SECTION-C

Academic Departments, and Schemes of Teaching and Examination

DEPARTMENT OF APPLIED PHYSICS

Applied Physics Department is providing cutting edge research, innovation and education in the emerging areas of sciences and technology. As a result, this department offers: B.Tech. in Engineering Physics: This program covers the various interdisciplinary areas in physical sciences and emerging areas of engineering such as Nano Science and Technology, Plasma Physics, Microelectronics, Photonics, Quantum Information systems and Robotics etc. The program solving skills and understanding, which allows them to seek innovative careers in today's fast changing technological age.

Along with these academic programs, the Department of Applied Physics is known for its academic excellence and enthusiastic R&D in thrust areas leading to large number of research publications in the leading national and international journals of high impact factors. Besides these, the Applied Physics Department is providing sound science base courses related to Applied Physics and Engineering Materials for all branches of B. Tech. students in their first and second semester.

The department has well equipped laboratories to support teaching programs for B. Tech. students, where experiments are designed to broaden the experimental skills of the students.

Department of Applied Physics has well equipped R&D Labs: Thin film & Material Science Lab with many equipments including Brucker Advanced X-ray Diffractometer and Hitachi's Scanning Electron Microscope with EDS facility (Central Facility). Fiber Optics and Communication Lab, Advanced Computational and Design Lab with ultra modern computational facility on design and simulate nanophotonic devices with state of art software tools, Advanced Optics Lab with (a) Electro-optic (b) Acousto-optic (c) Non-Linear optic effect based experimental set ups, Microelectronics Research Lab, Digital Electronics Lab with Modules for Logic Gates, A/D and D/A Converter, Multiplexer, Decoder, Signal Generator, Power Supply etc. Microprocessors and Interfacing Lab with training kits:

Major sponsored projects running in the Department at present:

(I) Fund for improvement in Science and Technology Infrastructure-FIST Project, Department of Science and Technology, Govt. of India 2012-17,

(II) TIFAC- Center of Relevance and Excellence (CORE) in Fiber Optics and Optical Communication Under Mission REACH Program of Technology Vision-2020, Govt. of India, 2005 and onwards,

(III) Theoretical investigations for correlating the plasma parameters with the growth, structure and field emission properties of carbon nanotubes (CNTs) (2009-2013).

(IV) Microstructural and Electrical Investigations of strontium Bismuth Tantalate Nano Crystalline Ferro Ceramics, Major Research project, University Grants Commission, Govt. of India, 2011-2014.

(V) Development of efficient and environment friendly phosphors and nanophosphors for white light emitting diodes, Research Project, Government of India, Department of Atomic Energy and Board of Research in Nuclear Sciences (DAE-BRNS), BARC, Mumbai, 2011-2014

(VI) Development of Experimental procedure for growth of single crystal diamond (for jewellery) by using MPCVD system.

Engineering Physics students at Delhi Technological University has founded Deltech Engineering Physics Technological Hub (DEPTH), an undergraduate society where all sorts of events, including Technical Paper Presentations, guest lectures, holding seminars, debates etc are organized. The society has its very own e-newspaper "THE ENGINEERING PHYSICS TIMES" which is edited and maintained by its council members.

Department of Applied Physics has the students chapters of (i) International Society for Optical Engineering (SPIE)-USA and (ii) Optical Society of America (OSA-USA). Photonic Design Centre is established in the Applied Physics Department as a part of National Program on Micro and Smart Systems (NPMASS) which is being coordinated by Indian Institute of Science, Bangalore.

BACHELOR OF TECHNOLOGY (ENGINEERING PHYSICS)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME251	Engineering Mechanics	AEC	4	3	1	0	3	0	25	0	25	50	-
2.	EP201	Introduction to Computing	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	EP203	Mathematical Physics	DCC	4	3	1	0	3	0	25	0	25	50	-
4.	EP205	Classical and Quantum Mechanics	DCC	4	3	1	0	3	0	25	0	25	50	-
5.	EP207	Digital Electronics (Engineering Analysis and Design)	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25	0	25	50	-
		Total												

4th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC262	Communication System	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	EP202	Condensed Matter Physics	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	EP204	Optics	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	EP206	Microprocessor and Interfacing	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	EP208	Computational	DCC	4	3	1	0	3	0	25	0	25	50	-
		Methods												
6.	HU202	Engineering Economics	HMC	3	3	0	0			25	0	25	50	-
7.														

Third Year:

5th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EP301	Semiconductor Devices	DCC	4	3	1	-	3	0	25	0	25	50	-
2.	EP303	Electromagnetic Theory, antennas and Propagation	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	EP3xx	Departmental Elective Course- 1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	EP3xx	Departmental Elective Course- 2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.		University Elective Course	UEC	3	3	0	-	3	0	25	-	25	50	-
6.	HU301	Technical Communication	HMC	2	0	0	-	3	0	25	-	25	50	
		Total		21										

6th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EP302	Fiber Optics and Optical Communication	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	EP304	Fabrication and Characterization of Nanostructures	DCC	4	3	1	0	3	0	25	0	25	50	-
3.	EP306	Microwave Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	EP3xx	Departmental Elective Course- 3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.	EP3xx	Departmental Elective Course- 4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	HU302	Profession Ethics & Human Values	HMC	2	2	0	-	3	0	25	-	25	50	
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EP401	B. Tech.. Project-I	DCC	4										
2.	EP403	Training Seminar	DCC	2										
3.	EP405	VLSI and FPGA	DCC	4	3	0	2	3	0	15	15	30	40	-
		design												
4.	EP407	Mobile and Satellite communication	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	EP4xx	Departmental Elective Course -5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	EP4xx	Departmental Elective Course-6 (Minor)	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
		Total		22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EP402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	EP404	Alternate Energy Storage and Conversion Devices	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	EP4xx	Departmental Elective Course-7 (Minor)	DEC	4	3	1	0	3	0	25	0	25	50	-
4.	EP4xx	Departmental Elective Course -8	DEC	4	3	1	0	3	0	25	0	25	50	-
				20										

List of Departmental Electives

S.No.	Elective Code	Title of Elective	Elective no.
1.	EP 305	Atomic and Molecular Physics	DEC-1,2
2.	EP 307	Biophysics	
3.	EP 309	Quantum Information and Computing	
4.	EP 311	Computer Networking	
5.	EP 308	Laser and Instrumentation	DEC-3,4
6.	EP 310	Medical Physics and Physiological measurements	
7.	EP 312	Fourier optics and holography	
8.	EP 314	Instrumentation and Control	
9.	EP 316	Cosmology and Astrophysics	
10.	EP 409	Information theory and coding	DEC-5,6
11.	EP 411	Advanced Simulation Techniques in Physics	
12.	EP 413	Continuum Mechanics	
13.	EP 415	Nano Science and Technology	
14.	EP 417	Photonics	
15.	EP 419	Introduction to Automation and Motion Control	
16.	EP 421	Principles of Nuclear Engineering	
17.	EP 423	Space and Atmospheric Science-I	
18.	EP 425	Plasma Science and Technology-I	
19.	EP 406	Introduction to Spintronics	DEC-7,8
20.	EP 408	Integrated Optics	
21.	EP 410	Robotic Engineering	
22.	EP 412	Nuclear Materials for Engineering Applications	
23.	EP 414	Space and Atmospheric Science-II	
24.	EP 416	Plasma Science and Technology-II	
25.	EP 418	Digital Signal Processing	
26.	EP 420	Fuzzy Logic and Neural Networks	
27.	EP 422	Embedded Systems Design	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Ever increasing pace of development in electronics, audio and video communication systems and the automation in industry, have made an electronic engineer catalyst for the change of the modern society. Electronic gadgets and communication systems of present age have tremendously improved the quality of life.

The curriculum in Electronics and Communication Engineering Department of Delhi Technological University, lays better emphasis on deep understanding of fundamental principles and state of the art knowledge of Electronic Devices & Circuits, Computer Architecture & Microprocessors, VLSI & Embedded Systems, Electromagnetic Field Theory, Analog and Digital Communications, Digital Signal Processing, Microwave & Broadband Communications, Image Processing, Computer vision, Bio-Medical Signal Processing and Optical Communication.

The Department today caters 185 UG students in regular day time and 45 UG students in evening B. Tech program with electives in Computer Communication & Electronic Switching, Fault-Tolerant Computing, Digital Signal Processing, Optical Communication and Communication System. Department offers three M. Tech. Programs in Signal Processing & Digital Signal, VLSI & Embedded System and Microwave and Optical Communication. Project and Industrial Training is an integral part of the curriculum and are carried out in frontal areas of technology. The Department is equipped with well-developed laboratories, such as Electronic Devices and Circuits & BiMOS Laboratory, Computation & Instrumentation Laboratory, VLSI / CAD / Digital System Laboratory, Microprocessor & Digital Signal Processing Laboratory and PCB Laboratory.

The state-of-art Microwave and CAD Laboratory, having specialized facilities for micro strip antenna designing, has received projects from Indian Space Research Centre. Computer Vision Laboratory has completed a project on “Surveillance Applications”(2006-2010) funded by Naval Research Board, Govt. of India and now handling a project on “Development of Sensor Network for intelligent Traffic Monitoring” funded by Department of Science and Technology. The Department has developed, in collaboration with the Applied Physics Department, a center for excellence and relevance in optical communication, i.e., TIFAC CRE Centre in Fiber Optics & Optical Communication.

The faculty and students of this Department have developed a number of instrument system in collaboration with a leading R&D organization namely Transputer based Fault-Tolerant Architecture with DoE, New Delhi, FPGA implementation of Communication Circuits with CEERI , New Delhi and in-circuit Test Development for PLC with Rockwell Automation.

The Department has signed Memorandum of Understanding with reputed Electronics Industries and Research Organization and with many others, the MoU are under process like Free Scale, HITECH robotics, TEXAS Instruments, ST Microelectronics, Mentor Graphics, National Physical Laboratory, CEERI Pilani etc. Department has introduced the concept of learning and not just teaching. Department of Electronics has got 1gbps internet connection and shortly going to have its own website. All laboratories will be modernised. A new laboratory of Robotics and Machine vision is being set up in collaboration with IIT Bombay and HITECH Robotics. Department has organised faculty development programmes on popular research topics like Pattern Recognition and workshops oriented programmes (all self-financed) for the student & faculty of our county.

BACHELOR OF TECHNOLOGY (ELECTRONICS & COMMUNICATION ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	Subject Code	Course Title	Subject Area	Credit	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	Subject Code	Course Title	Subject Area	Credit	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-

2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE251	Electronic Instrumentation and Measurements	AEC	4	3	0	2	3	0	15	25	20	40	-
2.	EC 201	Analog Electronics – I	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EC203	Digital Design – I	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EC205	Signals & Systems	DCC	4	3	0	2	3	0	15	25	20	40	
5.	EC207	Engineering Analysis & Design (Network Analysis and Synthesis)	DCC	4	3	1	0	3	0	15	25	20	40	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	
7.		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE262	Electromagnetics	AEC	4	3	1	0	3	0	15	25	20	40	-
2.	EC 202	Analog Electronics – II	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EC204	Digital Design – II	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EC206	Communication Systems	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EC208	Computer Architecture	DCC	4	3	0	2	3	0	15	25	20	40	
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	
7.		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC301	Digital Communication	DCC	4	3	0	2	3	0	15	25	20	40	
2.	EC303	Linear Integrated Circuits	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	ECxxx	Departmental Elective Course -1	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	
4.	ECxxx	Departmental Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	
5.		University Elective Course	UEC	3	3	0	0	3	0	25		25	50	-
6.	HU301	Professional Ethics & Human Values	HMC	2	2	0	0	3	0	25	-	25	50	
7.		Total		21										

6th Semester														
S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC 302	VLSI Design	DCC	4	3	0	2	3	0	15	25	20	40	
2.	EC 304	Digital Signal Processing	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EC306	Embedded Systems	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	ECxxx	Departmental Elective Course -3	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	
5.	ECxxx	Departmental Elective Course-4	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	
6.	HU302	Technical Communication	HMC	2	2	0	0	3	0	25	-	25	50	
7.		Total		22										

Fourth Year:

7th Semester														
S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC 401	B. Tech Project-I	DCC	4										
2.	EC403	Training Seminar	DCC	2										
3.	EC405	Microwave Engineering	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EC407	Optical Communication	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EC 4xx	Departmental Elective Course- 5	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	
6.	EC 4xx	Departmental Elective Course- 6	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	
		Total		22										

8th Semester														
S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC402	B. Tech Project-II (Contd. From VII Sem.)	DCC	8										
2.	EC404	Wireless Communication	DCC	4	3	0	2	4	-	15	25	20	40	-
3.	EC406	Departmental Elective Course- 7	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	-
4.	EC4xx	Departmental Elective Course- 8	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	
		Total		20										

List of Departmental Elective Courses

S.NO.	SUBJECT CODE	SUBJECTS	Elective No.
1.	EC 305	Semiconductor Device Electronics	DEC -1,DEC-2
2.	EC 307	Antenna Design	
3.	EC 309	Bio – Medical Electronics & Instrumentation	
4.	EC 311	Algorithms Design And Analysis	
5.	EC 313	Microprocessors And Interfacing	
6.	EC 315	Computer Communication Networks	
7.	EC 317	Operating Systems	
8.	EC 319	CMOS Analog Integrated Circuits	
9.	EC 321	IC Technology	
10.	EC 308	Analog Filter Design	DEC-3,DEC-4
11.	EC 310	Testing And Diagnosis Of Digital System Design	
12.	EC 312	Software Defined Radio And Cognitive Radio	
13.	EC 314	RF Design	
14.	EC 316	Wireless Sensor Networks	
15.	EC 318	RF Circuits in CMOS Technology	
16.	EC 320	Soft Computing	
17.	EC 322	Green Sensors	
18.	EC 324	Nano Electronics	
19.	EC 326	Data Converters	
20.	EC 328	Speech Recognition	
21.	EC 330	Digital Image Processing	
22.	EC 409	Computer Vision	DEC-5, DEC-6
23.	EC 411	Bio – Medical Signal And Image Processing	
24.	EC 413	Power Electronics	
25.	EC 415	System On Chip Design	
26.	EC 417	CAD For VLSI Design	
27.	EC 419	Memory Design	
28.	EC 421	Computer And Numerical Techniques In Electromagnetics	
29.	EC 423	Internet Technologies	
30.	EC 425	Mixed Signal Design	
31.	EC 408	Low Power VLSI Design	DCE-7,DEC-8
32.	EC 410	Advanced Coding Theory	
33.	EC 412	Machine Learning	
34.	EC 414	EMC / EMI	
35.	EC 416	Pattern Recognition	
36.	EC 418	Estimation And Detection Theory	
37.	EC 420	Cloud Computing	
38.	EC 422	Robotics & Machine Vision	
39.	EC 424	Fault Tolerant Computing	
40.	EC 426	Distributed Computing	
41.	EC 428	Neuroelectronics	
42.	EC 430	Advanced Computer Architecture	
43.	EC 432	Bio – Impedance Based Measurements	
44.	EC 434	Fundamentals of MIMO	
45.	EC 436	Advance Microwave & Antenna Design	
46.	EC 438	Radar and Satellite Communication	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Computer Science and Engineering has changed the face of the world with its various upcoming technologies in diverse fields of industry and education. The career prospects for the younger generation are stretched over a wide domain, which comprise the service industry such as banking, insurance, communication, medicine, governance, entertainment and multimedia,. Today, it continues to be one of the sunshine sectors of the Indian economy, showing rapid growth and promise.

The Department of Computer Science and Engineering, established in 1989 has grown significantly in the last twenty six years. At undergraduate level the department offers B. Tech.. in three disciplines Computer Engineering, Software Engineering and Information Technology. The present intake of each discipline is 139, 94 and 95 respectively. In the last decade, the Department has developed state-of-the-art laboratories in the various fields of computer science and engineering-Computer Architecture Lab, Networking Lab, Internet and Web Engineering Lab, Image Processing and Multimedia Lab, Database Management and Data Mining Lab, Computation and Programming Lab, Operating System Lab, Artificial Intelligence Lab, Software Design and Testing Lab and Biometric Systems and Security Lab. These Labs are equipped with latest configuration PCs and are completely networked with latest software.

The curriculum of the department has been designed in a way to provide the students with fundamental concepts as well as specialized knowledge. The curriculum is in alignment with the requirements of the industries across the globe, and also of national and international universities. The major thrust areas are, information security, mobile communications, artificial intelligence, soft computing, digital signal processing and image processing, telemedicine, biometric systems and security and nano-technology. The students are also trained by covering state of art topics in the industrial training, minor projects and open area seminar.

The department offers PG program in Computer Science and Engineering, Software Engineering, Information Systems and Software Technology. The curriculum focuses on the design of CASE Tools, development of software testing techniques and tools, design of quality software, machine learning techniques and principles, multimedia technologies, swarm intelligence, soft computing, artificial intelligence, pattern recognition, image processing, information security and cloud computing The students are doing research work and publishing numerous papers in National/International conferences and journals of high repute in the latest areas.

The source of our success is our outstanding and internationally recognized faculty members. Besides teaching, the faculty members have been actively involved in various research and professional activities like member of editorial boards of leading journals. There have been numerous publications by the faculty members in international/ national journals/ conferences covering latest areas of research such as requirement engineering, software quality and metrics, software testing, data mining and machine learning. Several technical books have been authored by the faculty members of the department. The research of faculty members is supported under various research grants funded by AICTE, DST, UGC and CSIR.

The Department of Computer Science and Engineering offers doctoral (Ph.D.) degree program. Excellent facilities are available to conduct research and a large number of problems have been taken up in close collaboration with industries. The Ph. D degree is awarded in the areas of Networking, Artificial Neural Network, Speech Recognition, Digital Image Processing, Microchips, Requirements Engineering, Software Quality, Swam Intelligence etc.

The Department firmly believes in imparting the best possible training to its students & so actively seeks research based collaboration with leading organizations. Under University Industry interface at DTU the department is having industry academia collaboration with Samsung Software India Private Limited. Under this collaboration DTU is offering M.Tech. (Software Technology) program for their employees and accommodating 2 Ph.D scholars to enhance the industry institute partnership research. The M.Tech. program is running successfully and students of first batch are in fourth semester. Also, the department is having a collaborative research program with National University of Singapore to provide international exposure to faculty and students.

The department has very active societies viz. student chapter of “Computer Society of India” (CSI) and contributes significantly in professional activities undertaken by IEEE and IET student chapters of DTU and “Society for IT Engineers” (SITE) started in the year 2010-2011. In order to channelize the tremendous potential of the students, CSI-DTU student branch organizes a technical festival named” PHOENX” and SITE organizes “MELIORA” which comprise of several technical events like LAN Gaming, Business Plan, Animation, Web Designing, Algorithm design etc. The department has also recently constitutes society of Software Engineering (SSE-DTU) for the engineers and the researchers in the software engineering discipline. The aim of SSE-DTU is to regularly organize conferences, workshops and technical fests in software engineering related advances and research. SSE-DTU serves as a forum for networking, information sharing, idea exchange and problem solving for the software engineering community.

The department takes immense interest in conducting professional activities such as organizing workshops, seminars and experts lectures to meet the challenges in the IT industry. The department has started an open access, peer reviewed titled "Software Engineering: An International Journal".

The department also has a project by the name of "Unmanned Aircraft Systems in an autonomous aerial vehicle development", which is carried out by the multidisciplinary students of DTU in collaboration with LOCKHEED MARTIN, a U.S. company.

Our students are highly sought after by the software industry and many of our graduates and post graduates are holding top positions in IT industry all over the globe. The Department is proud to enumerate its achievement for the last session as it saw the placement of three students at an enormous packages of Rs. 60 lacs and the placement rate had been pretty successful with most of the students being placed at reputed company with commendable package. Companies like Google, yahoo, Microsoft, Amazon, Cisco, Morgan, Stanley. Golden Sachs, JP Morgan, Future First, NTPC, Gail, EIL, TRAI and Schlumberger are regular recruiters.

The department aims at advancement and growth keeping in alignment with the vision and mission of the university.

BACHELOR OF TECHNOLOGY (COMPUTER ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC261	Analog Electronics	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	CO201	Data Structures	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CO203	Object Oriented Programming	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CO205	Discrete Structures	DCC	4	3	1	0	3	0	25	-	25	50	-
5.	CO207	(Modelling and Simulation) Engineering Analysis and Design	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	-	25	-	25	50	-
		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC262	Digital Electronics	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	CO202	Database Management Systems	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CO204	Operating Systems Design	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CO206	Computer Organization and Architecture	DCC	4	3	1	0	3	0	25	-	25	50	-
5.	CO208	Algorithm Design and Analysis	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	MG202	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CO301	Software Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	CO303	Computer Networks	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CO3xx	Department Elective Course -1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	CO3xx	Department Elective Course -2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Professional Ethics and	HMC	2	2	0	0	3	0	25	-	25	50	--
		Human values												
		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CO302	Artificial Intelligence	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	CO304	Information and Network Security	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CO306	Theory of Computation	DCC	4	3	1	0	3	0	25	-	25	50	-
4.	CO3xx	Department Elective Course -3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.	CO3xx	Department Elective Course -4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
6.	HU302	Technical Communication	HMC	2	0	0	3	0	0	25	-	25	50	-
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CO401	B. Tech.. Project-I	DCC	4										
2.	CO403	Training Seminar	DCC	2										
3.	CO405	Compiler Design	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CO407	Image Processing	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	CO4xx	Department Elective Course - 5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
6.	CO4xx	Department Elective Course - 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
				22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CO402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	CO404	Data-Warehousing and Data Mining	DCC	4	3	0	2/1	3	0	15	15	30	40	-
3.	CO4xx	Department Elective Course - 7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	CO4xx	Department Elective Course - 8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
		Total		20										

List of Departmental Elective Courses

S.No	Subject Code	Subject	Elective no.
1.	CO 305	Information Theory and coding	DEC-1, 2
2.	CO 307	Digital Signal Processing	
3.	CO 309	Advanced Data Structures	
4.	CO 311	Microprocessors and Interfacing	
5.	CO 313	Computer Graphics	
6.	CO 315	Optimization Techniques	
7.	CO 317	Soft Computing	
8.	CO 319	Telecommunication Engineering Fundamentals	
9.	CO 321	Embedded Systems	
10.	CO 323	Data Compression	
11.	CO 308	Parallel Algorithms	DEC-3, 4
12.	CO 310	Distributed Systems	
13.	CO 312	Communications Engineering	
14.	CO 314	Optical Networks	
15.	CO 316	High Speed Networks	
16.	CO 318	Advanced Database Management Systems	
17.	CO 320	Multimedia System Design	
18.	CO 322	Real Time System	
19.	CO 324	Genetic Algorithms and Machine Learning	
20.	CO 326	Object Oriented Software Engineering	
21.	CO 409	Robotics	DEC-5, 6
22.	CO 411	Computer Vision	
23.	CO 413	VLSI Design	
24.	CO 415	Wireless and Mobile Computing	
25.	CO 417	Software Project Management	
26.	CO 419	High Performance Computing	
27.	CO 421	Grid and Cluster Computing	
28.	CO 423	Swarm Optimization & Evolutionary Computing	
29.	CO 425	Pattern Recognition	
30.	CO-427	Web Technology and Java Programming	
31.	CO 406	Parallel Computer Architecture	DEC-7 and DEC-8
32.	CO 408	Intellectual Property Rights	
33.	CO 410	Bio Informatics	
34.	CO 412	Software Quality and Testing	
35.	CO 414	Big Data Analytics	
36.	CO 416	Cloud Computing	
37.	CO 418	Natural Language Processing	
38.	CO 420	Cyber Forensics	
39.	CO 422	Semantic Web and Web Mining	
40.	CO 424	Software Metrics and Software Project Management	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

BACHELOR OF TECHNOLOGY (SOFTWARE ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC261	Analog Electronics	AEC	4	3	1	0	3	0	25	-	25	50	-
2.	SE201	Data Structures	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	SE203	Object Oriented Programming	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	SE205	Web Technology	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	SE207	Engineering Analysis and Design (Modelling and Simulation)	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC-252	Digital Electronics	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	SE202	Software Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	SE204	Computer Organization &	DCC	4	3	1	0	3	0	25	-	25	50	-
		Architecture												
4.	SE206	Database Management Systems	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	SE208	Discrete Structures	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	MG202	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	SE301	Object Oriented Software Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	SE303	Algorithm Design & Analysis	DCC	4	3	0		3	0	15	15	30	40	-
3.	SE3xx	Departmental Elective Course -1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	SE3xx	Departmental Elective Course -2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Professional Ethics & Values	HMC	2	2	0	0	3	0	25	-	25	50	-
		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	SE302	Software Validation, Verification & Testing	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	SE304	Operating System	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	SE306	Theory of Computation	DCC	4	3	1	0	3	0	25	-	25	50	-
4.	SE3xx	Departmental Elective Course -3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30/25	40/50	-
5.	SE3xx	Departmental Elective Course -4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30/25	40/50	-
6.	HU302	Technical Communication	HMC	2	2	0	0	3	0	25	-	25	50	--
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	SE401	B. Tech.. Project-I	DCC	4										
2.	SE403	Training Seminar	DCC	2										
3.	SE405	Software Project Management	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	SE407	Computer Networks	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	SE4xx	Departmental Elective Course -5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30/25	40/50	
6.	SE4xx	Departmental Elective Course-6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30/25	40/50	
			22											

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	SE402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	SE404	Software Design Pattern	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	SE4xx	Departmental Elective Course-7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30/25	40/50	
4.	SE4xx	Departmental Elective Course-8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30/25	40/50	
			20											

List of Departmental Elective Courses

	Subject Code	Subject	Term
1.	SE 305	Computer Graphics	DEC-1, 2
2.	SE 307	Information Theory and coding	
3	SE 309	Digital Signal Processing	
4.	SE 311	Advanced Data Structures	
5.	SE 313	Microprocessor & Interfacing	
6.	SE 308	Distributed Systems	
7.	SE 310	Soft Computing	
8.	SE 312	Artificial Intelligence	
9.	SE 314	Agile Software Process	
10.	SE 316	Data Compression	
11.	SE 318	Digital Image Processing	DEC-3, 4
12.	SE 320	Multimedia Systems	
13.	SE 322	Parallel Computer Architecture	
14.	SE 324	Bio-Informatics	
15.	SE 326	Natural Language Processing	
16	SE 409	Advanced Database Management Systems	
17.	SE 411	Compiler Design	
18.	SE 413	Real Time Systems	
19.	SE 415	Parallel Algorithms	
20.	SE 417	Software Architecture	
21.	SE 419	Pattern Recognition	DEC-5, 6
22.	SE 421	Data Mining & Warehousing	
23.	SE 423	Human Computer Interaction	
24.	SE 425	Cyber-Forensics	
25.	SE 427	Software Quality & Metrics	
26.	SE 429	Robotics	
27.	SE 431	Machine Learning	
28.	SE 433	Distributed Databases	
29.	SE 435	Software Reuse	
30.	SE 437	Intellectual Property Rights & Cyber Laws	
31.	SE 406	Information & Network Security	DEC-7,8
32.	SE 408	Wireless Sensor Networks	
33.	SE 410	Empirical Software Engineering	
34.	SE 412	Semantic Web and Web Mining	
35.	SE 414	Decision Support Systems	
36.	SE 416	Cloud Computing	
37.	SE 418	Enterprise Resource Planning (ERP)	
38.	SE 420	Big Data Analytics	
39.	SE 422	Wireless and Mobile Computing	
40.	SE 424	Requirement Engineering	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

BACHELOR OF TECHNOLOGY (INFORMATION TECHNOLOGY)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC261	Analog Electronics	AEC	4	3	0	2	3	-	15	15	30	40	-
2.	IT201	Data Structures	DCC	4	3	0	2	3	-	15	15	30	40	-
3.	IT203	Object Oriented Programming	DCC	4	3	0	2	3	-	15	15	30	40	-
4.	IT205	Discrete Structures	DCC	4	3	1	0	3	-	25	-	25	50	-
5.	IT207	Engineering Analysis and Design (Modeling & Simulation)	DCC	4	3	1	0	3	-	25	-	25	50	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	-	25	-	25	50	-
		Total		23										

4th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC252	Digital Electronics	AEC	4	3	0	2	3	-	15	15	30	40	-
2.	IT202	Database Management Systems	DCC	4	3	0	2	3	-	15	15	30	40	-
3.	IT204	Operating System Design	DCC	4	3	0	2	3	-	15	15	30	40	-
4.	IT206	Computer Organization and Architecture	DCC	4	3	1	0	3	-	25	-	25	50	-
5.	IT208	Algorithm Design and Analysis	DCC	4	3	1	0	3	-	25	-	25	50	-
6.	MG202	Fundamentals of Management	HMC	3	3	0	0	3	-	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	IT301	Web Technology	DCC	4	3	0	2	3	-	15	15	30	40	-
2.	IT303	Computer Networks	DCC	4	3	0	2	3	-	15	15	30	40	-
3.	IT3xx	Departmental Elective Course - 1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	IT3xx	Departmental Elective Course - 2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.		University Elective Course	UEC	3	3	0	0	3	-	25	-	25	50	-
6.	HU301	Professional Ethics and Human values	HMC	2	2	0	0	2	-	25	-	25	50	-
7.		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	IT302	Information Theory and coding	DCC	4	3	0	2	3	-	15	15	30	40	-
2.	IT304	Software Engineering	DCC	4	3	0	2	3	-	15	15	30	40	-
3.	IT306	Theory of Computation	DCC	4	3	1	0	3	-	25	-	25	50	-
4.	IT3xx	Department Elective Course - 3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.	IT3xx	Department Elective Course - 4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	HU302	Technical Communications	HMC	2	0	0	2	0	-	25	-	25	50	-
7.		Total		22										

Fourth Year:

7th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	IT401	B. Tech.. Project-I	DCC	4										
2.	IT403	Training Seminar	DCC	2										
3.	IT405	Compiler Design	DCC	4	4	3	0	2	3	2	15	15	30	40
4.	IT407	Telecommunication Engineering Fundamentals	DCC	4	4	3	0	2	3	2	15	15	30	40
5.	IT4xx	Department Elective Course- 5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	IT4xx	Department Elective Course- 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	IT402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	IT404	Wireless and Mobile Computing	DCC	4	4	3	0	2	3	2	15	15	30	40
3.	IT4xx	Department Elective Course-7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	IT4xx	Department Elective Course-8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Elective Courses

S.No.	Subject Code	Subjects	Elective No.
1.	IT 305	Computer Graphics	DEC – 1, 2
2.	IT 307	Communication Engineering	
3.	IT 309	Artificial Intelligence	
4.	IT 311	Advanced Data Structures	
5.	IT 313	Microprocessor & Interfacing	
6.	IT 315	Distributed Systems	
7.	IT 317	Soft Computing	
8.	IT 319	Software Architecture	
9.	IT 321	Embedded Systems	
10.	IT 323	Data Compression	
11.	IT 308	Optimization Techniques	DEC – 3, 4
12.	IT 310	Parallel Algorithms	
13.	IT 312	Digital Signal Processing	
14.	IT 314	Optical Networks	
15.	IT 316	High Speed Networks	
16.	IT 318	Advanced Database Management Systems	
17.	IT 320	Multimedia System Design	
18.	IT 322	Real Time System	
19.	IT 324	Genetic Algorithms and Machine Learning	
20.	IT 326	Object Oriented Software Engineering	
21.	IT 409	Enterprise and Java Programming	DEC – 5, 6
22.	IT 411	Digital Image Processing	
23.	IT 413	VLSI Design	
24.	IT 415	Software Project Management	
25.	IT 417	High Performance Computing	
26.	IT 419	Grid and Cluster Computing	
27.	IT 421	Swarm Optimization & Evolutionary Computing	
28.	IT 423	Data Mining and data Warehousing	
29.	IT 425	Natural Language Processing	
30.	IT 427	Information and Network Security	
31.	IT 406	Cyber Forensics	DEC – 7, 8
32.	IT 408	Parallel Computer Architecture	
33.	IT 410	Intellectual Property Rights	
34.	IT 412	Bio Informatics	
35.	IT 414	Software Quality and Testing	
36.	IT 416	Big Data Analytics	
37.	IT 418	Cloud Computing	
38.	IT 420	Computer Vision	
39.	IT 422	Pattern Recognition	
40.	IT 424	Semantic Web and Web Mining	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF ELECTRICAL ENGINEERING

The department of Electrical Engineering has grown significantly since its inception in 1941. The goal of the department is to provide quality education at undergraduate and postgraduate levels and undertake cutting edge research in various areas of Electrical Engineering. The department also aims to develop active collaboration with various industries in the power sector. The department has developed an important place in the National Capital Region of Delhi. Currently, the department has an annual intake of 140 and 95 students in the B.Tech programmes in Electrical Engineering and Electrical and Electronics Engineering, respectively. The department is also offering B.Tech (Evening) with an intake of 46 students. The graduates of the department are occupying important positions in both government as well as corporate sector with many of them having joined higher study programs in India and abroad.

At the post graduate level, the department is offering two M.Tech. programmes in Control and Instrumentation and Power Systems with a combined intake of 48 students. The department is also running part time PG program in Power Electronic Systems for DMRC (under MOU) since 2012-13. In addition to the above, the department offers regular Ph.D. programmes in various areas of specialization in Electrical Engineering. These include Intelligent control, Optimization, Power quality, Renewable Energy Sources, Smart grids, Power System Operation and Control, Power System Dynamics and Stability, Flexible AC Transmission (FACTS), Electric Drives and Hybrid Electric Vehicles.

The department currently has 17 laboratories equipped withstate-of-the art equipment and latest version of latest software platforms. Currently, sponsored projects from the DST and the AICTE amounting to more than Rs. 1.3 crores are currently underway in the department.

Faculty members of the department have published more than 210 papers in International and National Journals of repute and Proceedings of National and International Conferences in last five years. The department regularly contributes research papers in IEEE Transactions and IEEE Proceedings Journals in Electrical Engineering from Elsevier Sciences, etc. Each year many research papers are presented in various international and national conferences. The department also generously contributes in professional activities undertaken by IEEE and IET Delhi chapters. Several popular technical books have been authored by the faculty members of the department. Some faculty members have acquired patent for their research. The department plans to have new laboratories for Testing. Calibration & Standardization, Photovoltaic and Energy Storage, Power Quality & Energy Conservation, Electric Drives, Industrial Automation, Bio-Instrumentation, Distribution and Automation Centre and SCADA systems, High Voltage testing equipments.

The Department regularly conducts International and national conference, workshop and invited lectures. Student chapter of international professional societies like IEEE & IET are very active in the department. It is the agenda of the department to further augment the professional activities.

The students of B. Tech. Electrical Engineering and B. Tech. Electrical & Electronics Engineering had an excellent placement record in the past years. Most of the eligible students got placed in leading companies and industries. The major recruiters in the campus placement includes Reliance Industries Limited, Samsung Engineering, TATA Steel, ABB, Schneider Electric, Tata Power-DDL, Technip, L&T Limited, Bechtel Corporation,Maruti Suzuki, Toshiba (Japan), Nestle and many others. Many students selected for higher studiesin reputed universities like Carnegie Mellon, University of Chicago,Purdue University, Florida University, Brown University, IISc and IITs.

BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MA261	Numerical and Engineering Optimization Methods	AEC	4	3	1	0	3	0	25	-	25	50	-
2.	EE201	Network Analysis & Synthesis	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	EE203	Electronic Devices and Circuits	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EE205	Electromechanical Energy Conversion and Transformer	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EE207	Engineering Analysis and Design	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
7.		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME252	Power Plant Engineering	AEC	4	3	0	2	3	0	15	25	20	40	-
2.	EE202	Electromagnetic Field Theory	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	EE204	Digital circuits and System	DCC	4	3	1	0	3	0	25	-	25	50	-
4.	EE206	Control Systems	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EE208	Asynchronous and Synchronous Machines	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	MG202	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
7.		Total		23										

Third Year:

5th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE301	Power Electronics	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	EE303	Power Transmission and Distribution	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EExxx	Departmental Elective Course-1	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
4.	EExxx	Departmental Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	-
5.	UE-	University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Professional Ethics and Human Values	HMC	2	3	0	0	3	0	25	-	25	50	-
7.		Total		21										

6th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE302	Electric Drives	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	EE304	Power System Analysis	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EE306	Microcontrollers & Applications	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EEXXX	Departmental Elective Course- 3	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
5.	EEXXX	Departmental Elective Course- 4	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
6.	HU302	Technical Communication	HMC	2	3	0	0	3	0	25	-	25	50	-
7.		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE401	B. Tech. Project-I	DCC	4										
2.	EE403	Training Seminar	DCC	2										
3.	EE405	Digital Signal Processing	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EE407	Instrumentation and Measurement	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EE409	Switchgear and Protection	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	EE4xx	Departmental Elective Course- 5	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
		Total		22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	EE4xx	Departmental Elective Course-6	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	
3.	EE4xx	Departmental Elective Course-7	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	
4.	EE4xx	Departmental Elective Course- 8	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	
		Total		20										

List of Departmental Elective Courses

S. No.	Elective Code	Title of Elective	Elective no.
1.	EE 305	Signals and Systems	DEC 1 and DEC 2
2.	EE 307	Power Station Practices	
3.	EE 309	Special Electrical Machines	
4.	EE 311	Energy Efficient Motors	
5.	EE 313	Linear Integrated Circuits	
6.	EE 315	Digital Control and State Variable Analysis	
7.	EE 317	Communication Systems	
8.	EE 319	Digital System Design	
9.	EE 321	Soft Computing Techniques	
10.	EE 323	Microcontroller and Embedded Systems	
11.	EE 308	Power System Operation and Control	DEC 3 and DEC 4
12.	EE 310	Renewable Energy Systems	
13.	EE 312	Power System Optimization	
14.	EE 314	Power Electronic Applications to Power Systems	
15.	EE 316	Electrical Energy Storage Systems	
16.	EE 318	Switched Mode Power Supplies	
17.	EE 320	VLSI Design	
18.	EE 322	IC Technology	
19.	EE 324	Data Communication and Computer Networks	
20.	EE 326	CMOS Analog Integrated Circuits	
21.	EE 411	Design, Estimation & Costing of Industrial Electrical Systems	DEC 5
22.	EE 413	Power System Modeling& Simulation	
23.	EE 415	Power System Reliability	
24.	EE 417	Design of Electrical Machines	
25.	EE 419	Advanced Topics in Electrical Machines	
26.	EE 421	Pulse Width Modulation for Power converters	
27.	EE 423	AI and Expert Systems	
28.	EE 425	Advanced Analog Circuit Design	
29.	EE 427	Computer Architecture	
30.	EE 404	Power System Dynamics & Stability	DEC 6, DEC 7 and DEC 8
31.	EE 406	Distribution Systems Analysis & Control	
32.	EE 408	Restructured Power Systems	
33.	EE 410	Power System Planning	
34.	EE 412	High Voltage Engineering	
35.	EE 414	Distributed Generation	
36.	EE 416	Grid Integration of Renewable Energy Sources	
37.	EE 418	Selected Topics in Power Electronics	
38.	EE 420	Power Quality	
39.	EE 422	HVDC Transmission	
40.	EE 424	Flexible AC Transmission Systems	
41.	EE 426	Smart Grid	
42.	EE 428	Digital Image Processing	
43.	EE 430	Process Instrumentation & Control	
44.	EE 432	Filter Design	
45.	EE 434	Advanced Communications	
46.	EE 436	Computer Control of Processes	
47.	EE 438	Microcontroller & Embedded Systems	
48.	EE 440	DSP Applications to Electromechanical Systems	
49.	EE 442	SCADA & Energy Management Systems	
50.	EE 444	Robotics and Machine Vision	
51.	EE 446	Utilization of Electrical Energy & Traction	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

BACHELOR OF TECHNOLOGY (ELECTRICAL & ELECTRONICS ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MA251	Numerical and Engineering Optimization Methods	AEC	4	3	1	0	3	0	25	-	25	50	-
2.	EL201	Circuits and Systems	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	EL203	Electronic Devices and Circuits	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EL205	Electromechanical Energy Conversion and Transformer	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EL207	Engineering Analysis and Design	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
7.		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE252	Introduction to Electromagnetics	AEC	4	3	0	2	3	0	25	-	25	50	-
2.	EL202	Linear Integrated Circuits	DCC	4	3	1	0	3	0	15	25	20	40	-
3.	EL204	Digital circuits and System	DCC	4	3	1	0	3	0	15	25	20	40	-
4.	EL206	Control Systems	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EL208	Asynchronous and Synchronous Machines	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	MG202	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
7.		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EL301	Power Electronics	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	EL303	Power Transmission and Distribution	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EL3xx	Departmental Elective Course-1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	EL3xx	Departmental Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.		University Elective Course	UEC	3	3	0	0	3	0	25		25	50	
6.	HU301	Professional Ethics and Human Values	HMC	2	2	0	0	3	0	25	-	25	50	-
7.		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EL302	Communication Systems-I	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	EL304	Power System Analysis	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EL306	Microcontrollers & Applications	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EL3xx	Departmental Elective Course-3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.	EL3xx	Departmental Elective Course-4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	HU302	Technical Communication	HMC	2	3	0	0	3	0	25		25	50	
7.		Total		22										

Fourth Year:

7th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EL401	B. Tech. Project-I	DCC	4										
2.	EL403	Training Seminar	DCC	2										
3.	EL405	Digital Signal Processing	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EL407	Instrumentation and Measurement	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EL409	Communication Systems - II	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	EL4xx	Departmental Elective Course- 5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EL402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	EL4xx	Departmental Elective Course- 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
3.	EL4xx	Departmental Elective Course- 7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	EL4xx	Departmental Elective Course- 8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Elective Courses

S. No.	Elective Code	Title of Elective	Elective no.
1.	EL 305	Signals and Systems	DEC 1 and DEC 2
2.	EL 307	Computer Architecture	
3.	EL 309	Special Electrical Machines	
4.	EL 311	Renewable Energy Systems	
5.	EL 313	IC Technology	
6.	EL 315	Digital Control & State Variable Analysis	
7.	EL 317	Digital System Design	
8.	EL 319	Database Management Systems	
9.	EL 321	Algorithms Design and Analysis	
10.	EL 323	Soft Computing Techniques	
11.	EL 308	Power System Operation and Control	DEC 3 and DEC 4
12.	EL 310	Distributed Generation	
13.	EL 312	Electric Drives	
14.	EL 314	Power Electronic Applications to Power Systems	
15.	EL 316	Electrical Energy Storage Systems	
16.	EL 318	Switched Mode Power Supplies	
17.	EL 320	Microwave Engineering	
18.	EL 322	VLSI Design	
19.	EL 324	Data Communication and Computer Networks	
20.	EL 326	CMOS Analog Integrated Circuits	
21.	EL 411	Design, Estimation & Costing of Industrial Electrical Systems	DEC-5
22.	EL 413	Power System Modeling & Simulation	
23.	EL 415	Utilization of Electrical Energy & Traction	
24.	EL 417	Power System Reliability	
25.	EL 419	Active and Passive Network Synthesis	
26.	EL 421	Antenna and Wave Propagation	
27.	EL 423	HVDC Transmission	
28.	EL 425	Pulse Width Modulation for Power converters	
29.	EL 427	Advanced Analog Circuit Design	
30.	EL 429	Power Station Practices	
31.	EL 404	Power System Dynamics & Stability	DEC 6, DEC 7 and DEC 8
32.	EL 406	Distribution Systems Analysis & Control	
33.	EL 408	Restructured Power Systems	
34.	EL 410	Bio-medical Instrumentation	
35.	EL 412	Non-linear and Adaptive Control	
36.	EL 414	Operating System Design	
37.	EL 416	Grid Integration of Renewable Energy Sources	
38.	EL 418	Selected Topics in Power Electronics	
39.	EL 420	Power Quality	
40.	EL 422	Robotics and Machine Vision	
41.	EL 426	Flexible AC Transmission Systems	
42.	EL 428	Smart Grid	
43.	EL 430	Digital Image Processing	
44.	EL 432	Process Instrumentation & Control	
45.	EL 434	Filter Design	
46.	EL 436	Switchgear and Protection	
47.	EL 438	Computer Control of Processes	
48.	EL 440	Microcontroller & Embedded Systems	
49.	EL 442	SCADA & Energy Management Systems	
50.	EL 444	DSP Applications to Electromechanical Systems	
51.	EL 446	AI and Expert Systems	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF MECHANICAL, PRODUCTION & INDUSTRIAL AND AUTOMOBILE ENGINEERING

The Department of Mechanical, Production & Industrial and Automobile Engineering has seen considerable growth since its inception in 1941 with the intake rising from 30 to 328 (186 for Mechanical, 48 for Production & Industrial Engineering and 94 for MAM.The department is fully equipped with modern facilities and labs including newly developed design centre having state of art technology to meet the current and future requirements of industry and academics. The Department also offers four years' B. Tech. (Evening) Programme for working Diploma Engineers with an annual intake of 46 students.

The department possesses modern laboratories equipped with latest experimental set-ups and research facilities for instrumentation, experimental stress analysis, strength of materials, fluid mechanics, I.C. engines, automotive engineering, robotics, heat transfer, solar energy, flexible manufacturing system, computational fluid dynamics supported by software like view-flex, CAD-CAM and I.C. engines design. Cad Lab has softwares like NX-LAD, NXCAM, AUTOCAD Invertor, Catia, Techomatix, Abaqus, Lsydyna, NX-Nartran, Hypermesh, Hyperworks, MD-ADAMS, Dynaform, MATLAB, SOLIDWORKS etc. Fluent software is available in the CFD centre. Newly developed design centre has softwares likes LS-DYNA, SOLIDWORKS, Symbols-Sonata and likely to add 3D printer (rapid prototyping) very soon. The department has developed eco-friendly technology using alternate refrigerants in the RAC lab for mitigating global warming and Ozone depletion.

Research and development is facilitated by NT enable workstations and competitive robots with digital controller. In addition; microprocessors, micro controllers, PLC, spectrum analyzer and logic analyzer are also available for students' project work. The department has a modern workshop equipped with latest machinery in Fitting, Machine shop and facility of welding shop comprising of pulse TIG, ultrasonic welding and submerged arc welding. The students are given hands on experience on CNC Milling & CNC lathe machine. Apart from these machines, EDM & wire EDM machine are also used for training of students. Most modern labs and research facilities for fluid mechanics, ID engines, automotive engineering, robotics, solar energy, flexible manufacturing system are also established in the department. Industrial Engineering lab has SPSS, Witness and Lingo 7 softwares for tackling industry relevant problems.

The department is known world wide for its research in the area of alternative fuels; bio-orgin fuels in particular. Different species of TBO and non edible oils such as Jatropha and Karanja are converted to biodiesel conforming to ASTM D-6751 using most modern production facilities. Centre for Advanced Studies and Research in Automotive Engineering has developed small to medium capacity bio-diesel processing units. The research projects sponsored by different government organization and industry such as Ministry of New and Renewable Energy, Govt of India, and Petroleum Conservation Research Association, Yanmar Co. Ltd., Osaka, Japan had been completed at the Centre. An Indo-Spanish Collaborative Research Project Application of supercritical technology for the synthesis of biodiesel from nonedible oils *(Jatropha curcas* and *Pongamia pinnata)* using heterogeneous catalysts in collaboration between Delhi Technological University and University of Murcia, Spain is under progress at the centre. The centre has also been consultant to World Bank Funded Project "Fences for Fuel." The students from the centre have participated in renowned International conferences such as SAE World Congress and presented their research findings. The centre has most modern analytical facilities along with vast number of engines for carrying out exhaustive studies on variety of alternative fuels. The students at the centre also developed an indigenous PEM fuel cell which is first of its kind in India.

The department has also carried a research project titled "Development of Ice Slurry Production Technology" under research promoting scheme by AICTE. A project for production of biodiesel from waste cooking oil (generated by hotels & restaurant etc) has also been awarded by Department of Health and Environment, Govt. of NCT of Delhi. The department also organizes invited lectures, conferences and short-term courses for the benefits of students and faculty members.

The Mechanical Engineering Department has an active SAE student chapter, a first in India and one of the largest student chapters in the world. This is the only student chapter which takes part almost all student vehicle design competitions of SAE like Formula Students, Mini Baja, and Super Mileage besides other international vehicle design competitions. Formula Students car developed by the students of the department participated in the international competition held at Silver Stone Circuit, U.K. in July 2012. The students of the department have taken a keen initiative in development of a solar passenger car (Solaris) which participated in South Africa Solar World Challenge 2012. The Mini Baja team participated in SAE-mini Baja-2012 at Auburn University, USA and won appreciation and accolades. The students have also participated in the competition conducted by NASA USA men paddled moon vehicle by the name

MOON BAGGI and CHANDER YAN, where DTU students have won prestigious awards. The department also has ISHRAE, ASME, IMech student chapter. Under and specialized lectures are conducted regular basis.

The department has well qualified faculty members, who produce numerous publications in national/International journals of high impact factor, highlighting the emphasis on research and development. The department has made strides in percolating the research culture even among UG students besides PG students and large number of publications and patents are filed by the students. Considering the growing need to protect the environment, the students of the department are working on carbon sequestration techniques and also working on algae multiplication with a view to reduce carbon foot print. The photobioreactor developed by the department is first in India and exhaustive research work on mass propagation of algal biofuel is carried by students.

BACHELOR OF TECHNOLOGY (MECHANICAL ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PE251	Engineering Materials & Metallurgy	AEC	4	3	0	2	3	0	15	15	30	40	
2.	ME201	Mechanics of Solids	DCC	4	3	0	2	3	0	15	15	30	40	
3.	ME203	Thermal engineering-I	DCC	4	3	0	2	3	0	15	15	30	40	
4.	ME205	Machine Drawing and Solid Modelling	DCC	4	0	0	6	3	0	0	50	-	-	50
5.	ME207	Engineering Analysis and Design	DCC	4	3	0	2	3	0	15	15	30	40	
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25		25	50	
		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
	PE252	Manufacturing Machines	AEC	4	3	0	2	3	0	15	15	30	40	
1.	ME 202	Thermal Engineering-II	DCC	4	3	0	2	3	0	15	15	30	40	
2.	ME 204	Fluid Mechanics	DCC	4	3	0	2	3	0	15	15	30	40	
3.	ME 206	Kinematics of Machines	DCC	4	3	0	2	3	0	15	15	30	40	
4.	ME 208	Manufacturing Technology-I	DCC	4	3	0	2	3	0	15	15	30	40	
5.	HU202	Engineering Economics	HMC	3	3	0	0	3	0	25		25	50	
6.		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME301	Fluid Systems	DCC	4	3	0	2	3	-	15	15	30	40	-
2.	ME303	Dynamics of Machines	DCC	4	3	0	2	3	-	15	15	30	40	-
3.	ME305	Design of Machine Elements	DCC	4	3	0	2	3	-	15	15	30	40	-
4.	ME307	Manufacturing Technology-II	DCC	4	3	0	2	3	-	15	15	30	40	-
5.		University Elective Course	UEC	3	3	0	0	3	-	25	-	25	50	-
6.	HU301	Technical Communication	HMC	2	2	0	0	3	-	25	-	25	50	-
		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME302	Heat And Mass Transfer	DCC	4	3	0	2	3	-	15	15	30	40	
2.	ME304	Production and Operations Management	DCC	4	3	0	2	3	-	15	15	30	40	
3.	MExxx	Departmental Elective Course - 1	DEC	4	3	0/1	2/0	3	-	15/25	15/-	30 /25	40/50	-
4.	MExxx	Department Elective Course- 2	DEC	4	3	0/1	2/0	3	-	15/25	15/-	30 /25	40/50	
5.	MExxx	Department Elective Course- 3	DEC	4	3	0/1	2/0	3	-	15/25	15/-	30 /25	40/50	
6.	HU302	Professional Ethics &Human Values	HMC	2	2	0	0	3	-	25		25	50	
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME401	B. Tech Project-I	DCC	4										
2.	ME 403	Training Seminar	DCC	2										
3.	ME 407	Refrigeration & Air Conditioning	DCC	4	3	0	2	3	-	15	15	30	40	
5.	ME4xx	Department Elective Course-4	DEC	4	3	0/1	2/0	3	-	15/25	15/-	30 /25	40/50	
6.	ME4xx	Departmental Elective Course - 5	DEC	4	3	0/1	2/0	3	-	15/25	15/-	30 /25	40/50	
7.	ME4xx	Departmental Elective Course - 6	DEC	4	3	0/1	2/0	3	-	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME 402	B. Tech.. Project-II (Contd. from VII Sem.)	DCC	8										
2.	ME 404	Industrial Engineering	DCC	4	3	0	2	3		15	15	30	40	
3.	ME 4xx	Departmental Elective Course - 7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	ME4xx	Departmental Elective Course - 8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Elective Courses

S.No.	Subject Code	Subject	
1.	ME 306	Finite Element Method	DEC -1
2.	ME 308	Gas Dynamics & Jet Propulsion	
3.	ME 310	Automation in Manufacturing	
4.	ME 312	Quality Management & Six Sigma Applications	
5.	ME 314	Mechanical Vibrations	DEC -2
6.	ME 316	Power Plant Engineering	
7.	ME 318	Computer Aided Manufacturing	
8.	ME 320	Reliability & Maintenance Engineering	
9.	ME 322	Design of Mechanical Assemblies	DEC-3
10.	ME 324	System modeling, simulation and analysis	
11.	ME 326	Pressure vessels and Piping Technology	
12.	ME 328	Composite Material Technology	
13.	ME 409	Mechatronics & Control	DEC -4
14.	ME 411	I.C. Engines	
15.	ME 413	Metrology	
16.	ME 415	Project Management	
17.	ME 419	Robotics & Automation	DEC -5
18.	ME 421	Computational Fluid Dynamics	
19.	ME 423	Advanced Manufacturing Processes	
20.	ME 427	Operations Research	
21.	ME 429	Industrial Tribology	DEC -6
22.	ME 431	Non-conventional Energy Sources	
23.	ME 433	Computer Integrated Manufacturing	
24.	ME 431	Optimization techniques	
25.	ME 406	Elastic & Plastic Behaviour of Materials	DEC -7
26.	ME 408	Combustion Generated Pollution	
27.	ME 410	Advances in Welding & Casting	
28.	ME 412	Operations and Manufacturing Strategy	
29.	ME 414	Fracture Mechanics	DEC-8
30.	ME 416	Nuclear Energy	
31.	ME 418	Supply Chain Management	
32.	ME 420	Materials management	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

BACHELOR OF TECHNOLOGY (MECHANICAL ENGINEERING WITH SPECIALIZATION IN AUTOMOTIVE ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PE261	Quantitative Techniques	AEC	4	3	1	0	3	0	25	-	25	50	-
2.	AE201	Engineering Mechanics	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	AE203	Thermodynamics	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	AE205	Manufacturing Machines	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	AE207	Engineering Analysis and Design	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

4th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE272	Automotive Electrical and Electronics	AEC	4	3	0	2	3	0	15	25	20	40	-
2.	AE202	Heat and Mass Transfer	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	AE204	Theory of Machines	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	AE206	Mechanics of Solids	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	AE208	Material Engineering & Metallurgy	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	HU202	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	AE301	Manufacturing	DCC	4	3	0	2	3	0	15	25	20	40	-
		Technology												
2.	AE303	Fluid Mechanics And Hydraulic Machines	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	AExxx	Departmental Elective Course - 1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	AExxx	Departmental Elective Course - 2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Technical Communication	HMC	2	3	0	0	3	0	25	-	25	50	-
7.		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	AE302	Design of Machine Elements	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	AE304	Internal Combustion Engines	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	AE306	Design of Automobile Components	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	AExxx	Departmental Elective Course -3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.	AExxx	Departmental Elective Course -4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
6.	HU302	Professional Ethics and Human Values	HMC	2	3	0	0	3	0	25	-	25	50	-
7.		Total		22										

Fourth Year:

7th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	AE401	B. Tech.. Project-I	DCC	4										
2.	AE403	Training Seminar	DCC	2										
3.	AE405	Alternative Fuels And Energy Systems	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	AE407	Production And Operations Management	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	AE409	Computer Aided Vehicle Design And Safety	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	AE4xx	Departmental Elective Course -5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	AE402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	AE4xx	Departmental Elective Course -6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
3.	AE4xx	Departmental Elective Course -7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	AE4xx	Departmental Elective Course -8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Elective Courses

S.NO.	Elective Code	Title of Elective	Elective no.
1	AE 305	Automotive Aerodynamics & CFD	DEC-1, 2
2	AE 307	Combustion Generated Pollution	
3	AE 309	Operation Research	
4	AE 311	Tyre Technology	
5	AE 313	Thermal Engineering	
6	AE 315	Turbo machinery and gas dynamics	
7	AE 317	Power units and transmission	
8	AE 319	Computer Simulation of I.C. Engine Process	
9	AE 321	Advanced strength of material	
10	AE 323	Finite Element Methods and Applications	
11	AE 308	Measurement and Instrumentation	DEC-3,4
12	AE 310	Advanced Manufacturing Technology	
13	AE 312	Quality Management & Six Sigma Applications	
14	AE 314	Metrology	
15	AE 316	Advances in Welding & Casting	
16	AE 318	Materials for automobile components	
17	AE 320	Tribology and lubrication	
18	AE 322	Reliability & Maintenance Engineering	
19	AE 324	Elastic & Plastic Behaviour of Materials	
20	AE 326	Production Planning & Inventory Control	
21	AE 411	Vehicle Maintenance & Tribology	DEC-5
22	AE 413	Vehicle Transport Management	
23	AE 415	Power Plant Engineering	
24	AE 417	Robotics & Automation	
25	AE 419	Nuclear Energy	
26	AE 404	Computer Integrated Manufacturing Systems	DEC-6 , DEC-7 and DEC-8
27	AE 406	Total Life Cycle Management	
28	AE 408	Refrigeration & Automobile Air Conditioning	
29	AE 410	Fuel Cells	
30	AE 412	Modern Vehicle Technology	
26	AE 414	Automobiles Vibration System Analysis	
27	AE 416	Renewable Sources of Energy	
28	AE 418	Supply Chain Management	
29	AE 420	Vehicle Safety Engineering	
30	AE 422	Packaging Technology	
31	AE 424	Mechatronics	
32	AE 426	Financial Management	
33	AE 428	Fracture mechanics	
34	AE 430	Product design and development	
35	AE 432	Tractors and Farm Equipment and Off Road Vehicles	
36	AE 434	Automobile process control	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

BACHELOR OF TECHNOLOGY (PRODUCTION ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME261	Kinematic And Dynamic Of Machines	AEC	4	3	0	2	3	0	15	15	30	40	
2.	PE201	Engineering Materials & Metallurgy	DCC	4	3	0	2	3	0	15	15	30	40	
3.	PE203	Thermal Engineering-I	DCC	4	3	0	2	3	0	15	15	30	40	
4.	PE205	Manufacturing Machines	DCC	4	3	0	2	3	2	15	15	30	40	
5.	PE207	Engineering Analysis And Design(Modeling And Simulation)	DCC	4	3	0	2	3	0	15	15	30	40	
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25		25	50	
		Total		23										

4th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	ME262	Machine Design	AEC	4	3	0	2	3	0	15	15	30	40	
2.	PE202	Thermal Engineering-II	DCC	4	3	0	2	3	0	15	15	30	40	
3.	PE204	Industrial Engineering & Operation Research	DCC	4	3	0	2	3	0	15	15	30	40	
4.	PE206	Fluid Mechanics & Machinery	DCC	4	3	0	2	3	0	15	15	30	40	
5.	PE208	Metal Cutting &Tool Design	DCC	4	3	0	2	3	0	15	15	30	40	
6.	HU202	Engineering Economics	HMC	3	3	0	0	3	0	25		25	50	
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PE301	Casting Technology	DCC	4	3	0	2	3	0	15	15	30	40	
2.	PE303	Production Planning& Control	DCC	4	3	0	2	3	0	15	15	30	40	
3.	PE3xx	Departmental Elective Course - 1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	PE3xx	Departmental Elective Course - 2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.		University Elective Course	UEC	3	3	0	0	3	0	25		25	50	
6.	HU301	Technical Communication	HMC	2	0	0	3	3	0	25		25	50	
				21					0					

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PE302	Welding Technology	DCC	4	3	0	2	3	0	15	15	30	40	
2.	PE304	Precision Manufacturing	DCC	4	3	0	2	3	0	15	15	30	40	
3.	PE306	Metrology & Quality Assurance	DCC	4	3	0	2	3	0	15	15	30	40	
4.	PE3xx	Departmental Elective Course - 3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.	PE3xx	Department Elective Course - 4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	HU302	Professional Ethics & Human	HMC	2	2	0	0	3	0					
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PE401	B. Tech Project-I	DCC	4										
2.	PE403	Training Seminar	DCC	2										
3.	PE405	Metal Forming & Press Working	DCC	4	3	0	2	3		15	15	30	40	
4.	PE407	Quantitative Techniques	DCC	4	3	0	2	3		15	15	30	40	
5.	PE4xx	Department Elective Course- 5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	PE4xx	Department Elective Course- 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PE402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	PE404	Total Quality Management	DCC	4	3	0	2	3		15	15	30	40	
3.	PE4xx	Departmental Elective Course - 7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	PE4xx	Departmental Elective Course - 8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Electives Courses

S.No.	Subject Code	Subject	Elective No.
1.	PE 305	Advance Machine Design	DEC-1 and DEC-2
2.	PE 307	Finite Element Method	
3.	PE 309	Rapid Prototyping Tooling & Manufacturing	
4.	PE 311	Sustainable Manufacturing	
5.	PE 313	Design Innovation & Manufacturing	
6.	PE 315	Mechatronics	
7.	PE 308	Green Energy Technology	DEC-3 and DEC-4
8.	PE 310	Industrial Automation	
9.	PE 312	Automobile Engg	
10.	PE 314	Manufacturing of Composite Materials	
11.	PE 316	Advances in Welding	
12.	PE 318	Advances in Casting	
13.	PE 409	CNC Machine & Programming	DEC-5 and DEC-6
14.	PE 411	Computer Integrated Design and Manufacturing	
15.	PE 413	Robotics and Automation	
16.	PE 415	Financial Management	
17.	PE 417	Materials Management	
18.	PE 419	Project Management	
19.	PE 421	Reliability, Maintenance & Safety Engineering	
20.	PE 423	Thermal Spray Technology	
21.	PE 406	Manufacturing & Applications of Polymer Composites	DEC-7 and DEC-8
22.	PE 408	Industrial Tribology	
23.	PE 410	Packaging Technology	
24.	PE 412	Supply Chain Management & Value Engineering	
25.	PE 414	Flexible Manufacturing System	
26.	PE 416	Work Study & Ergonomic	
27.	PE 418	Advance Manufacturing Processes	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF CIVIL ENGINEERING

Traditionally Civil Engineering has played an important role in improving the civic life of society by harmonizing the natural resources available on the earth. The major areas in the field of Civil Engineering are design and construction of various structures like bridges, buildings, roads, tunnels and dams, developing new construction technologies, design and development of foundation systems, geotechnical engineering, transportation and traffic engineering, municipal and sanitary services, surveying, GIS and remote sensing, and hydraulics and water resources engineering. Also, Civil Engineers have found an important role in some newer areas like design and construction of waste containment systems, disposal of nuclear wastes, and protection of groundwater resources. In recent years Civil Infrastructure development that is resulting into development of newer materials. Further, the role of specialized geotechnical engineers is vital and relevant for any structure to stand and stable on a suitably designed foundation system. Transportation engineering deals with the planning, design and construction of roads, railways, metro and mono rails, airport, dock and harbours, as well as controlling and regulating the traffic flow. Broadly a Civil Engineer is expected to do planning, research, design and construction of buildings and roads; traffic and transportation; irrigation and power, water supply and sewage disposal, dam and reservoirs; ports and harbours; airways and navigation; treatment of industrial & urban wastes and disaster mitigation; river linking.

Besides the basic and engineering sciences, the curriculum in civil engineering covers various professional subjects on structures, foundations, construction, works management and cost, transportation engineering, irrigation engineering hydraulics and earthquake technology etc.

The intake at undergradauate and post graduate levels in the department during the current academic year 122 and 89 respectively. The department offers M.Tech degree level programmes in Hydraulics and Water Resources Engineering, Structural Engineering and Geotechnical Engineering.

The PG programmes of the department for the last 30 years, have contributed significantly to the manpower development in highly relevant areas of national importance.

The department also provides opportunity to working engineers for upgrading their qualification under Continuing Education Programme during evening, these programmers are M.Tech in day time and B. Tech. in evening time.

The UG curriculum is broad-based and designed to introduce the students with a wide range of problems encountered by Civil Engineers. Electives, self-study courses, and independently conducted projects are offered in the pre-final year and final year to enable the students to develop additional depth in the areas of special interest to them. Survey camp and practical training which are part of the curriculum, aim to expose the students to actual field problems. Laboratory experiments, computer aided analysis, design & drawing and the tutorial classes are held to build confidence in the students.

The department is well equipped with laboratory related to Structures, Concrete Technology Soil Mechanics, Rock Mechanics, Highway Engineering, Experimental Stress Analysis, Computational Mechanics, Computer Aided Design, photogrammetry & GIS facilities, Fluid Mechanics and Hydraulics. The department undertakes to organize special lectures and discussion by eminent persons from the field and industry. The department has established a student chapter namely “SEM DCE Student Chapter” with the society for Experimental Mechanics, USA. The interested students are encouraged to become member of SEM DCE Students Chapter. Keeping in view the requirements of personality development of the students, the department has started in 2009, the Society of Civil & Environmental Engineers (SCEE).

The department lays greater emphasis on the quality research and development. Excellent facilities are available to conduct research for the award of Ph.D. degree in the discipline of Civil Engineering: Structural Engineering, Structural Dynamics, Earthquake Engineering, Water Resources Engineering, Experimental Mechanics, Geotechnical Engineering and other interdisciplinary areas.

BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC251	Basic Electronics & Instrumentation	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	CE201	Civil Engineering Basics and Applications	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CE203	Engineering Mechanics	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CE205	Fluid Mechanics	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	CE207	Engineering Analysis and Design	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	MG203	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EN252	Environmental Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	CE202	Mechanics of solids	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CE204	Engineering Survey	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CE206	Soil Mechanics	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	CE208	Hydraulics & Hydraulic Machines	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	HU202	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CE301	Analysis of Determinate Structures	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	CE303	Design of RCC	DCC	4	3	0	2	3	0	15	15	30	40	-
		structures												
3.	CE3xx	Departmental Elective Course-1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	CE3xx	Departmental Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Technical Communication	HMC	2	2	0	0	3	0	25	-	25	50	-
7.		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CE302	Analysis of Indeterminate Structures	DCC	4	3	1	0	3	0	25	-	25	50	-
2.	CE304	Geotechnical Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	CE306	Transportation Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CE3xx	Departmental Elective Course-3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.	CE3xx	Departmental Elective Course-4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
6.	HU302	Professional Ethics and Human values	HMC	2	2	0	0	3	0	25	-	25	50	-
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CE401	B. Tech.. Project-I	DCC	4										
2.	CE403	Training Seminar	DCC	2										
3.	CE405	Design of Steel Structures	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	CE407	Water Resources Engineering	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	CE4xx	Departmental Elective Course-5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
6.	CE4xx	Departmental Elective Course-6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
		Total		22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CE402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	CE404	Construction Technology & Management	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	CE4xx	Departmental Elective Course-7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	CE4xx	Departmental Elective Course-8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
		Total		20										

List of Departmental Elective Courses

S.No.	Subject Code	Subject	Elective NO.
1.	CE305	Mechanics of Materials	DEC-1
2.	CE307	Advanced geo-technical engineering	
3.	CE309	Environmental Engineering Design	
4.	CE311	Photogrammetry and astronomy	
5.	CE313	Earthquake Technology	DEC-2
6.	CE315	Rock engineering	
7.	CE317	Solid Waste Management & Air Pollution Control	
8.	CE319	Application of geo-informatics remote sensing and GIS in engineering	
9.	CE308	Disaster Management	DEC-3
10.	CE310	Geo-technical processes	
11.	CE312	Water Power Systems & Design	
12.	CE314	Tunnel, ports and harbor engineering	
13.	CE316	Matrix methods of structural analysis	DEC-4
14.	CE318	Analysis & Design of Underground Structures	
15.	CE320	Computational Hydraulics	
16.	CE322	Traffic and transportation planning	
17.	CE409	Advanced design of concrete structures	DEC-5
18.	CE411	Interaction behavior of soil structure	
19.	CE413	Water Resources Management	
20.	CE415	Transportation safety and environment	
21.	CE417	Finite element method for 2-D structures	DEC-6
22.	CE419	Soil Dynamics	
23.	CE421	Hydraulic structures and flood control works	
24.	CE423	Advanced transportation engineering	
25.	CE406	Advanced design of steel structures	DEC-7
26.	CE408	Computational Geo-mechanics	
27.	CE410	Advanced Fluid Mechanics	
28.	CE412	Construction and design aspects in transportation engineering	
29.	CE414	Design of bridges	DEC-8
30.	CE416	Geo-environmental and geo-hazard engineering	
31.	CE418	Ground water and seepage	
32.	CE420	Traffic Engineering	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF ENVIRONMENTAL ENGINEERING

The Department of Environment Engineering has witnessed significant growth since the inception of Environmental Engineering at undergraduate (BE/ B. Tech. since 1998) levels. Since then, the department strived ahead to develop a capable and well trained task force of environmental engineers. Realising the need for a strong academic and research base in the subject, the University established an independent Department of Environmental Engineering in 2012.

The Department admits student for B. Tech. programmes in Environmental Engineering. The present intake is 62 in undergraduate (B. Tech.) and 20 (full time) M.Tech. course. The academic curriculum of the department is based on an amalgam of mandatory, electives, independent projects, and industrial internship. The department has a strong research infrastructure with six well equipped, state-of-art laboratories with all modern instrumentation and experimental setup. Currently, the department is actively engaged in research projects in the area of water treatment, air pollution control, Bioremediation, Noise pollution control, and contaminant transport & modelling.

The department has nurtured a compatible research atmosphere and has attracted the research projects from Department of Science & Technology (DST), UGC, AICTE etc. The department is actively engaged in offering environmental consultancy service to various industries, NGOs, Govt. departments like PWD, CPWD, NDMC, MCD, DDA, and Irrigation and Flood Control Department.

In order to strengthen the academic environmental and institutional ties, the Department has collaboration with Central Pollution Control Board, National Physical Lab, Delhi Pollution Control Committee, DRDO, and La Trobe University Australia for student and faculty exchange, collaborative research projects, and training/internships. The department has held various seminars and conferences with UNESCO, University of California, AITS, Ministry of Environment & Forest, and NGOs for training and capacity building of employees and community service. The Department has impressive industry interaction and placement records with a numbers of students places in NALCO, CPCB, Maruti, TERI, Michelin, Yamaha, GAIL, NTPC, and in various foreign Universities.

BACHELOR OF TECHNOLOGY (ENVIRONMENTAL ENGINEERING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	**Code**	**Title**	**Area**	**Cr**	**L**	**T**	**P**	**TH**	**PH**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
1.	CE251	Building Material & Construction	AEC	4	3	0	2	3	0	15	25	20	40	-
2.	EN 201	Strength of Materials	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EN203	Engineering & Environmental Surveying	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EN205	Environmental Chemistry & Microbiology	DCC	4	3	0	2	3	0	15	25	20	40	
5.	EN207	Engineering Analysis & Design	DCC	4	3	1	0	3	0	15	25	20	40	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	
7.		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CE252	**Structural Analysis**	AEC	4	3	1	0	3	0	15	25	20	40	-
2.	EN 202	Geotechnical Engineering	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EN204	Water Engineering: Design & Application	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EN206	Engineering Geology, GIS & Remote Sensing	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EN208	Fluid Mechanics & Hydraulic Mechines	DCC	4	3	0	2	3	0	15	25	20	40	
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	
7.		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EN301	Environmental Hydraulics & Hydrology	DCC	4	3	0	2	3	0	15	25	20	40	
2.	EN303	Instrumentation Methods & Analysis	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	ENxxx	Departmental Elective Course-1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	ENxxx	Departmental Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.		University Elective Course	UEC	3	3	0	0	3	0	25		25	50	-
6.	HU301	Professional Ethics & Human Values	HMC	2	2	0	0	3	0	25	-	25	50	
		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EN302	Solid Waste Management	DCC	4	3	0	2	3	0	15	25	20	40	
2.	EN304	Air Pollution & Control	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	EN306	Waste Water Engineering: Design and Application	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	ENxxx	Departmental Elective Course - 3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
5.	ENxxx	Departmental Elective Course-4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	HU302	Technical Communication	HMC	2	2	0	0	3	0	25	-	25	50	
7.		Total		22										

Fourth Year:

7th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EN401	B. Tech Project-I	DCC	4										
2.	EN403	Training Seminar	DCC	2										
3.	EN405	Project Management	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EN407	Noise Pollution & Control	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	EN409	Industrial Waste Management	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	EN4xx	Departmental Elective Course- 5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EN402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	EN404	Environmental Impact Assessment & Audit	DCC	4	3	0	2	4	-	15	25	20	40	-
3.	EN4xx	Departmental Elective Course - 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	EN4xx	Departmental Elective Course- 7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Elective Courses

S.NO.	SUBJECT CODE	SUBJECTS	Elective No.
1.	EN 305	Soil Pollution & Remediation	DEC -1 ,2
2.	EN 307	Environmental Toxicology & Risk Assessment	
3.	EN 309	Ecology and Bio-Monitoring Techniques	
4.	EN 311	Environmental System Modelling	
5.	EN 313	Advanced Mechanics of Fluids & Sediment Motion	
6.	EN 315	Climate Change & Global Warming	
7.	EN 317	Planning and Design of Environmental Engg. Works	
8.	EN 319	Water Resources System	
9.	EN 321	Ventilation and Air Conditioning	
10.	EN 308	Experimental Design & Data Analysis	DEC-3,4
11.	EN 310	Green Technologies	
12.	EN 312	Fire Hazard & safety Control System	
13.	EN 314	Risk and Reliability Analysis of Environmental System	
14.	EN 316	Environmental Law and Policy	
15.	EN 318	Hazardous & Biomedical Waste Management	
16.	EN 320	Surface & Ground Water Pollution	
17.	EN 322	Disaster Management	
18.	EN 411	Occupational Health & Safety Management	DEC-5
19.	EN 413	Structural Design of Storage Tank & Reservoirs	
20.	EN 415	Urban Air Emission & Modeling	
21.	EN 417	Transportation Engineering and Planning	
22.	EN 406	Environment and Sustainable Development	DCE-6,7
23.	EN 408	Advances in Water and Wastewater Treatment	
24.	EN 410	Sustainable Energy and Green Buildings	
25.	EN 412	Environmental Biotechnology	
26.	EN 414	Non-Conventional Energy Systems	
27.	EN 416	Sustainable Urban Transport	
28.	EN 418	Advanced Open Channel Hydraulics	
29.	EN 420	Water and Soil Conservation	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF BIO-TECHNOLOGY

The Department of Biotechnology was established in the year 2004 with a mission to create fusion of engineering and life sciences that promotes scientific discovery and development of new technologies through research and education. The focus of the department is on basic research in modern biotechnology, molecular basis of life processes and bioinformatics. The department admits students for Bachelor of Technology (B. Tech.) in Biotechnology and Master of Technology (M.Tech) in Bioinformatics. Besides basic and engineering sciences, the curriculum covers various subjects of Biotechnology.

Currently, the department has 10 faculty members. The department has an intake of 34 undergraduate students. Research interest of the department are Biomaterials, Immunology, Bioprocess technology, Enzyme technology, Plant Biotechnology, Bioinformatics, Genome Infomatics, Biomechanics, Stem Cell Biology, Genomics and Proteomics, Tissue culture and Drug Design. The department has sponsored projects amounting to nearly Rs. 3 Crores from various agencies including ICMR, SERB, DBT and CSIR, and has developed modern research facility and infrastructure to support the teaching and research activities.

The department organized a corporate meet on Knowledge Park and a national seminar on Biotechnology & Bioengineering (2007) and national symposium on Biotechnology (NaSBi-2010) in which distinguished speakers from CSIR, DST, ICGEB, IIT, AIIMS, IGIB, JNU and renowned companies like Monsanto and Biocon delivered plenary lectures.

The department has started annual departmental magazine, ALLELE, and invites recent achievements and articles for the same.

The students of the department organize a technical festival KARYON every year. They organize several technical, biotechnology and management related events on national level.

The department has recently launched the International Journal of Biotechnology and Bioinformatics (IJABB) edited by Prof Samir K. Brahmachari (Director General, CSIR) (Editor-in-chief) and DrYashaHasija (Assistant Professor, Department of Biotechnology, DTU) (Executive Editor).

Objectives of the Department are:

i. To provide state of art expertise in various aspects of biotechnology, ii. Develop expertise in Bioinformatics, iii. Research for the benefit of human kind to develop effective interactions with industries involved in biotechnology and bioinformatics, iv. Knowledge dissemination through seminars, symposia and short term refresher courses at national level, and v. Industrial consultancy and Industry-University partnership in Biotechnology.

Facilities at Department

i. A Bioreactor (10 litre capacity) fully equipped with Automatic Control along with Computer data Acquisition of Analysis Software, ii. Gas liquid chromatography, Ultrafiltration Systems, UV-Vis Spectrophotometers, Atomic Absorption Spectrophotometer, Ultracentrifuge, Refrigerated Centrifuges (low and high speed). Viscometer with PIV computer, Vertical autoclave, iii. Incubator hybridizer,

BACHELOR OF TECHNOLOGY (BIOTECHNOLOGY)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

Group B

1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MA251	Applied Mathematics	AEC	4	3	1	0	3	0	25	-	25	50	-
2.	BT201	Introduction to Biotechnology	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	BT203	Biochemistry	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	BT205	Chemical Engineering Principles	DCC	4	3	0	2	0	3	15	25	20	40	-
5.	BT207	Engineering Analysis and Design	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	HU201	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	CO252	Data Structure and Algorithm	AEC	4	3	0	2	3	0	15	25	20	40	
2.	BT202	Molecular Biology	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	BT204	Genetics	DCC	4	3	1	0	3	0	25	-	25	50	-
4.	BT206	Microbiology	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	BT208	Structural Biology	DCC	4	3	0	2	3	0	15	25	20	40	-
6.	MG202	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	BT 301	Immunology and Immuno-Technology	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	BT 303	Genetic Engineering	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	BT 3xx	Departmental Elective Course-1	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
4.	BT3xx	Departmental Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Professional Ethics and Human Values	HMC	2	2	0	0	3	0	25	-	25	50	-
7.		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	BT302	Plant Biotechnology	DCC	4	3	0	2	3	0	15	25	20	40	-
2.	BT304	Animal Biotechnology	DCC	4	3	0	2	3	0	15	25	20	40	-
3.	BT306	Genomics and Proteomics	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	BT3xx	Departmental Elective Course-3	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
5.	BT3xx	Departmental Elective Course-4	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
6.	HU302	Technical Communication	HMC	2	2	0	0	3	0	25		25	50	-
7.		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	BT 401	B. Tech. Project-I	DCC	4										
2.	BT 403	Training Seminar	DCC	2										
3.	BT 405	Fundamental of Computational Biology	DCC	4	3	0	2	3	0	15	25	20	40	-
4.	BT 407	Bioprocess Tech & Downstream Process	DCC	4	3	0	2	3	0	15	25	20	40	-
5.	BT4xx	Departmental Elective Course-5	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	-
6.	BT4xx	Departmental Elective Course-6	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
		Total		22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	BT402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	BT404	Advances in Computational	DCC	4	3	0	2	3	0	15	25	20	40	-
		Biology												
3.	BT4xx	Departmental Elective Course-7	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20 /25	40/50	-
4.	BT4xx	Departmental Elective Course-8	DEC	4	3	0/1	2/0	3	0	15/25	25/-	20/25	40/50	-
		Total		20										

List of Departmental Elective Courses

S. No.	Elective Code	Title of Elective	Elective no.
1.	BT 305	Instrumentation in Biotechnology	DEC 1 & 2
2.	BT 307	Food Biotechnology	
3.	BT 309	Object oriented Programing	
4.	BT 311	Introduction to Biomedical Engineering	
5.	BT 313	Thermodynamics of Biological System	
6.	BT 315	Current topics in Biotechnology	
7.	BT 317	Enzyme and Enzyme Technology	
8.	BT 319	Drug Design and Delivery	
9.	BT 321	Bioprocess Plant Design	
10.	BT 323	Population Genetics	
11.	BT 308	Stem Cells and Regenerative Medicine	DEC 3 & 4
12.	BT 310	Biopolymers	
13.	BT 312	Metabolic Engineering	
14.	BT 314	Ecology and Evolution	
15.	BT 316	Transgenic Technology	
16.	BT 318	Bioenergy and Biofuels	
17.	BT 320	Genomics in Medicine	
18.	BT 322	Protein Engineering	
19.	BT 324	Biodiversity and Bioresource Planning	
20.	BT 326	Medical Microbiology	
21.	BT 409	Concepts in Neurobiology	DEC 5 & 6
22.	BT 411	Industrial Biotechnology	
23.	BT 413	Nanobiotechnology	
24.	BT 415	Medical Physics	
25.	BT 417	Plant Bioinformatics	
26.	BT 419	Cancer Biology	
27.	BT 421	Pharmacogenomics and Personalized Medicine	
28.	BT 423	Technological Application in Food Technology	
29.	BT 425	Biomaterials	
30.	BT 427	Pharmaceutical Sciences	
31.	BT 406	Agriculture Microbiology	DEC 7 & 8
32.	BT 408	Bioethics and Intellectual Property Rights	
33.	BT 410	System Biology	
34.	BT 412	Advanced Bioanalytical Techniques	
35.	BT 414	Clinical Biotechnology	
36.	BT 416	Plant Metabolic Engineering	
37.	BT 418	Crop protection and Pest management	
38.	BT 420	Biosensor	
39.	BT 422	Green Energy Technology	
40.	BT 424	Neutraceuticals	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF APPLIED CHEMISTRY & POLYMER TECHNOLOGY

The department has contributed significantly to higher education and research in the area of Applied Chemistry, Polymer Science and Chemical Technology. This department is the parent department of Textile Engineering and Chemical Engineering departments which have been shifted enbloc to IIT Delhi in 1960s. Also, Biotechnology department of DTU, Delhi was incepted in 2004 by Applied Chemistry and Polymer Technology department. The department offers B. Tech.. (Polymer Science & Chemical Technology), M.Tech (Polymer Technology) and Ph.D. programme in Applied Chemistry, Polymer Science and Chemical Technology. The M.Tech. (Polymer Technology) programme was started in 1986 while four year B. Tech. course in year 1998. In addition to the above, department inculcates the sound Chemical Science base to all students in first year UG programme in the form Applied Chemistry and Engineering Materials courses. Both B. Tech. & M.Tech courses are interdisciplinary to prepare the technical manpower for Chemical and Polymer industry. The annual intake of B. Tech. (Polymer Science & Chemical Technology) students is 62. The annual intake of regular M.Tech (Polymer Technology) students is 25 and part-time students are 8. The department also admits research scholars with university scholarships and CSIR-UGC fellowships. A large number of its alumni are occupying prestigious positions in India and abroad.

The department has undertaken a few sponsored projects funded by AICTE, CSIR, UGC, DRDO, DST, BARC etc. The department has produced about 50 Ph.D.'s. The teachers of the department have published nearly 250 research papers in national and international journals. The faculty has written text books on Applied Chemistry, Latex Technology and Polymer Composites. The department had organized Curriculum Development Workshops in 2004, 2007, 2009 and has continuously updated B. Tech. & M.Tech. syllabi in 2010 & 2011 through SRC of Academic Council, DTU.

The department has 15 well-established laboratories on Applied Chemistry, Polymer Chemistry, PolySynthesis, Polymer Testing & Characterization, Polymer Processing, Chemical Technology, Chemical Reaction Engineering, Textile Technology, M.E. Lab, CAD Lab, Research Labs, etc. B. Tech. & M Tech. students carry out their minor/major projects in these laboratories jointly with experts from industry and teachers of the department.

The department conducts annual technical festival TATVA in which the students and experts from industry participate in academic deliberations to enhance Industry-Institute interactions. Such useful interactions help the students for industrial trainings and job placements. The department has established world-class laboratories for undertaking joint research projects with industry, national and international universities.

BACHELOR OF TECHNOLOGY
(POLYMER SCIENCE & CHEMICAL TECHNOLOGY)
First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EC271	Basic Electronics Engg.	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	PT201	Principles of Polymerization	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	PT203	Elements of Chemical Engg.	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	PT205	Chemical Engineering Thermodynamics	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	PT207	Engineering Analysis and Design	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	-	25	-	25	50	-
		Total		23										

4th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	EE272	Instrumentation and Control	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	PT202	Fluid Mechanics	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	PT204	Polymer Processing	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	PT206	Polymer Structure and Properties	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	PT208	Chemical Reaction Engg.	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	HU202	Engineering Economics	HMC	3	3	0	0	3	-	25	-	25	50	-
				23										

Third Year:

5th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PT301	Heat Transfer	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	PT303	Advance Polymer Processing	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	PT3xx	Departmental. Elective Course-1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4	PT3xx	Departmental. Elective Course-2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Technical Communication	HMC	2	2	0	0	3	-	25	-	25	50	-
		Total		21										

6th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PT302	Rubber Technology	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	PT304	Mass Transfer	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	PT306	Plastic Technology	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	PT3xx	Departmental. Elective Course-3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.	PT3xx	Departmental. Elective Course-4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	HU302	Professional Ethics and Human values	HMC	2	2	0	0	3	-	25	-	25	50	-
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PT401	B. Tech Project-I	DCC	4	0	0	4							
2.	PT403	Training Seminar	DCC	2	0	2	0							
3.	PT405	Fibre Technology	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	PT407	Chemical Process Technology	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	PT4xx	Departmental. Elective Course - 5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
6.	PT4xx	Departmental. Elective Course - 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		22										

8th Semester

IV Year: Even Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	PT402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	PT404	Polymer Product and Die Design	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	PT4xx	Departmental. Elective Course-7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
4.	PT4xx	Departmental Elective Course-8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	
		Total		20										

List of Departmental Electives Courses

S. No.	Sub. Code	Course Title	DEC detail
1.	PT 305	Process Equipment Design	DEC – 1 & 2
2.	PT 307	Optimization Techniques	
3.	PT 309	Petroleum Refining Engineering	
4.	PT 311	Renewable & Non-renewable energy	
5.	PT 313	Combustion Engineering	
6	PT 315	Packaging Technology	
7	PT 317	Polymer Coatings & Adhesives	
8	PT 319	Biomaterials	
9	PT 321	Biosensor Technology	
10	PT 323	Biochemical Engineering	
11	PT 308	Advanced Chemical Reaction Engineering	DEC – 3 & 4
12	PT 310	Chemical Process Simulation	
13	PT 312	Numerical Methods in Chemical Engineering	
14	PT 314	CAD in Chemical Engineering	
15	PT 316	Corrosion Engineering	
16	PT 318	Polymer Blends and Composite	
17	PT 320	Polymer Rheology	
18	PT 322	Non-Woven Technology	
19	PT 324	Application of Nanotechnology in Polymer	
20	PT 326	Polymer Reaction Engineering	
21	PT 409	Tyre Technology	DEC – 5 & 6
22	PT 411	Thermoplastic Elastomers	
23	PT 413	Resins Technology	
24	PT 415	Paint Technology	
25	PT 417	Footwear Technology	
26	PT 419	Plastic and Environment	
27	PT 421	Industrial Waste Management	
28	PT 423	Polymer Degradation	
29	PT 425	Energy Conservation & Recycling	
30	PT 427	Safety & Hazards in Chemical Industry	
31	PT 406	Speciality Polymers	DEC – 7 & 8
32	PT 408	Colouration Technology	
33	PT 410	Membrane Technology	
34	PT 412	Inorganic Polymer	
35	PT 414	Food Technology	
36	PT 416	Process Design and Engineering Economics	
37	PT 418	Fertilizer Technology	
38	PT 420	Fuel Cell Technology	
39	PT 422	Pharmaceutical Technology	
40	PT 424	Rocket Propulsion and Explosives	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite

DEPARTMENT OF APPLIED MATHEMATICS

Mathematics is the base of all engineering as well as technological branches. A sound knowledge of mathematical tools makes a technocrat to excel in his/her profession. In fact the "Industrial Mathematics", a branch of Applied Mathematics, which is relevant for contemporary technological problems, is not only the queen of all sciences but is also the mother of all technologies.

The Department of Applied Mathematics offers courses to undergraduate and postgraduate students of various engineering disciplines. The syllabi have been designed in the areas of Applied Mathematics, Computational techniques, Statistics and operations research to impart sound knowledge of various mathematical tools and their applications in the engineering disciplines.

To keep pace with the growing technologies which are resulting in more and more complex phenomena requiring high precision result, the Department of Applied Mathematics offered a 4 year B. Tech. course in Mathematics and Computing from the academic session 2011-2012. The aim of this program is to train the students in all the fundamentals of Mathematics & Computer Science with emphasis on computational techniques providing fusion of Mathematics with Computer Science. The scope of the course will cover the fields such as Computer Science, Engineering Computations, Financial Computations, Optimization Techniques and of course a profound knowledge of the Mathematics. The prospect of the course lies in the core engineering industries, software field and the financial sectors. The course will also make a sound foundation for the students willing to pursue Higher education in the discipline of engineering, finance, Computational Mathematics, as well as Management. The students will be trained in such a way that graduate would be able to take up jobs in academia or industry or pursue higher studies. The response of the students is quite impressive.

The Department of Applied Mathematics is well equipped with computer lab and competent faculty with diversified specialization.

BACHELOR OF TECHNOLOGY (MATHEMATICS & COMPUTING)

First Year:

1st Semester

Teaching Scheme					Contact Hours/Week			Exam Duration (h)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC101	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME101	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME103	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU101	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							
Group B														
1	MA101	Mathematics - I	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP101	Physics – I	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE101	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO101	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME105	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN101	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							

2nd Semester

		Teaching Scheme			Contact Hours/Week			Exam Duration		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credit**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
Group A														
1	MA102	Mathematics - II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	EE102	Basic Electrical Engineering	AEC	4	3	0	2	3	0	15	15	30	40	-
4	CO102	Programming Fundamentals	AEC	4	3	0	2	3	0	15	15	30	40	-
5	ME102	Engineering Graphics	AEC	2	0	0	3	0	3	-	50	-	-	50
6	EN102	Introduction to Environmental Science	AEC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	15	1	9							
Group B														
1	MA102	Mathematics – II	ASC	4	3	1	0	3	0	25	-	25	50	-
2	AP102	Physics – II	ASC	4	3	0	2	3	0	15	15	30	40	-
3	AC102	Chemistry	ASC	4	3	0	2	3	0	15	15	30	40	-
4	ME104	Basic Mechanical Engineering	AEC	4	4	0	0	3	0	25	-	25	50	-
5	ME106	Workshop Practice	AEC	2	0	0	3	0	3	-	50	-	-	50
6	HU102	Communication Skills	HMC	3	3	0	0	3	0	25	-	25	50	-
	Total			**21**	16	1	7							

Second Year:

3rd Semester

S. No.	**Code**	**Title**	**Area**	**Cr**	**L**	**T**	**P**	**TH**	**PH**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
1.	CS251	Data Structure	AEC	4	3	0	2	3	0	15	15	30	40	-
2.	MC201	Discrete Mathematics	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	MC203	Mathematics-III	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	MC205	Probability & Statistics	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	MC207	Engineering Analysis and Design	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	MG201	Fundamentals of Management	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

4th Semester

S. No.	**Code**	**Title**	**Area**	**Cr**	**L**	**T**	**P**	**TH**	**PH**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
1.	CS262	Algorithm Design & Analysis	AEC	4	3	1	0	3	0	25	-	25	50	-
2.	MC202	Real Analysis	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	MC204	Scientific Computing	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	MC206	Computer Organization & Architecture	DCC	4	3	0	2	3	0	15	15	30	40	-
5.	MC208	Linear Algebra	DCC	4	3	1	0	3	0	25	-	25	50	-
6.	HU202	Engineering Economics	HMC	3	3	0	0	3	0	25	-	25	50	-
		Total		23										

Third Year:

5th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MC301	Operating System	DCC	4	3	0	2	3	0	15	15	30	40	-
2.	MC303	Stochastic Processes	DCC	4	3	0	2	3	0	15	15	30	40	-
3.	MCxxx	Departmental Elective Course - 1	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	MCxxx-	Departmental Elective Course- 2	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.		University Elective Course	UEC	3	3	0	0	3	0	25	-	25	50	-
6.	HU301	Technical Communication	HMC	2	2	0	0	2	0	25	-	25	50	-
7.			Total	21										

6th Semester

S. No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MC302	Data Base Management System	DCC	4	3	1	0	3	0	25	-	25	50	-
2.	MC304	Theory of Computation	DCC	4	3	1	0	3	0	25	-	25	50	-
3.	MC306	Financial Engineering	DCC	4	3	1	0	3	0	25	-	25	50	-
4.	MCxxx	Departmental Elective Course - 3	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
5.	MCxxx	Departmental Elective Course - 4	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
6.	HU302	Human Ethical Value	HMC	2	2	0	0	2	0	25	-	25	50	-
		Total		22										

Fourth Year:

7th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MC401	B. Tech.. Project-I	DCC	4										
2.	MC403	Training Seminar	DCC	2										
3.	MC405	Graph Theory	DCC	4	3	0	2	3	0	15	15	30	40	-
4.	MC407	Cryptography & Network Security	DCC	4	3	1	0	3	0	25	-	25	50	-
5.	MC409	Mathematical Modeling & Simulation	DCC	4	3	0	2	3	0	15	15	30	40	-
6.	MCxxx	Departmental Elective Course -5	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
		Total	Total	22										

8th Semester

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MC402	B. Tech. Project-II (Contd. from VII Sem.)	DCC	8										
2.	MC4xx	Departmental Elective Course - 6	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
3.	MC4xx	Departmental Elective Course - 7	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
4.	MC4xx	Departmental Elective Course- 8	DEC	4	3	0/1	2/0	3	0	15/25	15/-	30 /25	40/50	-
		Total	Total	20										

List of Departmental Electives Courses

S.No.	Subject Code	Subject	Elective No.
1.	MC305	Operations Research	DEC– 1
2.	MC307	Fluid Dynamics	
3.	MC309	Number Theory	
4.	MC315	Modern Algebra	DEC– 2
5.	MC317	Finite Element Method	
6.	MC319	Complex Analysis	
7.	MC308	Computer Network	DEC – 3
8.	MC310	Software Engineering	
9.	MC312	Artificial Intelligence.	
10.	MC318	Computer Graphics	DEC– 4
11.	MC320	Compiler Design	
12.	MC322	Cluster & Grid Computing	
13.	MC324	Big Data Analysis	
14.	MC411	Data Warehousing & Data Mining	DEC – 5
15.	MC413	Web Technology	
16.	MC415	Wireless & Mobile Computing	
17.	MC417	Multimedia System Design	
18.	MC404	Matrix Computation	DEC– 6
19.	MC406	Partial Differential Equations	
20.	MC408	Statistical Quality Control	
21.	MC410	Topology	
22.	MC412	Functional Analysis	
23.	MC418	Optimization Techniques.	DEC– 7
24.	MC420	Information Theory & Coding	
25.	MC422	Numerical Methods for ODE	
26.	MC424	Game Theory	
27.	MC426	Differential Geometry	
28.	MC432	Fuzzy set & Fuzzy logic	DEC– 8
29.	MC434	Numerical Methods for PDE	
30.	MC436	Petrinet Theory & Application	
31.	MC438	Tensor Calculus	
32.	MC440	Statistical Inference	

Table-4 University Elective Courses

S.No.	SUBJECT CODE	SUBJECTS
1.	CO351	Enterprise & Java Programming
2.	CO353	E-commerce & ERP
3.	CO355	Cryptography & Information Security
4.	CO357	Operating System
5.	CO359	Intellectual Property Rights & Cyber Laws
6.	EC351	Mechatronics
7.	EC353	Computer Vision
8.	EC355	Embedded System
9.	EC357	Digital Image Processing
10.	EC359	VLSI Design
11.	EE351	Power Electronics Systems
12.	EE353	Electrical Machines and Power Systems
13.	EE355	Instrumentation Systems
14.	EE357	Utilization of Electrical Energy
15.	EE359	Non-conventional Energy Systems
16.	EE361	Embedded Systems
17.	EN351	Environmental Pollution & E- Waste Management
18.	EN353	Occupational Health & Safety Management
19.	EN355	GIS & Remote Sensing
20.	EP351	Physics of Engineering Materials
21.	EP353	Nuclear Security
22.	HU351	Econometrics
23.	MA351	History Culture & Excitement of Mathematics
24.	ME351	Power Plant Engineering
25.	ME353	Renewable Sources of Energy
26.	ME355	Combustion Generated Pollution
27.	ME357	Thermal System
28.	ME359	Refrigeration & Air Conditioning
29.	ME361	Industrial Engineering
30.	ME363	Product Design & Simulation
31.	ME365	Computational fluid dynamics
32.	ME367	Finite Element Methods
33.	ME369	Total Life Cycle Management
34.	ME371	Value Engineering
35.	MG351	Fundamentals of Financial Accounting and Analysis
36.	MG353	Fundamentals of Marketing
37.	MG355	Human Resource Management
38.	MG357	Knowledge and Technology Management
39.	PE351	Advance Machining Process
40.	PE 353	Supply Chain Management
41.	PE355	Work Study Design
42.	PE357	Product Design & Simulation
43.	PE359	Total Life Cycle Management
44.	PE361	Total Quality Management
45.	PT361	High Performance Polymers
46.	PT363	Separation Technology
47.	PT365	Non-Conventional Energy
48.	PT367	Polymer Waste Management
49.	PT369	Nanotechnology in Polymers
50.	PT371	Applications of Polymer Blends and Composite