Roll No.	Full Name	Department
1	2K20/PHDDSM/01	Rajat Aggarwal	DSM
2	2K18/PHDEN/503	Asif Hussain	Environmental Engineering
3	2K18/PHDCE/11	Mohmmad Aslam	Civil Engineering
4	2K19/PHDME/02	Mohneesh Kumar sharma	Mechanical Engineering
5	2K17/PHDCE/27	Anu Mru	Civil Engineering
6	2K16/PHDME/32	Balbir Singh	Mechanical Engineering
7	2K18/PHDUECO/01	Neha Grover	Humanities -Economics
8	2K20/PHDEE/01	G.K. Naveen Kumar	Electrical Engineering

Decision : The Academic Council approved the cancellation of admissions of above mentioned 8 candidates.

Agenda 29.10 : To consider admissions made in Ph.D programme for the session starting from August 2021.

It was submitted to the Academic Council that that 177 candidates were admitted in Ph.D programme for the session starting from August 2021. The list of the students who have been admitted in Ph.D programme is placed in **Annexure at page 01 to 05.**

The Chairperson, Academic Council appreciated the efforts and hard work of Prof. S.C. Sharma, Dean, Academic (PG), Dr. Rishu Chaujar, Associate Dean, Academic (PG), Prof. A. Trivedi, Dean (IRD) and Prof. Ruchika Malhotra, Associate Dean (IRD) and their teams for giving momentum to research activities.

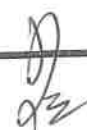
Decision : The Academic Council considered and approved admissions of 177 students in Ph.D programme for the session starting from August 2021.

Agenda 29.11 : Approval for renewal of admission in Ph.D programme.

It was submitted to the Academic Council that following two candidates sought to renew their admission in Ph.D programme:

S. No.	Roll No.	Full Name	Department
1	2K16/PHDME/30	Rahul Kumar Jaiswal	Mechanical Engineering
2	2K15/PHDME/01	Ankit Dwivedi	Mechanical Engineering

Decision : The Academic Council considered and approved for renewal of admission of above mentioned two candidates in Ph.D programme.



Agenda 29.12 : Approval for Admission Brochures for the academic year 2021-22 for different PG programmes.

It was submitted to the Academic Council that the Admission Brochure for the academic year 2021-22 for the following PG programmes were placed before the University Admission Committee in online meeting. The Committee had approved the Admission Brochures with minor modifications:

- A. M.Tech (Full Time/Part Time)
- B. M.Sc.
- C. MBA
- D. MBA (Executive)
- E. MBA (Family Business & Entrepreneurship)
- F. MBA (Business Analytics)
- G. MBA (Innovation, Entrepreneurship and Venture Development)

It had been reported that the modifications have been incorporated in the revised brochures. The copy of the revised brochures were placed before the Academic Council on the day of meeting.

Decision : The Academic Council considered and approved the Admission Brochures for the academic year 2021-22 for different PG programmes.

The Council also constituted a committee of following members to look into the matter for inclusion of B. Voc. programmes among eligible programmes/degrees for M.Tech admissions:

1. Dean, Academic PG - Chairperson
2. Dean, Academic UG
3. Dean, IRD
4. Dean, Student Discipline
5. Prof. S.K. Garg
6. Prof. Pragati Kumar
7. Prof. Narendra Kumar- II
8. Dr. Rishu Chaujar – Member Secretary

Agenda 29.13 : Approval for inclusion of two new elective courses in M. Tech Power Electronics & Systems (PES).

It was submitted to the Academic Council that the Board of Studies of the Electrical Engineering Department approved the following two new elective courses in M. Tech - Power Electronics & Systems (PES) to include in the basket of Elective 5 in Group D (Semester II) and Elective 7 in Group E (Semester III).

1. PES-5312 Pulse Width Modulation for Power Converters (3 credit basket) (3-0-0)
2. PES-6409 Resonant Power Converters (4 credit basket) (3-0-2)

The detailed revised scheme and syllabus of the elective courses are placed in ***Annexure at page 06 to 12.***

It was proposed to include above two new electives.

Decision : The Academic Council considered and approved for inclusion of two new elective courses in M. Tech Power Electronics & Systems (PES) along with syllabus and provision of practical components in PES-5312.

Agenda 29.14 : Approval for revision of syllabus of full time MBA program w.e.f. academic year 2021-22.

It was submitted to the Academic Council that Delhi School of Management processed with the formation of a syllabus revision committee in the month of January 2021, comprising of area experts from the department. The draft syllabus has been prepared after taking inputs from different stakeholders including students, alumni, employers, and industry - academic experts.

In the Revised Syllabus, in addition to the Core Courses, the choice of Elective Courses offered to students has also been increased. This is in keeping with the objective of aligning Elective Courses with changing dynamics of the business world, as well as to make the courses more industry relevant.

Further, the draft was presented in an online meeting and subsequently, approved by the members of the Board of Studies of Delhi School of Management on July 14, 2021.

Decision : The Academic Council considered and constitute a committee of following members to review the matter:

1. Dean, Academic (PG) - Chairperson
2. Prof. D.P Goyal, Director, IIM, Shilong
3. Prof. Neharika Vohra, Vice Chancellor, Delhi Skill & Entrepreneurship University
4. Prof. J.P. Saini, Vice Chancellor, NSUT
5. Dr. Archana Singh, HoD, DSM
6. Prof. Amit Mookerjee, Head, USME
7. Prof. Pragati Kumar, Electrical Engg. Dept.
8. Dr. Rishu Chaujar – Member Secretary

The Academic Council also authorized Vice Chancellor to approve the recommendations of the committee.

Agenda 29.15 : Approval for establishment of Centre of Excellence for the Science of Happiness.

It was submitted to the Academic Council that for the wellness of good health of employees and students of the University, the University proposes to start a Centre of Excellence in the Science of Happiness. The major aspects of the centre are as below:

1. INTRODUCTION

The New Education Policy 2020, focus on 360° development of an Individual in a holistic way. In human system, the three components body, mind and soul are interconnected and also the well being of all these. As per WHO, health is not merely the absence of disease, it is a state of physical and mental well being and both contribute for wellbeing and development of society. Mental well being leads to the path towards satisfaction, happiness and harmonious work environment. If a workplace is open to respect and appreciate each other's ideas and willing to implement then that is nothing but a blissful work environment which surely leads to growth oriented community development and nation building process.

If an individual is happy, he can excel high in his pursuit and the productivity is also enhanced, which in general makes the individual to realize his or her true inner potential.

A positive and growth oriented environment is the need of hour to have a successful, happy personal and professional life. Since more than 80% of our lifetime is spent in workplace, happiness at workplace is paramount important in promoting loving attitudes in teaching and guiding students focussed towards their career. Research shows that people who have emotional well being are more productive, learn more and even earn more. They function at a higher level utilizing their personal strength, skills and abilities to contribute to their own well being as well as that of others and society.

Happiness Centres are already functional successfully worldwide in many Institutions and Universities like IIT Khargpur, California state University, Sacramento and Yale Universality.

2. VISION

To promote the science and art of happiness scientifically through education, research activities, collaborating with industry and other stakeholders.

3. MISSION

- (i) Harnessing continued happiness & harmony under all circumstances.
- (ii) Execution of various measures in the domain of well being, happiness & spiritual awareness leads to evolution.
- (iii) Developing innovative tools for personal & Organizational growth with the help of researchers from academic and spiritual organisations.
- (iv) Imbibing & Nurturing nobleness, compassion, loyalty and good interpersonal relations with love and gratitude

4. OBJECTIVES

- (i) To learn and develop best practices which promotes happiness, thereby broadens our view of intellectual, social and economical resources.
- (ii) To encourage the youth to serve the deprived and guide the weaker section of the society towards self-sustainability
- (iii) To attempt and develop the science and art of happiness through interdisciplinary approach and collaboration
- (iv) To develop an inner-research & development program to make education, a joyful one.
- (v) To Strengthen inter-personal skills and thereby creating a positive and productive work environment
- (vi) To understand and accept all cultures to promote individual and collective well being
- (vii) To promote collaborative research by strengthening team building and minimizing workplace tension.

5. PROPOSED THRUST AREAS OF THE CENTRE

The centre will focus on the following key areas but not limited to

- (i) Developing skills and tools (both tangible and intangible) for personal and Organizational development.
- (ii) Increasing Industry-Institute Interaction
- (iii) Conducting Research on Happiness, Spirituality
- (iv) Offering Foundation elective courses for UG students on Happiness & Well being like
 - (a) Science of well being
 - (b) Achieving Personal & Professional success.
 - (c) Mental Health & Happiness
- (v) Courses for PG & PhD Students
- (vi) Workshop and Faculty Development Program on Science of Happiness
- (vii) Collaboration with likeminded Organization through MOU to promote happiness.
- (viii) Community oriented activities.

6. GOVERNANCE STRUCTURE

Centre will be headed by the Co-ordinator and will be associated by one Co-coordinator and Members. Proposed Centre will work as per guidelines provided for centres by the Delhi Technological University. The Coordinator, Co-coordinator and members of the governing body shall be decided by the University from time to time.

7. TEAM SIZE FOR COORDINATION OF CENTRE

For effective planning and coordination of activities in the centre, the University shall appoint Coordinator and Co-coordinator along with a team of five members for smooth running of the centre.

8. MONITORING COMMITTEE

A monitoring committee will be formed to monitor progress of the centre. The composition of the committee will be as follows:

1. Vice Chancellor or his/her nominee
2. Two experts from outside University
3. Two persons from the University and preferably one woman member.

9. FINANCIAL

- a) **Rekhi Foundation** may provide funding of 12 to 15 lacs Rupees per year on initial period of 5 years.
- b) Fund from DTU
- c) Fund will be generated by the Centre through Courses and workshops.
- d) Fund generated by in collaboration with National/ International Organizations.
- e) Fund Generated by conducting training program.

10. FACILITIES REQUIRED

The Centre needs to be equipped with the following resources for setup and sustainability:

- 1) Physical Space for the office of the centre along with required furniture and other accessories.
- 2) Meditation Room with required amenities
- 3) Library / Reading room
- 4) Man power etc.

Decision : The Academic Council considered and suggested some modifications which have been incorporated for establishment of Centre of Excellence for the Science of Happiness and recommended the matter to the Board of Management for its approval.

Agenda 29.16 : Any other item with the permission of the Chair.

**Supplementary : Approval for Policy for engaging International faculty as
Agenda 29.17 Online Guest faculty for part/full course teaching in a semester.**

It was submitted to the Academic Council that Online International Guest Faculty (OIGF) can influence and support interaction between students, faculty members and experienced personnel working in the specialization outside the specializations pursued by DTU. If any faculty is interested in having an Online International Guest Faculty for attachment with a course for team teaching to cover part coverage of course/ the department realize that there is a shortfall in terms of a specialization in the department and the whole coverage of the course is a requisite for creating a positive impact on a degree program, following guidelines would apply:

- The merit of such cases be discussed in the Board of Studies of the respective department(s) not later than the middle of the previous semester to which such OIGF for a course would be the requisite.
- Maximum 3 courses per semester per dept. or as decided by the University from time to time shall be entertained.
- The utilization of the OIGF will be reviewed by the committee of Deans comprising of Dean (IRD), Dean (UG), Dean (PG) and Dean (IA) to determine whether the influence of such expertise would add significantly to the conduct of the course(s).
- On acquiring acceptance of the concerned expert, the concerned department shall get a contract form signed by the expert and send the same to the OIA, DTU.
- A minimum contribution of one 50-minute class shall qualify to receive an honorarium for a lecture.
- Normally, a maximum of three paid lecturers are permitted per one week ranging over to a total of 13 – 14 weeks (regular semester). However, the accelerated delivery of the lectures by the of the OIGF shall be reviewed by the same committee on case to case basis looking at appropriate provisions made in the time table made by the department to accommodate the same with overburdening the students.
- A faculty member/research scholar should be in attendance when OIGF is presenting.

- Eligible OIGF will receive and honorarium listed in the table (Annexure 1). If the OIGF is already funded by DTU through some other scheme, or receiving honorarium through Govt. agencies there will be no compensation.
- The quantum of the honorarium and/or methodology for the computation of honorarium may be amended from time to time.
- The honorarium shall be in four slabs on per lecture basis, based on the points accumulated from each vertical as per following table:.

QS/THE ranking of institute currently serving	QS/THE ranking of institute from where PhD is obtained	H index of the expert as per Scopus index	Citation as per Scopus indexing	#Number of SCI/SCIE indexed paper > 3 impact factor	*Number of sponsored research projects executed	Editorial Board of SCI/SCIE indexed journal.	Topic of the research currently pursued aligned with number of National Missions of our country
< 100 10 points	< 100 10 points	> 75 10 points	>4500 10 points	> 50 10 points	> 20 10 points	>5 journals 10 points	>5 10 points
< 200 9 Points	< 200 9 Points	> 50 9 points	>3500 9 points	> 40 9 points	> 15 9 points	>4 journals 8 points	>4 8 points
< 300 8 points	< 300 8 points	> 35 8 points	>2750 8 points	> 30 8 points	> 10 8 points	>3 journals 6 points	>3 6 points
< 400 7 points	< 400 7 points	> 20 6 points	>2000 6 points	> 20 6 points	> 05 6 points	>2 journals 4 points	>2 4 points
< 500 6 points	< 500 6 points	> 10 4 points	>1000 4 points	> 10 4 points	> 02 4 points	>1 journals 2 points	>1 2 points

In case of multiple authors the weightage shall be divided by number of authors.

* Sponsored projects >20K US\$ x n (where n is number of investigators in a project) shall only qualify

- Minimum points requisite for identifying the expert is 40.

Slab	Accumulated points as per above table	Honorarium per hour
Slab-1	≤ 50 points	US\$ 75 per lecture
Slab-2	50 points ≤ 60 points	US\$ 100 per lecture
Slab-3	60 points ≤ 70 points	US\$ 125 per lecture
Slab-4	≥70 points	US\$ 150 per lecture

- As and when the OIGF completes one third of the contracted number of lectures, the filled honorarium form duly signed and scanned be sent through concerned faculty/head of the department to the Office of International Affairs for part payment up to that point. The procedure shall follow at the end of 2/3 number of contracted lectures and full completion of the contracted lectures.

A committee of following members was proposed for evaluating the proposal and suggestions thereof for its incorporation to enable it framing the agenda to be put up before Academic Council.

1. Prof. A. Trivedi, Dean IRD
2. Prof. D. Bhaskar, Professor, EED
3. Prof. V.K. Minocha, HoD, Civil Engg
4. Prof. Ruchika Malhotra, HoD, SWE and Assoc. Dean IRD
5. Prof. Rinku Sharma, HoD, Applied Physics
6. Prof. Vishal Verma, Dean IA
7. Dr. Roli Purwar, Assoc. Dean-IA
8. Prof. Raju Sarkar, Coordinator Visitation-IA

Decision : The Academic Council considered the matter and suggested to modify the proposal as per discussion. The Council also authorized Vice Chancellor to accept the recommendations of the Committee which will be chaired by Dean (IRD). The Council also recommended to place the revised matter before the Board of Management for its approval.

Supplementary : Approval of Mandatory Course for every 1st or 2nd year
Agenda 29.18 UG student of University on Community Engagement
(Mentoring School Students) for 2 credits.

It was submitted to the Academic Council that to achieve the objectives of socio- economic development of New India, Higher Education Institutions (HEIs) can play an important role through active community engagement. Towards this, the UGC has prepared National Curriculum framework & Guidelines for Fostering Social Responsibility & Community Engagement in Higher Educational Institutes in India. The frame work recommends that each HEI conduct a compulsory course to provide community engagement of all UG & PG students. Proposed credit-based for students: Participation of students in teaching activities of community engagement and research projects and learning should earn them credits. Community engagement should thus be included to meet their graduation requirements and it should be Integrated into their assessments.

Hence, it was proposed to start:

- (I) Mandatory Course on Community Engagement (Mentoring School Students) of 2 extra Credits (Over and above the credit required for graduation) for UG students of 1st or 2nd year and adopt absolute grading system.
- (II) The minimum duration of the course will be one years. There will be continuous evaluation and final credit will be given at the end of academic year on which course have been opted by students.

Hence, the agenda for approval was proposed as below:

Subject Code	
Subject Name	Community Engagement (Mentoring School Students)
Contact Hours	01 hour per week
Examination Duration	Outcome based Continuous Evaluation for a duration of 1 years
Credit	02, Two credit shall be added in degree after second year and Every UG programs total number of credit will be increased by 2 Credit.
Semester	I to II (Continuous) for one academic year or III to IV (Continuous) for one academic year
Subject Area	This course will enable students (Mentors) to mentee the class 9th to 12th students of schools of Delhi in carrier counselling, problem-solving, Innovative work and critical thinking.
Pre-requisite	NIL

Objective	<p>I. To guide and support school students in academics.</p> <p>II. To apply classroom knowledge of courses to field realities and thereby improve quality of learning</p> <p>III. To counsel students for selection of career exploration</p> <p>IV. To learn about importance of holistic development</p>
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Syllabus:

1. Every student (Mentor) will be allotted up to 4 to 6 mentees (Students from Delhi schools).
2. The mentor is expected to continuously contribute for the counselling of the mentee in selecting their Career Exploration, help him/ her in achieving the goals, academic guidance and support, help in problem solving, inculcate critical thinking and help in developing skill, lifelong learning projects, innovation etc.

It was requested to the Council for giving approval for the above proposed agenda in principle. After approval from Academic Council, it shall be implemented for the students admitted in academic session 2020-21 onwards. Amendments, if any, shall be carried out accordingly.

The Chairperson, Academic Council appreciated the initiative taken by Prof. R.S. Mishra, Dean (O&EA) and Prof. A.K. Srivastava, Associate Dean (O&EA) in outreach and extension activities and placed on record their valuable contributions and support.

Decision : The Academic Council considered and approved the Mandatory Course for every 1st or 2nd year UG student of University on Community Engagement (Mentoring School Students) for 2 credits.


Prof. R.S. Mishra, Mechanical Engineering department is going to superannuate on 31.07.2021 from his services in the University. The Chairperson, Academic Council placed on record his hard work, dedication and devotion to his duties as Professor, former Head of Department, Mechanical Engineering and as Dean (O&EA). The Chairperson also appreciated his contribution and knowledge while serving in various capacities. The Academic Council also appreciated and noted his exemplary contribution.

The meeting ended with a vote of thanks to all the members and special invitees.


(Prof. Madhusudan Singh)
 Registrar

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. All Deans, DTU.
4. Prof. J.P. Saini, Vice Chancellor, Netaji Subhash University of Technology, Sector 3, Dwarka, Delhi 110078
5. Prof. Neharika Vohra, Vice Chancellor, Delhi Skill & Entrepreneurship University, Dwarka, Delhi.
6. Prof. D.P. Goyal, Director, Indian Institute of Management, Shilong.
7. Prof. B.R. Chahar, Professor, Civil Engineering, Indian Institute of Technology, Delhi (nominee of All India Council for Technical Education)
8. Prof. Bhim Singh, Electrical Engineering Department, Indian Institute of Technology, Delhi
9. Sh. Rajesh Mathur, C-2/27, Mangal Apartment, 16, Vasundhara Enclave, Delhi 110096. (FICCI nominee)
10. All Heads of Department, DTU.
11. Prof. Reeta Wattal, Professor, Mechanical Engineering Department
12. Prof. V.K. Minocha, Professor, Civil Engineering Department
13. Sh. Rajesh Birok., Associate Professor, Electronics and Communication
14. Dr. M. Jayasimhadri, Assistant Prof., Applied Physics Department.
15. Controller of Examinations.
16. Registrar, DTU


(Prof. Madhusudan Singh)
Registrar

ANNEXURE
for
Minutes

29th meeting of
Academic Council
DTU

23-07-2021

DTU Campus, Shahbad Daulatpur, Bawana Road, Delhi-110042



List of students admitted in Ph.D programme

S. No,	Roll No.	Full Name	Department
1.	2K21/PHDAC/01	KRITIKA	Applied Chemistry
2.	2K21/PHDAC/02	KUNAL MADAAN	Applied Chemistry
3.	2K21/PHDAC/03	TANUSHEE	Applied Chemistry
4.	2K21/PHDCH/01	KUNDAN KUMAR SINGH	Applied Chemistry
5.	2K21/PHDBT/01	MEGHA	Biotechnology
6.	2K21/PHDBT/02	MOHITA CHUGH	Biotechnology
7.	2K21/PHDBT/03	MEHAR SAHU	Biotechnology
8.	2K21/PHDBT/04	ANKITA DAS	Biotechnology
9.	2K21/PHDBT/05	NEETU RANI	Biotechnology
10.	2K21/PHDBT/06	BIDISHA BHOWAL	Biotechnology
11.	2K21/PHDDES/01	SHRADDHA CHADHA	Design
12.	2K21/PHDDES/02	MONICA SINGH	Design
13.	2K21/PHDDES/03	NANDEESHA M	Design
14.	2K21/PHDDES/04	SHRUTI SOHARIA SINGH	Design
15.	2K21/PHDDSM/01	PRAGATI YADAV	Management-DSM
16.	2K21/PHDDSM/02	DIVYA JAIN	Management-DSM
17.	2K21/PHDDSM/03	HARISH KUMAR	Management-DSM
18.	2K21/PHDDSM/04	VARTIKA RAJPUT	Management-DSM
19.	2K21/PHDDSM/05	ROHIT	Management-DSM
20.	2K21/PHDDSM/06	ADITYA PRATAP SINGH	Management-DSM
21.	2K21/PHDDSM/07	JYOTI TANDON	Management-DSM
22.	2K21/PHDDSM/08	SUBODH MOR	Management-DSM
23.	2K21/PHDDSM/09	KARAN TREHAN	Management-DSM
24.	2K21/PHDDSM/10	RAJNI SHARMA	Management-DSM
25.	2K21/PHDDSM/11	ABHINAY SHUKLA	Management-DSM
26.	2K21/PHDDSM/12	ANKUR TAYAL	Management-DSM
27.	2K21/PHDDSM/13	URVASHI BAJAJ	Management-DSM
28.	2K21/PHDHUECO/01	NIDHI SEHRAWAT	Humanities-Economics
29.	2K21/PHDHUECO/02	DIKSHA ARORA	Humanities-Economics
30.	2K21/PHDHUEG/01	MEGHNA BASAOU	Humanities-English
31.	2K21/PHDHUEG/02	AYUSHI PRAKASH SAINI	Humanities-English
32.	2K21/PHDME/01	SHIVENDRA SINGH	Mechanical Engineering
33.	2K21/PHDME/02	ASHUTOSH BAGCHI	Mechanical Engineering
34.	2K21/PHDME/03	AFROJ ALAM	Mechanical Engineering
35.	2K21/PHDME/04	MANISH KUMAR	Mechanical Engineering
36.	2K21/PHDME/05	Neelam Baghel	Mechanical Engineering
37.	2K21/PHDME/06	RAJESH KUMAR	Mechanical Engineering

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38.	2K21/PHDME/07	SHEKHAR SANSAR	Mechanical Engineering
39.	2K21/PHDME/08	RAJENDRA PRASAD MEENA	Mechanical Engineering
40.	2K21/PHDME/09	RICHA GUPTA	Mechanical Engineering
41.	2K21/PHDME/10	SAURABH PANDEY	Mechanical Engineering
42.	2K21/PHDME/11	Rupali Rathor	Mechanical Engineering
43.	2K21/PHDME/12	kumar ankur	Mechanical Engineering
44.	2K21/PHDME/13	GARIMA BHARTI	Mechanical Engineering
45.	2K21/PHDME/14	Ayaz Mehmood	Mechanical Engineering
46.	2K21/PHDME/15	ARUN SINGH	Mechanical Engineering
47.	2K21/PHDME/16	Sushant Verma	Mechanical Engineering
48.	2K21/PHDME/17	Ravi Kant	Mechanical Engineering
49.	2K21/PHDMF/18	Krishna Kumar Karothiya	Mechanical Engineering
50.	2K21/PHDME/19	Neeraj	Mechanical Engineering
51.	2K21/PHDME/20	DIVYANSHU SRIVASTAV	Mechanical Engineering
52.	2K21/PHDEE/01	Shefali Painuli	Electrical Engineering
53.	2K21/PHDEE/02	AYUSH	Electrical Engineering
54.	2K21/PHDEE/03	Shruti Prajapati	Electrical Engineering
55.	2K21/PHDEE/04	SUDHANSHU MITTAL	Electrical Engineering
56.	2K21/PHDEE/05	KIRTI KAHARWAR	Electrical Engineering
57.	2K21/PHDEE/06	Shreya Garg	Electrical Engineering
58.	2K21/PHDEE/07	Ritanshu Tiwari	Electrical Engineering
59.	2K21/PHDEE/08	RAHMA AMAN	Electrical Engineering
60.	2K21/PHDEE/09	DIVYANSH SHAILLY	Electrical Engineering
61.	2K21/PHDEE/10	Kashika Baranwal	Electrical Engineering
62.	2K21/PHDEE/11	NITISHA SUDHIR DARWADE	Electrical Engineering
63.	2K21/PHDEE/12	Stanzin Gyatso	Electrical Engineering
64.	2K21/PHDEE/13	Shreya Sahu	Electrical Engineering
65.	2K21/PHDEE/14	Ruchi Yadav	Electrical Engineering
66.	2K21/PHDEE/15	MEGHANA SHRIVASTAVA	Electrical Engineering
67.	2K21/PHDEE/16	DIPAK PRASAD	Electrical Engineering
68.	2K21/PHDEE/17	GAURAV YADAV	Electrical Engineering
69.	2K21/PHDEE/18	Kartik sains	Electrical Engineering
70.	2K21/PHDEE/19	KRISHNA DUTT	Electrical Engineering
71.	2K21/PHDEE/20	ASHISH CHANDRA	Electrical Engineering
72.	2K21/PHDEE/21	GOVIND GUPTA	Electrical Engineering
73.	2K21/PHDEE/22	RAM NARESH MISHRA	Electrical Engineering
74.	2K21/PHDEE/23	ISHITA SHARMA	Electrical Engineering
75.	2K21/PHDIT/01	ASHISH BAJAJ	Information Technology

76.	2K21/PHDIT/02	MANU NARULA	Information Technology
77.	2K21/PHDIT/03	MEENAKSHI SRIVASTAVA	Information Technology
78.	2K21/PHDIT/04	NIDHI	Information Technology
79.	2K21/PHDIT/05	LAKSHITA AGARWAL	Information Technology
80.	2K21/PHDIT/06	AVANTIKA SAHU	Information Technology
81.	2K21/PHDIT/07	AKANKSHA KAROTIA	Information Technology
82.	2K21/PHDIT/08	ANANYA PANDEY	Information Technology
83.	2K21/PHDIT/09	SHIVANI KUMARI	Information Technology
84.	2K21/PHDIT/10	MANISH KUMAR	Information Technology
85.	2K21/PHDCE/01	ABHAY RAJ	Civil Engineering
86.	2K21/PHDCE/02	DEEPAK SHARMA	Civil Engineering
87.	2K21/PHDCE/03	SHIVANGI BHARADWAJ	Civil Engineering
88.	2K21/PHDCE/04	SHIVANK SHARMA	Civil Engineering
89.	2K21/PHDCE/05	NEHA RANI	Civil Engineering
90.	2K21/PHDCE/06	RISHABH TYAGI	Civil Engineering
91.	2K21/PHDCE/07	ADITYA APURVA	Civil Engineering
92.	2K21/PHDCE/08	KSHITIJ GAUR	Civil Engineering
93.	2K21/PHDCE/09	ASTHA YADAV	Civil Engineering
94.	2K21/PHDCE/10	ANIKET KUMAR SHARMA	Civil Engineering
95.	2K21/PHDCE/11	JAYA YADAV	Civil Engineering
96.	2K21/PHDCE/12	BALRAJ SINGH	Civil Engineering
97.	2K21/PHDCE/13	SHUBHAM KUMAR	Civil Engineering
98.	2K21/PHDCE/14	SHAILESH KUMAR GUPTA	Civil Engineering
99.	2K21/PHDEN/01	MALLIKA VASHIST	Environmental Engineering
100.	2K21/PHDEN/02	ASHUTOSH KUMAR	Environmental Engineering
101.	2K21/PHDEN/03	ANURAG TOMAR	Environmental Engineering
102.	2K21/PHDEN/04	ANSHUL TYAGI	Environmental Engineering
103.	2K21/PHDEN/05	MEENU AGARWAL	Environmental Engineering
104.	2K21/PHDEN/06	SWATILEKHA GHOSH	Environmental Engineering
105.	2K21/PHDEC/01	NIHAL KUMAR	Electronics and Communication Engineering
106.	2K21/PHDEC/02	AVINASH DUBEY	Electronics and Communication Engineering
107.	2K21/PHDEC/03	JULLY KUMARI	Electronics and Communication Engineering
108.	2K21/PHDEC/04	BARKHA SINGH	Electronics and Communication Engineering
109.	2K21/PHDEC/05	PALAK HANDA	Electronics and Communication Engineering
110.	2K21/PHDEC/06	TANVIKA GARG	Electronics and Communication Engineering

111.	2K21/PHDEC/07	VISHAL KUMAR	Electronics and Communication Engineering
112.	2K21/PHDEC/08	RAHUL KUMAR GUPTA	Electronics and Communication Engineering
113.	2K21/PHDEC/09	ASBAH MASIH	Electronics and Communication Engineering
114.	2K21/PHDEC/10	VIDHI	Electronics and Communication Engineering
115.	2K21/PHDEC/11	ANSHIKA MALL	Electronics and Communication Engineering
116.	2K21/PHDEC/12	ARJUN LAL KUMAWAT	Electronics and Communication Engineering
117.	2K21/PHDEC/13	SHIVANI YADAV	Electronics and Communication Engineering
118.	2K21/PHDEC/14	VISHAL CHAUDHARY	Electronics and Communication Engineering
119.	2K21/PHDEC/15	AAPURVA KAUL	Electronics and Communication Engineering
120.	2K21/PHDEC/16	HIMANI MEHTA	Electronics and Communication Engineering
121.	2K21/PHDEC/17	MAYANK KUMAR	Electronics and Communication Engineering
122.	2K21/PHDEC/18	NEHA DALAKOTI	Electronics and Communication Engineering
123.	2K21/PHDEC/19	AYUSH	Electronics and Communication Engineering
124.	2K21/PHDEC/20	PRANJIT DEKA	Electronics and Communication Engineering
125.	2K21/PHDEC/21	SUMAN RANI	Electronics and Communication Engineering
126.	2K21/PHDEC/22	SANKALP KUMAR GUPTA	Electronics and Communication Engineering
127.	2K21/PHDEC/23	PRIYANKA CHOUDHARY SINGH	Electronics and Communication Engineering
128.	2K21/PHDEC/24	SAKSHI MITTAL	Electronics and Communication Engineering
129.	2K21/PHDEC/25	VAIBHAV	Electronics and Communication Engineering
130.	2K21/PHDEC/26	DEVENDRA PRATAP	Electronics and Communication Engineering
131.	2K21/PHDEC/27	LOKESH GAUTAM	Electronics and Communication Engineering
132.	2K21/PHDCO/01	SHANU BHARDWAJ	Computer Science and Engineering
133.	2K21/PHDCO/02	SONAL GANDHI	Computer Science and Engineering
134.	2K21/PHDCO/03	DEEPAK KUMAR MISHRA	Computer Science and Engineering
135.	2K21/PHDCO/04	NIKHIL SHARMA	Computer Science and Engineering
136.	2K21/PHDCO/05	PAVI SARASWAT	Computer Science and Engineering
137.	2K21/PHDCO/06	ANUKRITI KAUSHAL	Computer Science and Engineering
138.	2K21/PHDCO/07	GULL KAUR	Computer Science and Engineering
139.	2K21/PHDCO/08	MAMTA BALHARA	Computer Science and Engineering

140.	2K21/PHDSE/01	ANJALI BANSAL	Software Engineering
141.	2K21/PHDCS/01	JYOTI PATIDAR	Software Engineering
142.	2K21/PHDCS/02	NEHA GAHLAN	Software Engineering
143.	2K21/PHDCS/03	MONIKA	Software Engineering
144.	2K21/PHDAM/01	KANITA	Applied Mathematics
145.	2K21/PHDAM/02	SHIVANI JAIN	Applied Mathematics
146.	2K21/PHDAM/03	NEHA	Applied Mathematics
147.	2K21/PHDAM/04	MONU	Applied Mathematics
148.	2K21/PHDAM/05	ABHAY SRIVASTAVA	Applied Mathematics
149.	2K21/PHDAM/06	KIRTI RANI	Applied Mathematics
150.	2K21/PHDAM/07	HIMANI POKHRIYAL	Applied Mathematics
151.	2K21/PHDAM/08	YASH SHARMA	Applied Mathematics
152.	2K21/PHDAM/09	SHOBHIT KUMAR	Applied Mathematics
153.	2K21/PHDAM/10	HIMANSHI LOHIT	Applied Mathematics
154.	2K21/PHDAM/11	ANNIE KAUSHIK	Applied Mathematics
155.	2K21/PHDAM/12	PUNEET KUMAR PAL	Applied Mathematics
156.	2K21/PHDUSME/01	SHREYA JHA	Management-USME
157.	2K21/PHDUSME/02	SUHANS BANSAL	Management-USME
158.	2K21/PHDUSME/03	RISHI PAL	Management-USME
159.	2K21/PHDUIEV/01	PRAGATI SINGH	USME (IEV)
160.	2K21/PHDUIEV/02	OJUS	USME (IEV)
161.	2K21/PHDUIEV/03	MAHENDRA RANGA	USME (IEV)
162.	2K21/PHDUIEV/04	MOHAN KUMAR MISHRA	USME (IEV)
163.	2K21/PHDAP/01	SHARAD SINGH JADAUN	Applied Physics
164.	2K21/PHDAP/02	GAGAN SHARMA	Applied Physics
165.	2K21/PHDAP/03	ARYAN	Applied Physics
166.	2K21/PHDAP/04	AMAN KUMAR	Applied Physics
167.	2K21/PHDAP/05	RITU	Applied Physics
168.	2K21/PHDAP/06	LOKESH AHLAWAT	Applied Physics
169.	2K21/PHDAP/07	NAMRATA SHARMA	Applied Physics
170.	2K21/PHDAP/08	ADITYA	Applied Physics
171.	2K21/PHDAP/09	EKTA KUMAWAT	Applied Physics
172.	2K21/PHDAP/10	UJJAWAL SIGAR	Applied Physics
173.	2K21/PHDAP/11	VISHAKHA SHARMA	Applied Physics
174.	2K21/PHDAP/12	DIVYA	Applied Physics
175.	2K21/PHDAP/13	PAWAN KUMAR	Applied Physics
176.	2K21/PHDAP/14	RASHMI MEENA	Applied Physics
177.	2K21/PHDEP/01	MONA DEVI	Applied Physics

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PES-5312 Pulse Width Modulation for Power Converters

Lectures: - 2 Hrs per week Pre-requisites: Power Electronics Converters (PES-503)

Practical: - 2 Hrs per week

Introduction to Power Electronic Converters: Basic Converter Topologies; Switch Constraints; Bidirectional Converters; Switching Function representation of Converters; Output Voltage Control and Phase Shift Modulation; Concept of a Space Vector Modulation; Multilevel Inverter Topologies; Hybrid Voltage Source Inverter. **5 Hours**

Modulation of One Inverter Phase Leg: Fundamental Concepts of PWM; Evaluation of PWM Schemes; Double Fourier Integral Analysis of Two-Level Pulse Width Modulated Waveform; Sine-Triangle Modulation; PWM Analysis by Duty Cycle Variation; Sine-Sawtooth Modulation; Direct Modulation; Integer vs Non-Integer Frequency Ratios; Comparison of PWM Variations. **5 Hours**

Modulation of Single-Phase Voltage Source Inverters: Three-Level Modulation of a Single-Phase Inverter; Sideband Modulation; Switched Pulse Position; Continuous Modulation; Discontinuous PWM-Single-Phase Leg Switched; Two-Level Single-Phase PWM. **5 Hours**

Modulation of Three-Phase Voltage Source Inverters: Three-Phase Modulation with Sinusoidal References; Third-Harmonic Reference Injection; Optimum Injection Level; Analytical Solution for Third-Harmonic Injection; Harmonic Losses; Discontinuous Modulation Strategies; Triplen Carrier Ratios and Subharmonics. **5 Hours**

Zero Space Vector Placement Modulation Strategies: SVM Compared to Regular Sampled PWM; Phase Leg References for SVM; Naturally Sampled SVM; Harmonic Losses; Placement of the Zero Space Vector; Discontinuous Modulation: 120° , 60° & 30° Discontinuous Modulation; Phase Leg References for Discontinuous PWM; Comparison of Harmonic Performance; Harmonic Losses for Discontinuous PWM; Single-Edge SVM; Switched Pulse Sequence; Naturally Sampled CSI Space Vector Modulator. **6 Hours**

Overmodulation of an Inverter: Overmodulation Region; Naturally Sampled Overmodulation of One Phase Leg of Inverter; Naturally Sampled Overmodulation of Single and Three-Phase Inverters; PWM Controller Gain during Overmodulation; SVM and discontinuous reference. **4 Hours**

Text Books/Reference Books:

1. D. Grahame Holmes and Thomas A. Lipo, *Pulse Width Modulation for Power Converters*, John Wiley & Sons. 2003.
2. Euzeli dos Santos and Edison R. da Silva, *Advanced Power Electronics Converters: PWM Converters Processing AC Voltages*, Wiley-IEEE Press 2014.
3. Eric Monmasson, *Power Electronic Converters: PWM Strategies and Current Control Techniques*, John Wiley & Sons, 2011.
4. Ned Mohan Tore. M. Undeland and William. P Robbins, *Power Electronics converters, Applications and Design*, John Wiley and Sons., 2012.
5. Marian K. Kazimierzczuk, *Pulse-width Modulated DC-DC Power Converters*, John Wiley & Sons, second edition 2016.

Dr. Arz

DELHI TECHNOLOGICAL UNIVERSITY
SCHEME OF TEACHING AND EVALUATION
MASTER OF TECHNOLOGY IN POWER ELECTRONICS AND SYSTEMS

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. 1 st year, 6 for M. Tech. 2 nd year).

C – credit of the course (4/3/2),

MN – Subject code (Odd number for odd semester and even number for even semester courses)

Semester-I

	S. No.	Course Code	Course Name	Type/ Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE	Total Credits
Group A	1	PES501	Advance Power Semiconductor Devices and Magnetics	Core	4	3	0	2	15	25	20	40	-	17
	2	PES503	Power Electronics Converters	Core	4	3	0	2	15	25	20	40	-	
Group B	3	PES5401/5403/	Elective 1	Elective	4	3	0	2	15	25	20	40	-	
	4	PES5301/5303/	Elective 2	Elective	3	3	0	0	25	-	25	50	-	
	5	PES5201/5203/ /UEC5201/5203/	Elective 3/ University Elective I	Elective	2	2	0	0	25	-	25	50	-	

Semester-II

S. No.	Course Code	Course Name	Type/ Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE	Total Credits
Group C	1	PES502	Modelling of Electrical Machines and Systems	4	3	0	2	15	25	20	40	-	17
	2	PES504	Controller Design for Converters	4	3	0	2	15	25	20	40	-	
Group D	3	PES5402/5404/.....	Elective 4	4	3	0	2	15	25	20	40	-	
	4	PES5302/5304/5312/.....	Elective 5	3	3	0	0	25	-	25	50	-	
	5	PES5202/5204/...../UEC5202/5204/.....	Elective 6/ University Elective II	2	2	0	0	25	-	25	50	-	

Semester-III

Semester-III														
S.No	Course Code	Course Name	Type/ Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE	Total Credits	
Track 1														
				12	0	0	12	0	-	0	100	0	12	
1				Research Project										
				Track 2										
				Core	3	3	0	0		40	60		12	
1				Major Project I										
2				Elective 7	4	3	0	2	15	25	40	-		
3				Elective 8	3	3	0	0	25	-	50	-		
4				Elective 9	2	2	0	0	25	-	50	-		
													2	

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Semester-IV														
	S.No.	Course Code	Course Name	Type/ Area	Cr	L	T	P	CWS	PRS	MTE	EFE	PRE	Total Credits
Group F	Track 1													
	1	PES652+B22	Research Project	Core	12	0	0	12	0	-	0	100	0	12
	Track 2													
	1	PES602	Major Project II	Core	12	0	0	12	0	-	0	100	0	12

LIST OF ELECTIVES

LIST OF ELECTIVES													
S.No.		Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
Elective 1	1	PES5401	Power Quality	Elective	4	3	0	2	15	25	20	40	-
	2	PES5403	Electrical Drives and Systems		4	3	0	2	15	25	20	40	-
	3	PES5405	Switch Mode Power Converters		4	3	0	2	15	25	20	40	-
	4	PES5407	Grid-Connected Power Converter and Systems		4	3	0	2	15	25	20	40	-
Elective 2	S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
	1	PES5301	Multipulse and Multilevel Converters	Elective	3	3	0	0	25	-	25	50	-
	2	PES5303	Special Electromechanical System		3	3	0	0	25	-	25	50	-
	3	PES5305	Advanced Digital Signal Processing		3	3	0	0	25	-	25	50	-
4	PES5307	Power Electronics for Photovoltaic and Wind Energy Systems	3		3	0	0	25	-	25	50	-	
Elective 3	S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
	1	PES5201	Seminar	Elective	2	0	0	2	-	40	-	-	60
	2	PES5203	Renewable Energy Systems		2	2	0	0	25	-	25	50	-
	3	PES5205	AC and DC Microgrids		2	2	0	0	25	-	25	50	-
4	PES5207	Reliability Analysis of Power Electronic Converters	2		2	0	0	25	-	25	50	-	
Elective 4	S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
	1	PES5402	Flexible AC transmission and Distribution	Elective	4	3	0	2	15	25	20	40	-
	2	PES5404	Mechatronics and Vehicular Power Electronics		4	3	0	2	15	25	20	40	-
	3	PES5406	Advanced Topics on Power Electronics Converter		4	3	0	2	15	25	20	40	-

	4	PES5408	Distributed Generation Systems and System Design		4	3	0	2	15	25	20	40	
	S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
Elective 5	1	PES5302	Minor Project	Elective	3	0	0	-	-	40	-	-	60
	2	PES5304	High/Medium Voltage DC Transmission		3	3	0	0	25	-	25	50	-
	3	PES5306	Electric Traction		3	3	0	0	25	-	25	50	-
	4	PES5308	Energy Storage Systems		3	3	0	0	25	-	25	50	-
	5	PES5310	Pulsed Power Electronics and Nuclear Energy		3	3	0	0	25	-	25	50	-
	6	PES5312	Pulse Width Modulation for Power Converters		3	2	0	2	15	25	20	40	-
	S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
Elective 6	1	PES5202	Standards for Microgrid Application and Control	Elective	2	2	0	0	25	-	25	50	-
	2	PES5204	Energy Management System		2	2	0	0	25	-	25	50	-
	3	PES5206	Machine learning*		2	2	0	0	25	-	25	50	-
	4	PES5208	PMU and Advanced Metering*		2	2	0	0	25	-	25	50	-
	5	PES5210	Electric Vehicle and E-mobility		2	2	0	0	25	-	25	50	-
	S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
Elective 7	1	PES6401	Smart Grid and Distribution Automation	Elective	4	3	0	2	15	25	20	40	-
	2	PES6403	Non-Linear Control of Power Electronic Converter		4	3	0	2	15	25	20	40	-
	3	PES6405	Energy Efficiency Auditing and Loss Reduction		4	3	0	2	15	25	20	40	-
	4	PES6407	Heat Sink, Thermoelectrics and Thermal Design		4	3	0	2	15	25	20	40	-

5	PES6409	Resonant Power Converters	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
S.No.	Course Code	Course Name	Elective 8	3	3	0	0	25	-	25	50	-
1	PES6301	SCADA and Energy Management Systems		3	3	0	0	25	-	25	50	-
2	PES6303	Energy & Environmental Economics and Energy Policy		3	3	0	0	25	-	25	50	-
3	PES6305	Optimization Technique in Electrical System Design		3	3	0	0	25	-	25	50	-
4	PES6307	Power Line Communication and Control Applications		3	3	0	0	25	-	25	50	-
S.No.	Course Code	Course Name	Type/Area	Cr	L	T	P	CWS	PRS	MTE	ETE	PRE
1	PES6201	Condition Monitoring, System Modelling & Forecasting	Elective 9	2	2	0	0	25	-	25	50	-
2	PES6203	Electricity Market and Regulations*		2	2	0	0	25	-	25	50	-
3	PES6205	Digital Communication*		2	2	0	0	25	-	25	50	-
4	PES6207	Industrial Safety		2	2	0	0	25	-	25	50	-
5	PES6209	Artificial Intelligence*		2	2	0	0	25	-	25	50	-

* Syllabus Same as M.Tech (PSY) Syllabus