RCOEM

**Shri Ramdeobaba College of
Engineering and Management, Nagpur**

SHRI RAMDEOBABA COLLEGE OF ENGINEERING AND MANAGEMENT, NAGPUR – 440013

An Autonomous College affiliated to
Rashtrasant Tukadoji Maharaj Nagpur University,
Nagpur, Maharashtra (INDIA)

UNDER GRADUATE ORDINANCES / REGULATIONS

2023 - 2024

1.   Introduction
1.1. Preamble

Shri Ramdeobaba College of Engineering and Management (RCOEM), situated in the heart of Nagpur city, was established in 1984 by Shri Ramdeobaba Sarvajanik Samiti, a trust which has been involved in community service for over four decades. RCOEM has established a strong foundation in technical education in Central India. Journey of a student in this institute has always involved comprehensive knowledge building through practical skills, technical knowledge and personality development, which gives them a head start in their career. The institute on an average annually admits around 870 candidates for UG programmes, around 336 candidates for PG programmes and 60 candidates for Integrated Programme in Management.

The curriculum provides broad knowledge, builds a thorough, professional, life long process of learning and exploring. At undergraduate level, a student needs to do compulsory foundation courses in the areas of basic sciences, humanities, social sciences and engineering apart from departmental requirements. Departmental courses (core and electives) constitute minimum 50% of the total curriculum. Further, students have to undertake electives including interdisciplinary ones to develop broad specialized and inter-disciplinary knowledge. At the PG level, students are encouraged to look beyond their area of specialization to broaden their horizons through a wide variety of courses and electives.

The Institute follows a credit based semester system for its academic programmes with English as the medium of instruction. An academic year runs from July through June next year and is comprised of two semesters. Typically, the 1st semester (Odd Semester) starts in July and ends in December; the 2nd Semester (Even Semester) starts in January and ends in June.

1.2. Departments

The various Departments, Board of Studies and their two-letter codes are given below;

S.No.	Name of Department / Board of studies	Department Code
1	Civil Engineering	CE
2	Computer Science and Engineering	CS
3	Electrical Engineering	EE
4	Electronics and Communication Engineering	EC
5	Electronics Design Technology	ED
6	Electronics Engineering	EN
7	Industrial Engineering	IN
8	Information Technology	IT
9	Mechanical Engineering	ME
10	Management Technology	MB
11	Computer Applications	MC
12	Mathematics	MA
13	Physics	PH
14	Chemistry	CH
15	Humanities	HU
16	Physical Education	PE
17	Board of Interdisciplinary Studies	ID
18	Computer Science and Engineering (Data Science)	CD
19	Computer Science and Engineering (A I & M L)	CA
20	Computer Science and Engineering (Cyber Security)	CC
21	Biomedical Engineering	BM
22	Electronics and Computer Science	ES

1.3. Programmes Offered

RCOEM Nagpur offers academic programmes namely Engineering at UG and PG levels, MBA, MCA, and MBA (Integrated). In undergraduate programmes and in MBA (Integrated), students are admitted after 10+2 schooling while for all postgraduate programmes, students are admitted after they have obtained at least a college level Bachelor's degree. Admission to all these programmes are based on the eligibility criteria laid down by the competent authority.

1.3.1. Under Graduate Programmes:

A. Bachelor of Technology : (B. Tech.)

Sr. No.	Department	Programme Title	Programme Code	Eligibility for admission
1	Civil Engineering	B. Tech. (Civil Engineering)	CEU	Eligibility Criteria as laid down by the competent authority from time to time
2	Computer Science and Engineering	B. Tech. (Computer Science and Engineering)	CSU	
3	Electrical Engineering	B. Tech. (Electrical Engineering)	EEU	
4	Electronics and Communication Engineering	B. Tech. (Electronics and Communication Engg.)	ECU	
5	Electronics Design Technology	B. Tech. (Electronics Design Technology)	EDU	
6	Electronics Engineering	B. Tech. (Electronics Engineering)	ENU	
7	Industrial Engineering	B. Tech. (Industrial Engineering)	INU	
8	Information Technology	B. Tech. (Information Technology)	ITU	
9	Mechanical Engineering	B. Tech. (Mechanical Engineering)	MEU	
10	Computer Science and Engineering (Data Science)	B. Tech. Computer Science and Engineering (Data Science)	CDU	
11	Computer Science and Engineering (A I & M L)	B. Tech. Computer Science and Engineering (A I & M L)	CAU	
12	Computer Science and Engineering (Cyber Security)	B. Tech. Computer Science and Engineering (Cyber Security)	CCU	
13	Biomedical Engineering	B. Tech. Biomedical Engineering (Electronics Engineering)	BMU	
14	Electronics and Computer Science	B. Tech. (Electronics and Computer Science)	ECS	

1.3.2. Post Graduate Programmes

A. Masters:

S. No.	Department	Programme Title	Programme Code	Eligibility for admission
1	Civil Engineering	M. Tech.(Geotechnical Engineering) (Part time)	CEG	Eligibility Criteria as laid down by the competent authority from time to time
2	Civil Engineering	M. Tech. (Structural Engineering)	CES	
3	Electronics Engineering	M. Tech.(Very Large Scale Integration Design)	ENV	
4	Industrial Engineering	M. Tech.(Industrial Engineering)	IND	
5	Electrical Engineering	M. Tech (Power Electronics & Power System)	EEP	
6	Computer Science and Engineering	M. Tech (Computer Science & Engineering)	CSE	
7	Mechanical Engineering	M. Tech (Robotics & Automation)	RAA	
8	Computer Applications	MCA	MCA	
9	Management Technology	MBA	MBA	

1.3.3. Integrated Programme in Management

Sr. No.	Department	Programme Title	Programme Code	Eligibility for admission
1	Management Technology	MBA (Integrated)	MBI	Eligibility Criteria as laid down by the competent authority from time to time

2. ORDINANCES FOR THE U. G. PROGRAMMES 2021

The Board of Management of the Institute prescribes the following ordinances in respect of the different academic undergraduate programmes at Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur- 440013 on the recommendation of the Academic Council. The details in respect of the ordinances issued for UG Programmes are as follows.

Short Title and Commencement	(i)	These ordinances shall be hereafter called as the Ordinances for the Undergraduate (UG) Programmes of RCOEM.
	(ii)	These ordinances shall come into force with effect from the date of its approval by the Board of Management.
Definitions		Unless the context requires otherwise;
	(i)	**"Government"** shall mean the Government of Maharashtra/ Government of India as may be applicable.
	(ii)	**"DTE"** shall mean Director of Technical Education, Government of Maharashtra.
	(iii)	**"University"** shall mean Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.
	(iv)	**"Regulating Authority"** shall mean any regulatory or controlling body for the Technical Education in India.
	(v)	**"UGC"** shall mean University Grants Commission, Government of India, New Delhi.
	(vi)	**"AICTE"** shall mean the All India Council for Technical Education, New Delhi.
	(vii)	**"Institute"** shall mean Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur 440013.
	(viii)	**"Board"** shall mean the Board of Management of the Institute constituted as per the XI plan guidelines of UGC for autonomous colleges read with Direction no. 4/1999 of the University.
	(ix)	**"Principal"** shall mean the Principal of the Institute.
	(x)	**"Vice-Chancellor"** shall mean the Vice-Chancellor of the University.
	(xi)	**"APEC"** shall mean the Institute level Academic Programme Evaluation Committee formed by the Principal as and when required. If any academic program is to be evaluated based on factors like importance, academic content, industrial significance, financial viability, sustainability etc., the decision of this body must be taken into consideration.
	(xii)	**"Finance Committee"** shall mean the Finance committee of the Institute constituted as per the guidelines of UGC for autonomous colleges.
	(xiii)	**"BOS"** shall mean the Board of Studies of the department, constituted as per the Guidelines of UGC for autonomous colleges.
	(xiv)	**"Degree"** shall mean the Bachelor of Engineering (B. E.) or Master of Technology (M. Tech.) Master of Business Administration (MBA), Master of Computer Applications (MCA) and other degrees of the Institute as may be approved by the Board/University/UGC/Government.
	(xv)	**"Applicant"** shall mean an individual who applies for admission to any PG programme of the Institute.

	(xvi)	**"Student"** shall mean a student registered for PG programme for studies leading to any degree course offered by the Institute and sought final admission to the degree programme.
	(xvii)	**"Direct Admission Student"** shall mean a student who is admitted directly to second year of the B.E. degree program after completion of the appropriate Diploma Course and registered for undergraduate program for full time study leading to the respective B.E. degree.
	(xviii)	**"Course"** shall mean a curricular component identified by a designated number and title.
	(xix)	**"Programme"** Programme shall mean the stream in which the degree is awarded.
	(xx)	**"Scheme of Teaching and Examination"** shall mean the scheme of teaching and examination for a programme of study as approved by the Academic Council.
	(xxi)	**"Course Coordinator"** shall mean a faculty member who shall have full responsibility for the course, coordinating the work of other faculty member(s) involved in that course, including examinations and the award of grades.
	(xxii)	**"Departmental Faculty Board (DFB)"** shall mean the committee of the faculty members involved in teaching a course or a group of courses of technically relevant subjects.
	(xxiii)	**"Grade Moderation Committee"** shall mean the committee appointed by the Academic Council to moderate grades awarded by the examiner, if required.
	(xxiv)	**"SGPA"** shall mean the Semester Grade Point Average.
	(xxv)	**"CGPA"** shall mean the Cumulative Grade Point Average.
	(xxvi)	**"Academic Council"** shall mean the Academic Council constituted as per the XI plan guidelines of UGC for autonomous colleges read with Direction no. 4/1999 of the University.
	(xxvii)	**"EXC"** shall mean Examination committee constituted as per the Direction No. 4/1999 of the University for autonomous colleges.
	(xxviii)	**"COE"** shall mean the Controller of Examinations appointed as per the Guidelines of UGC for autonomous colleges.
	(xxix)	**"ISV"** shall mean In-charge of Spot Valuation, appointed by the Principal.
	(xxx)	**"OIC"** shall mean Officer In-charge of the End Semester Examination.
	(xxxi)	**"DEC"** shall mean the Departmental Examination Committee.
	(xxxii)	**"Guide"** shall mean a person who is qualified to supervise a project / dissertation work of students and is approved by the Academic Council.
	(xxxiii)	**"RCC"** shall mean Departmental Research Coordination Committee.
	(xxxiv)	**"GRC"** shall mean Grievance Redressal Committee formed by the Academic Council.
	(xxxv)	**"Competent Authority"** shall mean the Board of Management / Academic Council of the Institute/ University/Government/UGC/Regulating Authority as the case may be.
	(xxxvi)	**"Equivalence Committee"** shall mean the Equivalence Committee appointed by the Academic Council.
	(xxxvii)	**"APAC"** shall mean Academic Performance Evaluation Committee.

	(xxxviii)	**"DAPAC"** shall mean Departmental Academic Performance Advisory Committee'.
Ordinances	(1)	The Institute shall offer UG programmes as the Board / University / Government may approve on the recommendation of the Academic Council either on its own or on the initiative of a Department and / or on the direction of the Board / Government. *Provided* that an interdisciplinary programme may be proposed by a Department or by a committee appointed by the Principal for the consideration of the Academic Council and the Board / Government.
	(2)	The procedure for starting a new programme / temporarily suspending a programme / phasing out a programme shall be as per the guidelines laid down by the competent authority.
	(3)	The minimum qualifications and procedure for admission to the first year UG programmes as well as direct second year admission to UG programme shall be as per the norms prescribed.
	(4)	A student shall be required to earn minimum credits through various academic courses of a curriculum as provided in the regulations and scheme given in Annexure-I
	(5)	The award of the UG degree to an eligible candidate shall be made in accordance with the procedure laid down in the regulations. A student shall have to complete all the requirements for the award of the degree within such period as may be specified in the regulations, including those credits earned at such other institutions as have been recognized by the Institute for this purpose.
	(6)	The date of initial registration for the programme shall normally be the date, on which the student formally registers i.e. takes final admission for the first time. This date shall be considered as the date of joining the programme for all intents and purposes.
	(7)	A student shall be required to attend every lecture, tutorial and practical class. However, for late registration, sickness or other such exigencies, absence may be allowed as provided in the regulations.
	(8)	A student may be granted such scholarship / assistantship / stipend, etc. and awarded medals as may be specified in the regulations or in accordance with the directions of the Government and / or the decision of the Board from time to time. The overall topper(s) amongst all branches shall not be declared however on the basis of CGPA branch toppers may be declared as per norms.
	(9)	The procedure for the withdrawal from an UG programme, rejoining the programme, award of grades and SGPA / CGPA, the examination and all such matters as may be connected with the running of UG programmes shall be as specified in the regulations.

	(10)	A student admitted to the UG programme shall abide by the code of conduct for students issued by the Institute from time to time. This code of conduct shall deal with the discipline of the students in the hostels, departments, the Institute premises and outside. It may also deal with such other matters as are considered necessary for the general conduct of the students, co-curricular and extra-curricular activities. It shall be approved by the Academic Council on the recommendations of the Dean Students Affairs.
	(11)	The minimum duration of UG programmes shall be of four years (Organized in 8 semesters of six months each including vacation period).
	(12)	The tuition fees structure will be governed by the rules and regulations as prescribed by the competent authority.
	(13)	The fees other than the tuition fees will be governed by the rules and regulations framed and recommended by the Finance Committee and duly approved by the Board.
	(14)	Notwithstanding anything contained in the above Ordinances, no regulations shall be made in contradiction of the decision of the Board and /or the direction of the Government, in regard to the duration of the UG programme, the amount and number of scholarship/assistantships and the number of free ships and the procedure thereof.

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Semester - I)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	PHT1002	Physics of Materials	2	1	0	3	50	50	100	3Hrs
2.	BSC	PHP1002	Physics of Materials Lab	0	0	2	1	50	-	50	
3.	BSC	MAT1001	Applied Mathematics-I	2	1	0	3	50	50	100	3Hrs
4.	ESC	BMT1001	Fundamentals of Electrical & Electronics Engineering	3	0	0	3	50	50	100	3Hrs
5.	ESC	BMP1001	Fundamentals of Electrical & Electronics Engineering Lab	0	0	2	1	50	-	50	-
6.	ESC	BMT1002	Programming for problem solving	3	0	0	3	50	50	100	3Hrs
7.	ESC	BMP1002	Programming for problem solving Lab	0	0	2	1	50	-	50	-
8.	VSEC	BMP1003	Instrumentation- Maintenance and Repair Lab	0	0	2	1	50	-	50	-
9.	AEC	HUT1002	English for Professional Communication	2	0	0	2	50	50	100	2Hrs
10.	AEC	HUP1002	English for Professional Communication Lab	0	0	2	1	50	-	50	
11.	CCA	HUP0001-1 to HUP0001-10	Liberal/Performing Art	0	0	2	1	50	-	50	-
12.	VEC	HUT1004	Foundational Course in Universal Human Value	1	0	0	1	50	-	50	-
			TOTAL	**13**	**2**	**12**	**21**				

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Semester - II)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	BSC	CHT2005	Biochemistry	2	0	0	2	50	50	100	2 Hrs
2.	BSC	CHP2005	Biochemistry Lab	0	0	2	1	50	-	50	
3.	BSC	MAT2001	Applied Mathematics-II	2	1	0	3	50	50	100	3Hrs
4.	BSC	MAP2002	Computational Mathematics Lab	0	0	2	1	50	-	50	
5.	ESC	BMT2001	Digital Circuit Design	3	0	0	3	50	50	100	3Hrs
6.	ESC	BMP2001	Digital Circuit Design Lab	0	0	2	1	50	-	50	
7.	BSC	CHP2007	Bioinformatics Lab	0	0	2	1	50	-	50	
8.	ESC	BMT2002	Introduction to Digital Fabrication & 3D Printing	2	0	0	2	50	50	100	2 Hrs
9.	ESC	BMP2002	Introduction to Digital Fabrication & 3D Printing Lab	0	0	2	1	50	-	50	.
10.	VSEC	BMT2003	Computer Workshop	1	0	0	1	50	-	50	
11.	VSEC	BMP 2003	Computer Workshop Lab	0	0	2	1	50	-	50	
12.	IKS	HUT2001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs
13	CCA	PET2001	Sports- Yoga-Recreation	1	0	0	1	50		50	
14.	CCA	PEP2001	Sports- Yoga-Recreation	0	0	2	1				
			TOTAL	**13**	**1**	**14**	**21**				

Exit Course Option for I year UG Certificate in Engineering/Tech.	
1 Medical Instruments- With Project	**8**
OR	
2 Minimum two online course of 4 credits each	**8**

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Semester - III)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	BMT3001	Human Anatomy and Physiology for Engineers-I	3	0	0	3	50	50	100	3Hrs
2.	MDM	BMT3002	Legal and Ethical Practices of Biomedical Engineering	2	0	0	2	50	50	100	2Hrs
3.	PCC	BMT3003	Analog Devices and Circuits	3	0	0	3	50	50	100	3Hrs
4.	PCC	BMP3003	Analog Devices and Circuits Lab	0	0	2	1	50	-	50	
5.	PCC	BMT3004	Biomedical Sensors & Measurement Devices	3	0	0	3	50	50	100	3Hrs
6.	PCC	BMP3004	Biomedical Sensors & Measurement Devices Lab	0	0	2	1	50	-	50	
7.	OE	BMT2980	OE-1/MOOC Courses	3	1	0	4	50	50	100	3Hrs
8.	AEC	HUT3001	Business Communication	2	0	0	2	50	50	100	2Hrs
9.	VEC	HUT3004	Universal Human Values	1	0	0	1	50	-	50	
10.	CEP	BMP3005	Field Project-1	0	0	4	2	50	-	50	
			TOTAL	17	1	6	22				

(Semester - IV)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	BMT4001	Human Anatomy Physiology for Engineers-II	3	0	0	3	50	50	100	3Hrs
2.	PCC	BMT4002	Microcontrollers and its application in Healthcare	3	0	0	3	50	50	100	3Hrs
3.	PCC	BMP400 2	Microcontrollers and its application in Healthcare Lab	0	0	2	1	50	-	50	
4.	PCC	BMT4003	Biomedical Signals and System	3	1	0	4	50	50	100	3Hrs
5.	VSEC	BMT4004	Medical Imaging	2	0	0	2	50	50	100	
6.	OE	BMT2990	OE-2/MOOC Courses	2	0	0	2	50	50	100	3Hrs
7.	MDM	BMT4005	Data Structure and Algorithms	1	0	0	1	50		50	
8.	MDM	BMP4005	Data Structure and Algorithms Lab	0	0	2	1	50	-	50	
9.	HSSM	BMT4006	Business Management & Entrepreneurship	2	0	0	2	50	50	100	2Hrs.
10.	VEC	CHT4001	Environmental Science	2	0	0	2	50	-	50	
11.	CEP	BMP4007	Field Project-2	0	0	4	2	50	-	50	
			TOTAL	18	1	8	23				

	Exit Course Option for II year UG Diploma in Engineering/Tech.	
1	Design and Manufacturing of PCB- With Project	8
	OR	
2	Radiology Equipment (In Collaboration with Hospitals)/OnlineCourses	8

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Semester - V)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	BMT5001	Biomechanics	3	0	0	3	50	50	100	3 Hrs
2.	PCC	BMT5002	Biomaterials	3	0	0	3	50	50	100	3 Hrs
3.	MDM	BMT5003	Healthcare application design using FPGA	3	0	0	3	50	50	100	3 Hrs
4.	MDM	BMP5003	Healthcare application design using FPGA lab	0	0	2	1	50	-	50	
5.	PCC	BMT5004	Analytical & Diagnostic Equipment	3	0	0	3	50	50	100	3 Hrs
6.	PCC	BMP5004	Analytical & Diagnostic Equipment Lab	0	0	2	1	50	-	50	
7.	PEC	BMT5005	Program Elective-I	3	0	0	3	50	50	100	3 Hrs
8.	PEC	BMP5005	Program Elective-I Lab	0	0	2	1	50	-	50	
9.	OE	BMT3980	OE-3/MOOC Course	2	0	0	2	50	50	100	2 Hrs
10.	CEP	BMP5006	Project-I	0	0	4	2	50	50	100	
			TOTAL	**17**	**0**	**8**	**22**				

Program Elective – I with Lab

Course Code	Course Name	Course Code	Course Name
BMT5005-1	Biostatistics	BMP5005-1	Biostatistics Lab
BMT5005-2	Fundamentals of Bio-Sensors	BMP5005-2	Fundamentals of Bio-Sensors Lab
BMT5005-3	Control Systems	BMP5005-3	Control Systems Lab
BMT5005-4	Embedded Systems & IoT	BMP5005-4	Embedded System & IoT Lab

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Semester - VI)

| Sr. No. | Course Type | Course Code | Course Name | Hours/Week | | | Credits | Maximum marks | | | ESE Exam Duration (Hrs.) |
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	BMT6001	Biomedical Microsystems	3	0	0	3	50	50	100	3Hrs
2.	MDM	BMT6002	Biomedical Product and Prototype Design	2	0	0	2	50		50	
3.	PCC	BMT6003	Machine Learning for Healthcare	3	0	0	3	50	50	100	3Hrs
4.	PCC	BMP6003	Machine Learning for Healthcare Lab	0	0	2	1	50		50	
5.	PCC	BMT6004	Biomedical Image Processing	3	0	0	3	50	50	100	3Hrs
6.	PCC	BMP6004	Biomedical Image Processing Lab	0	0	2	1	50		50	
7.	PEC	BMT6005	Program Elective-II	3	0	0	3	50	50	100	3Hrs
8.	PEC	BMT6006	Program Elective-III	3	0	0	3	50	50	100	3Hrs
9.	VSEC	BMT6007	Soft skill Development	2	0	0	2	50		50	
10.	CEP	BMP6008	Project -II	0	0	4	2	50	50	100	
			TOTAL	19	0	8	23				

Exit Course Option for III year Bachelor Degree in B.Sc. (Eng./Tech)	
1	Internship in Centre for Microsystems	8
OR	
2	Internship at Biomedical Dept. of Hospitals	8

Program Elective – II

Course Code	Course Name	Course Code	Course Name
BMT6005-1	Molecular Biology	BMT6005-3	Fundamentals of Robotics
BMT6005-2	Bionanotechnology	BMT6005-4	Object Oriented Programming

Program Elective – III

Course Code	Course Name	Course Code	Course Name
BMT6006-1	Advanced Bioinformatics	BMT6006-3	RTOS for Embedded System
BMT6006-2	Reliability of Medical Equipments	BMT6006-4	Telemedicine

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Semester - VII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	BMT7001	Implants and Prostheses Design	3	0	0	3	50	50	100	3Hrs
2.	PCC	BMP7001	Implants and Prostheses Design Lab	0	0	2	1	50		50	
3.	PEC	BMT7002	Program Elective-IV	3	1	0	4	50	50	100	3Hrs
4.	PEC	BMT7003	Program Elective-V	3	1	0	4	50	50	100	3Hrs
5.	CEP	BMT7004	Research Methodology	3	1	0	4	50	50	100	3Hrs
6.	MDM	BMT7005	Hospital Engineering and Management	2	0	0	2	50	-	50	
7.	CEP	BMP7006	Project-III	0	0	4	2	50	50	100	
			TOTAL	14	3	6	20				

Program Specific Elective – IV		Program Specific Elective – V	
Course Code	Course Name	Course Code	Course Name
BMT7002-1	Programming in Bioinformatics	BMT7003-1	Tissue Engineering
BMT7002-2	Lab on chip Technologies	BMT7003-2	Biomedical Hazards and safety
BMT7002-3	Medical Robotics and Automation	BMT7003-3	Wearable Systems and Mobile Healthcare

(Semester - VIII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PEC	BMT8001	Program Elective-VI	3	0	0	3	50	50	100	3 Hrs
2.	PEC	BMT8002	Program Elective-VII	3	0	0	3	50	50	100	3 Hrs
3.	MDM	BMT8003	Data Visualization in Healthcare	2	0	0	2	50	50	100	2 Hrs
4.	CEP	BMP8004	Major Project	0	0	8	4	50	50	100	
			OR								
5.	CEP	BMP8005	Internship/On-job Training/Research Internship	0	0	0	12	100		100	3Hrs
			TOTAL	8	0	8	12				

Program Elective – VI		Program Elective – VII	
Course Code	Course Name	Course Code	Course Name
BMT8001-1	Healthcare Data Analytics	BMT8002-1	AI for Healthcare
BMT8001-2	Rehabilitation Engineering	BMT8002-2	Computer Analysis of Biomedical Images
BMT8001-3	Bioinspired Robotics	BMT8002-3	Reliability of Medical Equipments

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Honors Specialization)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	BMTH3100	Biological Data and Databases	3	0	0	3	50	50	100	3Hrs
2.	IV	BMTH4100	Computational Biology and Bioinformatics	3	0	0	3	50	50	100	3Hrs
3.	V	BMTH5100	Programming in Bioinformatics	3	0	0	3	50	50	100	3Hrs
4.	VI	BMTH6100	Computer Aided Drug design and Chemoinformatics	3	0	0	3	50	50	100	3Hrs
5.	VII	BMPH7100	Minor Project (Honors and Multidisciplinary Minor)	6	0	0	6	50		50	
				18	0	0	18				
6.	VIII	BMPH 8100	Major Research Project for Honor with Research and Multidisciplinary Minor	12	0	0	12	100		100	
			TOTAL	12	0	0	12				

Teaching Scheme for Bachelor of Technology
B. Tech. (Biomedical Engineering)
(Minors Specialization)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	BMTM3100	Cell Biology	3	0	0	3	50	50	100	3Hrs
2.	IV	BMTM4100	Structural Biology	3	0	0	3	50	50	100	3Hrs
3.	V	BMTM5100	Bioinformatics	3	0	0	3	50	50	100	3Hrs
4.	VI	BMTM6100	Computational Biology	3	0	0	3	50	50	100	3Hrs
5.	VII	BMPM7100	Minor Project	6	0	0	6	50	50	50	
			TOTAL	18	0	0	18				

Open Electives for Other Department Students

OE-I-BMT2980	OE-II BMT2990	OE-III BMT3980
Biomedical Systems (4 credit)	Bioinformatics (2 credit)	Computational Biology (2credit)

Teaching Scheme and Examination for Bachelor of Technology (Civil Engineering)
Semester - I

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
PHT 1004	BSC-T	Physics for Civil Engineering	2	1	0	3	50	50	100	3	0	0
PHP 1004	BSC-P	Physics for Civil Engineering Lab	0	0	2	1	0	0	0	0	25	25
MAT1001	BSC-T	Applied Mathematics-I	2	1	0	3	50	50	100	3	0	0
MAP1001	BSC-P	Computation Mathematics Lab	0	0	2	1	0	0	0	0	25	25
CET1001	PCC-T	Infrastructure Components	1	0	0	1	50	0	50	0	0	0
CET1002	ESC-T	Basics of Surveying	2	0	0	2	50	50	100	2	0	0
CEP1002	ESC-P	Basics of Surveying Lab	0	0	2	1	0	0	0	0	25	25
CET1003	PCC-T	Building Services	2	0	0	2	50	50	100	2	0	0
CEP1004	VSEC	Conceptual Drawing and Drafting	0	0	4	2	0	0	0	0	25	25
HUT1002	AEC-T	English for Professional Communication	2	0	0	2	50	50	100	2	0	0
HUP1002	AEC-P	English for Professional Communication Lab	0	0	2	1	0	0	0	0	25	25
HUP1003-1 to HUP1003-10, PEP0001-21-22 and CHP0001-31-32*	CC-P	Liberal/Performing Art	0	0	2	1	0	0	0	0	25	25
HUT1004	VEC	Foundation course in Universal Human Values	1	0	0	1	50	0	0	0	0	0
		TOTAL	12	2	14	21	350	250	550	12	150	150

Teaching Scheme and Examination for Bachelor of Technology (Civil Engineering)
Syllabus and Scheme for Liberal/Performing arts basket

Sr. No.	Course Code	Course Name	Sem.	Hours/ Week	Credit	Max Marks Cont. Eval.	Department
1)	HUP0001-1	Fundamentals of Indian Classical Dance: Bharatnatayam	I/II	2	1	50	Humanities
2)	HUP0001-2	Fundamentals of Indian Classical Dance: Kathak	I/II	2	1	50	Humanities
3)	HUP0001-3	Introduction to Digital Photography	I/II	2	1	50	Humanities
4)	HUP0001-4	Introduction to Japanese Language and Culture	I/II	2	1	50	Humanities
5)	HUP0001-5	Art of Theatre	I/II	2	1	50	Humanities
6)	HUP0001-6	Introduction to French Language	I/II	2	1	50	Humanities
7)	HUP0001-7	Introduction to Spanish Language	I/II	2	1	50	Humanities
8)	HUP0001-8	Art of Painting	I/II	2	1	50	Humanities
9)	HUP0001-9	Art of Drawing	I/II	2	1	50	Humanities
10)	HUP0001-10	Nature camp	I/II	2	1	50	Humanities
11)	PEP0001-21	Disaster Management through Adventure Sports	I/II	2	1	50	Physical Education
12)	PEP0001-22	Self-defense Essentials and Basics Knowledge of Defense forces	I/II	2	1	50	Physical Education
13)	CHP0001-31	Art of Indian traditional cuisine	I/II	2	1	50	Chemistry
14)	CHP0001 -32	Remedies by Ayurveda	I/II	2	1	50	Chemistry

Teaching Scheme and Examination for Bachelor of Technology
(Civil Engineering)
Semester - II

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
CHT2001	BSC-T	Engineering Chemistry for Civil Engineers	2	0	0	2	50	50	100	2	0	0
CHP 2001	BSC-P	Engineering Chemistry for Civil Engineers Lab	0	0	2	1	0	0	0	0	25	25
MAT2001	BSC-T	Applied Mathematics-II	2	1	0	3	50	50	100	3	0	0
CET2001	ESC-T	Construction Materials	3	0	0	3	50	50	100	3		
CEP2001	ESC-P	Construction Materials Lab	0	0	2	1	0	0	0	0	25	25
CET2002	ESC-T	Engineering Mechanics	3	1	0	4	50	50	100	3	0	0
CET2003	ESC-T	Programming for Civil Engineers	2	0	0	2	50	50	100	2		
CEP2003	VESC	Application of python in Civil Engineering	0	0	2	1	0	0	0	0	25	25
HUT2001	IKS-T	Foundation literature of Indian civilization	2	0	0	2	50	50	100	2	0	0
PET2001	CC-T	Yoga/Sports Recreation	1	0	0	1	50	0	50	0	0	0
PEP2001	CC-P	Yoga/Sports Recreation	0	0	2	1	0	0	0	0	25	25
		TOTAL	15	2	8	21	350	300	650	15	100	100

Exit Option

Option 1	Infrastructure/Real Estate/Industry Internship (1 Month)	0	0	0	8	Industry Internship completion certificate along with report
Option 2	Mini Project with report (1 Month)	0	0	0	8	Mini project report to be assessed by supervisor

Teaching Scheme and Examination for Bachelor of Technology
(Civil Engineering)
Semester - III

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
CET3001	PCC-T	Fluid Mechanics I	2	0	0	2	50	50	100	2	0	0
CEP3001	PCC-P	Fluid Mechanics I	0	0	2	1	0	0	0	0	25	25
CET3002	PCC-T	Geotechnical Engineering	2	0	0	2	50	50	100	2	0	0
CEP3002	PCC-P	Geotechnical Engineering	0	0	2	1	0	0	0	0	25	25
CET3003	PCC-T	Solid Mechanics	2	0	0	2	50	50	100	2	0	0
CEP3003	PCC-P	Solid Mechanics	0	0	2	1	0	0	0	0	25	25
CET3004	PCC-T	Concrete mix design	2	0	0	2	50	50	100	2	0	0
CETM3005	MDM-T	Basic of Electrical Engineering	2	0	0	2	50	50	100	2	0	0
CET2980	OE-T	Open Elective - I	2	0	0	2	50	50	100	2	0	0
CET3006	MGMT-T	Finance Management for Civil	2	0	0	2	50	50	100	2	0	0
CET3007	VEC-T	Digital Technologies	2	0	0	2	50	50	100	2	0	0
CEP3008	FP-P	Site Visit / Mini Project	0	0	4	2	0	0	0	0	25	25
		TOTAL	16	0	10	21	400	400	800	16	100	100

Teaching Scheme and Examination for Bachelor of Technology
(Civil Engineering)
Semester - IV

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
CET4001	PCC-T	Structural Analysis	2	0	0	2	50	50	100	2	0	0
CEP4001	PCC-P	Structural Analysis	0	0	2	1	0	0	0	0	25	25
CET4002	PCC-T	Environmental Engineering - I	2	0	0	2	50	50	100	2	0	0
CEP4002	PCC-P	Environmental Engineering - I	0	0	2	1	0	0	0	0	25	25
CET4003	PCC-T	Reinforced Concrete Structures	2	1	0	3	50	50	100	3	0	0
CETM4004	MDM-T	Automation in Civil Engineering	2	0	0	2	50	50	100	2	0	0
CET2990	OE-T	Open Elective - II	3	0	0	3	50	50	100	3	0	0
CEP4005	VSEC-P	Drawing Assessment & calculation	0	0	2	1	50	50	100	2	0	0
CET4006	AEC-T	Technical Report Writing	2	0	0	2	50	50	100	2	0	0
CET4007	MGMT-T	Contracts Account and Work Management	2	0	0	2	50	50	100	3	0	0
CET4008	VEC-T	Geography and Informatics	2	0	0	2	50	50	100	2	0	0
		TOTAL	17	1	6	21	450	450	900	20	50	50

Exit Option

Option 1	Infrastructure/Real Estate/Industry Internship (1 Month)	0	0	0	8	Industry Internship completion certificate along with report
Option 2	Mini Project with report (1 Month)	0	0	0	8	Mini project report to be assessed by supervisor

Teaching Scheme and Examination for Bachelor of Technology
(Civil Engineering)
Semester - V

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
CET5001	PCC-T	Transportation Engineering	2	0	0	2	50	50	100	2	0	0
CEP5001	PCC-P	Transportation Engineering	0	0	2	1	0	0	0	0	25	25
CET5002	PCC-T	Foundation Engineering	3	0	0	3	50	50	100	3	0	0
CET5003	PCC-T	Environmental Engineering - II	2	0	0	2	50	50	100	2	0	0
CEP5003	PCC-P	Environmental Engineering - II	0	0	2	1	0	0	0	0	25	25
CET5004	PCC-T	Irrigation Engineering	2	1	0	3	50	50	100	3	0	0
CET5005	PEC-T	Program Elective - I	2	1	0	3	50	50	100	3	0	0
CEP5005	PEC-P	Program Elective - I	0	0	2	1	0	0	0	0	25	25
CETM5006	MDM-T	Innovations in Civil Engineering	2	1	0	3	50	50	100	3	0	0
CET3980	OE-T	Open Elective - III	3	0	0	3	50	50	100	2	0	0
		TOTAL	16	3	6	22	350	350	700	18	75	75

Semester - VI

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
CET6001	PCC-T	Estimating & Costing	3	0	0	3	50	50	100	3	0	0
CET6002	PCC-T	Design of Steel Structures	3	0	0	3	50	50	100	3	0	0
CET6003	PCC-T	Fluid Mechanics - II	2	0	0	2	50	50	100	2	0	0
CEP6003	PCC-P	Fluid Mechanics - II	0	0	2	1	0	0	0	0	25	25
CET6004	PEC-T	Program Elective - II	2	1	0	3	50	50	100	3	0	0
CEP6004	PEC-P	Program Elective - II	0	0	2	1	0	0	0	0	25	25
CET6005	PEC-T	Program Elective - III	3	1	0	4	50	50	100	3	0	0
CETM6006	MDM-T	Remote Sensing & GIS	2	0	0	2	50	50	100	2	0	0
CET6007	VSEC-T	Computed Aided Design in Civil Engineering	1	0	4	3	50	50	100	0	25	25
		TOTAL	16	2	8	22	350	350	700	16	75	75

Exit Option

Option 1	Infrastructure/Real Estate/Industry Internship (1 Month)	0	0	0	8	Industry Internship completion certificate along with report
Option 2	Minor Project with report (1 Month)	0	0	0	8	Mini project report to be assessed by supervisor

Teaching Scheme and Examination for Bachelor of Technology
(Civil Engineering)
Semester - VII

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
CET7001	PCC-T	Hydrology and Water Resources	3	0	0	3	50	50	100	3	0	0
CET7002	PCC-T	Construction Engineering & Management	3	0	0	3	50	50	100	3	0	0
CET7003	PEC-T	Elective - IV	3	0	0	3	50	50	100	3	0	0
CEP7003	PEC-P	Elective - IV	0	0	2	1				0	50	50
CET7004	PEC-T	Elective - V	3	0	0	3	50	50	100	3	0	0
CETM7005	MDM-T	Metro Rail Transportation Design and Construction	2	0	0	2	50	50	100	2	0	0
CET7006	RM-T	Research Methodology	3	0	0	3	50	50	100	3	0	0
CEP7007	Project-P	Minor Project	0	0	8	4	0	0	0	0	50	50
		TOTAL	**17**	**0**	**10**	**22**	**300**	**300**	**600**	**17**	**50**	**50**

Semester - VIII

Course Code	Category	Course Name	Hours/week			Credits	Theory Course				Practical Course	
			L	T	P		CA	ESE	Total	ESE Duration	LA-1	LA-2
Option 1 - Project												
CEP8001	Project-P	Major Project	0	0	12	6	0	0	0	0	100	100
CET8002	PCC-T	Retrofitting & Rehabilitation of Civil Infrastructure	3	0	0	3	50	50	100	3	0	0
CET8003	PCC-T	Advanced Construction Materials	3	0	0	3	50	50	100	3	0	0
Option 2 – Industry Internship												
CEP8004	II-P	Industry Internship	0	0	24	12	0	0	0	0	100	100
Option 3 - Research Internship												
CEP8005	RI-P	Research Internship	0	0	18	9	0	0	0	0	100	100
CET8006	PCC	MOOC/Classwork suggested by Supervisor	3	0	0	3	50	50	100	3	0	0
Option 4 - TBI Internship												
CEP8007	TBI	TBI Internship	0	0	24	12	0	0	0	0	100	100
		TOTAL	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**100**	**100**

Breakup of Semester wise Credits

Semester	Lecture	Tutorial	Practical	Credits
1	12	2	14	21
2	15	2	8	21
3	16	0	10	21
4	17	1	6	21
5	16	3	6	22
6	16	2	8	22
7	17	0	10	22
8	0	0	24	12
Total	**109**	**10**	**86**	**162**

Teaching Scheme for Bachelor of Technology
B. Tech. (Computer Science Engineering)

(Semester - I)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	CHT1001	Chemistry of Smart Materials	2	0	0	2	50	50	100	2 Hrs.
2.	BSC	CHP1001	Chemistry of Smart Materials Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT1002	Calculus	3	0	0	3	50	50	100	3 Hrs.
4.	ESC	CST1001	Digital Electronics	3	0	0	3	50	50	100	3 Hrs.
5.	ESC	CSP1001	Digital Electronics Lab	0	0	2	1	50	-	50	-
6.	ESC	CST1002	Programming for problem solving	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CSP1002	Programming for problem solving Lab	0	0	2	1	50	-	50	-
8.	VSEC	CST1003	Computer Workshop – I	1	0	0	1	50	-	50	-
9.	VSEC	CSP1003	Computer Workshop – I Lab	0	0	2	1	50	-	50	-
10.	IKS	HUT1001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs.
11.	CCA	PET1001	Sports-Yoga-Recreation	1	0	0	1	50	-	50	-
12.	CCA	PEP1001	Sports-Yoga-Recreation Lab	0	0	2	1	50	-	50	-
			TOTAL	**15**	**0**	**10**	**20**			**850**	-

Teaching Scheme for Bachelor of Technology
B. Tech. (Computer Science Engineering)

(Semester - II)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	PHT2001	Introduction to Quantum Computing	2	1	0	3	50	50	100	3 Hrs.
2.	BSC	PHP2001	Introduction to Quantum Computing Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT2002	Discrete Mathematics	3	0	0	3	50	50	100	3 Hrs.
4.	BSC	MAP2001	Computational Mathematics Lab	0	0	2	1	50	-	50	-
5.	BSC	CHT2007	Bioinformatics	2	0	0	2	50	50	100	2 Hrs.
6.	ESC	CST2001	Object Oriented Programming	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CSP2001	Object Oriented Programming Lab	0	0	2	1	50	-	50	-
8.	PCC	CST2002	Computer Architecture	2	0	0	2	50	50	100	2 Hrs.
9.	VSEC	CST2003	Computer Workshop – II	1	0	0	1	50	-	50	-
10.	VSEC	CSP2003	Computer Workshop – II Lab	0	0	2	1	50	-	50	-
11.	AEC	HUT2002	English for Professional Communication	2	0	0	2	50	50	100	2 Hrs.
12.	AEC	HUP2002	English for Professional Communication Lab	0	0	2	1	50	-	50	-
13.	CCA	HUP0001	Liberal/Performing Art	0	0	2	1	50	-	50	-
14.	VEC	HUT2004	Foundational Course in Universal Human Values	1	0	0	1	50	-	50	-
			TOTAL	**16**	**1**	**12**	**23**			**1000**	-

Exit option : Award of UG Certificate in Major with 43 credits and an additional 8 credits.			
	Exit Courses		
1	Web Designer	On line/offline certification Course	8
2	IT Support Engineer		8
3	Certified Programmer (language learned in Sem-1 and/or Sem-2 [C,C++,Java, Python])		8

Teaching Scheme for Bachelor of Technology
B. Tech. (Computer Science Engineering)
(Semester - III)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CST3001	Data Structures	3	1	0	4	50	50	100	3 Hrs.
2.	PCC	CSP3001	Data Structures Lab	0	0	2	1	50	-	50	-
3.	PCC	CST3002	Theory of Computation	3	0	0	3	50	50	100	3 Hrs.
4.	MDM	MAT3002	Probability and Statics	3	0	0	3	50	50	100	3 Hrs.
5.	OE	CST2980	Open Elective-I	4	0	0	4	50	50	100	3 Hrs.
6.	AEC	HUT3001	Business Communication	2	0	0	2	50	50	100	2 Hrs.
7.	EEM	CSP3004	Idea Lab	0	0	4	2	50	-	50	-
8.	VEC	CST3003	Cyber Laws and Ethic in IT	2	0	0	2	50	50	100	2 Hrs.
9.	VSEC	CSP3005	Software Laboratory – I	0	0	4	2	50	-	50	-
			TOTAL	17	1	10	23			750	

(Semester - IV)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CST4001	Operating Systems	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CSP4001	Operating Systems Lab	0	0	2	1	50	-	50	--
3.	PCC	CST4002	Design and Analysis of Algorithms	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CST4003	Software Engineering	3	0	0	3	50	50	100	3 Hrs.
5.	PCC	CSP4003	Software Engineering Lab	0	0	2	1	50	-	50	--
6.	MDM	MAT4001	Linear Algebra	3	0	0	3	50	50	100	3 Hrs.
7.	OE	CST2990	Open Elective-II	2	0	0	2	50	50	100	2 Hrs.
8.	VSEC	CSP4004	Software Laboratory – II	0	0	2	1	50	-	50	--
9.	EEM	HUT4003	Managerial Economics	2	0	0	2	50	50	100	2 Hrs.
10.	VEC	HUT4002	Environmental Education	2	0	0	2	50	50	100	2 Hrs.
11.	CEP	CSP4005	Community Engagement Project	0	0	4	2	50	-	50	--
			TOTAL	18	0	10	23			900	

Exit option : Award of UG Diploma in Major with 89 credits and an additional 8 credits		
Exit Courses		
1	Application Development (Android)	Online/offline certification Course	8
2	Certified software Engineer (Devop)		8

Teaching Scheme for Bachelor of Technology
B. Tech. (Computer Science Engineering)

(Semester - V)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CST5001	Database Management System	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CSP5001	Database Management System Lab	0	0	2	1	50	-	50	--
3.	PCC	CST5002	Compiler Design	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CSP5002	Compiler Design Lab	0	0	2	1	50	-	50	--
5.	PCC	CST5003	Artificial Intelligence	3	0	0	3	50	50	100	3 Hrs.
6.	PCC	CSP5003	Artificial Intelligence Lab	0	0	2	1	50	-	50	--
7.	MDM	CST5004	Data Handling and Visualization	3	0	0	3	50	50	100	3 Hrs.
8.	MDM	CSP5004	Data Handling and Visualization Lab	0	0	2	1	50	-	50	--
9.	PEC	CST5005	Program Elective-I	3	0	0	3	50	50	100	3 Hrs.
10.	OE	CST3980	Open elective-III	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**17**	**0**	**08**	**21**			**800**	

(Semester - VI)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CST6001	Machine Learning	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CSP6001	Machine Learning Lab	0	0	2	1	50	-	50	--
3.	PCC	CST6002	Computer Network	3	0	0	3	50	50	100	3 Hrs.
4.	PEC	CSP6002	Computer Network Lab	0	0	2	1	50	-	50	--
5.	PCC	CST6003	Design Pattern	3	0	0	3	50	50	100	3 Hrs.
6.	PEC	CST6004	Program Elective –II	3	0	0	3	50	50	100	3 Hrs.
7.	PEC	CST6005	Program Elective –III	3	0	0	3	50	50	100	3 Hrs.
8.	PEC	CSP6005	Program Elective -III Lab	0	0	2	1	50	-	50	--
9.	MDM	CST6006	Customer Relationship Management	2	0	0	2	50	50	100	2 Hrs.
10.	VSEC	CSP6007	Mini Project	0	0	4	2	25	25	50	--
			TOTAL	**17**	**0**	**10**	**22**			**800**	

Exit option : Award of UG Degree in Major with 132 credits and an additional 8 credits			
Exit Courses			
1	Certified Network Engineer (CCNA,CISCO)	Online/offline certification Course	8
2	Certified Database Engineer (Oracle, DB2)		8
3	Certified Cloud Engineer (AWS, AZURE)		8

Teaching Scheme for Bachelor of Technology
B. Tech. (Computer Science Engineering)
(Semester - VII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CST7001	Cloud Computing	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CSP7001	Cloud Computing Lab	0	0	2	1	50	-	50	--
3.	PEC	CST7002	Program Elective-IV	3	0	0	3	50	50	100	3 Hrs.
4.	PEC	CSP7002	Program Elective-IV Lab	0	0	2	1	50	-	50	--
5.	PCC	CST7003	Deep Learning	3	0	0	3	50	50	100	3 Hrs.
6.	PCC	CSP7003	Deep Learning Lab	0	0	2	1	50	-	50	--
7.	MDM	CST7004	Financial Data Analysis	2	0	0	2	50	50	100	2 Hrs.
8.	CEP	CSP7005	Major Project-1	0	0	8	4	50	50	100	--
			TOTAL	11	0	14	18			650	

(Semester - VIII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PEC	CST8001	Program Elective-V	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	CST8002	Program Elective-VI	3	0	0	3	50	50	100	3 Hrs.
3.	CEP	CSP8003	Major Project-2	0	0	12	6	50	50	100	--
			OR								
1.	PEC	CST8004	Research Methodology	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	CST8001	Program Elective-V	3	0	0	3	50	50	100	3 Hrs.
3.	CEP	CSP8005	Research Project	0	0	12	6	50	50	100	--
			OR								
1.	INTR	CSP8006	Industry Internship	0	0	24	12	100	100	200	

Teaching Scheme for Bachelor of Technology
B. Tech. (Computer Science Engineering)
Electives Basket

Micro Specialization	Elective-I	Elective-II	Elective-III	Elective -IV	Elective-V	Elective -VI
AI/ML	Internet of Things	Image Processing	Natural Language Processing	Generative Adversarial Network	Reinforcement Learning	Robotics & Intelligent Systems
Distributed and Cloud Systems	Distributed Systems	Data Warehousing & Mining	Big Data Analytics	Blockchain and Distributed Ledger Technology	Smart Contract Essentials	Design and Development of Blockchain Applications
Security	Network Security	Intrusion Detection and Prevention System,	Basics of Ethical Hacking	Vulnerability Assessment and Penetration Testing	Cyber security:Risk Management	Cyber and Digital Forensics
General	System Design	Robotics Process Automation	Software Testing	Information Retrieval	Bioinspired Intelligent Systems	Social Network Analytics

Open Electives Basket

List of Open Electives		
Sr. No.	Course Code	Course Name
Open Elective-I	CST2980	Object Oriented Programming
Open Elective-II	CST2990	Web Development
Open Elective -III	CST3980	Cloud Computing

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Artificial Intelligence and Machine Learning)
(Semester - I)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	CHT1001	Chemistry of Smart Materials	2	0	0	2	50	50	100	2 Hrs.
2.	BSC	CHP1001	Chemistry of Smart Materials Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT1002	Calculus	3	0	0	3	50	50	100	3 Hrs.
4.	ESC	CAT1001	Digital Electronics	3	0	0	3	50	50	100	3 Hrs.
5.	ESC	CAP1001	Digital Electronics Lab	0	0	2	1	50	-	50	-
6.	ESC	CAT1002	Programming for Problem Solving	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CAP1002	Programming for Problem Solving Lab	0	0	2	1	50	-	50	-
8.	VSEC	CAT1003	Computer Workshop – I	1	0	0	1	50	-	50	-
9.	VSEC	CAP1003	Computer Workshop – I Lab	0	0	2	1	50	-	50	-
10.	HSSM -IKS	HUT1001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs. -
11.	CCA	PET1001	Sports-Yoga- Recreation	1	0	0	1	50	-	50	-
12.	CCA	PEP1001	Sports-Yoga- Recreation	0	0	2	1	50	-	50	-
			TOTAL	**15**	**0**	**10**	**20**			**850**	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Artificial Intelligence and Machine Learning)
(Semester - II)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	BSC	PHT2001	Introduction to Quantum Computing	2	1	0	3	50	50	100	3 Hrs.
2.	BSC	PHP2001	Quantum Computing Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT2002	Discrete Mathematics	3	0	0	3	50	50	100	3 Hrs.
4.	BSC	MAP2001	Computational Mathematics Lab	0	0	2	1	50	-	50	-
5.	BSC	CHT2007	Bioinformatics	2	0	0	2	50	50	100	2 Hrs.
6.	ESC	CAT2001	Object Oriented Programming	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CAP2001	Object Oriented Programming Lab	0	0	2	1	50	-	50	-
8.	PCC	CAT2002	Computer Architecture	2	0	0	2	50	50	100	2 Hrs.
9.	VSEC	CAT2003	Computer Workshop- II	1	0	0	1	50	-	50	-
10.	VSEC	CAP2003	Computer Workshop – II Lab	0	0	2	1	50	-	50	-
11.	AEC	HUT2002	English for Professional Communication	2	0	0	2	50	50	100	2 Hrs.
12.	AEC	HUP2002	English for Professional Communication Lab	0	0	2	1	50	-	50	-
13	CCA	HUP0001	Liberal/Performing Art	0	0	2	1	50	-	50	-
14.	VEC	HUT2004	Foundational Course in Universal Human Values	1	0	0	1	50	-	50	-
			TOTAL	**16**	**1**	**12**	**23**			**1000**	

Sr. No.	Course Code	Course Name	Hours/ week	Credits	Maximum marks
1.	HUP0001-1	Fundamentals of Indian Classical Dance: Bharatnatayam	2	1	50
2.	HUP0001-2	Fundamentals of Indian Classical Dance: Kathak	2	1	50
3.	HUP0001-3	Introduction to Digital Photography	2	1	50
4.	HUP0001-4	Introduction to Japanese Language and Culture	2	1	50
5.	HUP0001-5	Art of Theatre	2	1	50
6.	HUP0001-6	Introduction to French Language	2	1	50
7.	HUP0001-7	Introduction to Spanish Language	2	1	50
8.	HUP0001-8	Art of Painting	2	1	50
9.	HUP0001-9	Art of Drawing	2	1	50
10.	HUP0001-10	Nature Camp	2	1	50
11.	PEP0001-21	Disaster Management Through Adventure Sports	2	1	50
12.	PEP0001-22	Self-Défense Essentials and Basics Knowledge of Défense Forces	2	1	50
13.	CHP0001-31	Art of Indian Traditional Cuisine	2	1	50
14.	CHP0001-32	Introduction to Remedies by Ayurveda	2	1	50

Exit option: Award of UG Certificate in Major with 43 credits and an additional 8 credits.			
Exit Courses			
1.	Web Designer	Online/offline certification Course	8
2.	IT Support Engineer		8
3.	Certified Programmer (language learned in Sem-1 and/or Sem-2 [C ,C++,Java, Python])		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Artificial Intelligence and Machine Learning)
(Semester - III)

Sr. No.	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	CAT3001	Data Structures	3	1	0	4	50	50	100	3 Hrs.
2.	CAP3001	Data Structures Lab	0	0	2	1	50	-	50	-
3.	CAT3002	Operating Systems	3	0	0	3	50	50	100	3 Hrs.
4.	CAP3002	Operating Systems Lab	0	0	2	1	50	-	50	-
5.	CAP3003	Software Lab-I	0	0	4	2	50	-	50	-
6.	MAT4001	Probability and Statistics	3	0	0	3	50	50	100	3 Hrs.
7.	Open Elective	Open Elective I	4	0	0	4	50	50	100	3 Hrs.
8.	CAP3004	Idea Lab	0	0	4	2	50	-	50	-
9.	CAT3005	Cyber Law and Ethics	2	0	0	2	50	50	100	2 Hrs.
10.	HUT3001	Business Communication	2	0	0	2	50	50	100	2 Hrs.
		TOTAL	**17**	**1**	**12**	**24**			**800**	

(Semester - IV)

Sr. No.	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	CAT4001	Artificial Intelligence	3	0	0	3	50	50	100	3 Hrs.
2.	CAP4001	Artificial Intelligence Lab	0	0	2	1	50	-	50	-
3.	CAT4002	Design and Analysis of Algorithms	3	0	0	3	50	50	100	3 Hrs.
4.	CAT4003	Theory of Computation	3	0	0	3	50	50	100	3 Hrs.
5.	MAT4001	Linear Algebra	3	0	0	3	50	50	100	3 Hrs.
6.	Open Elective	Open Elective II	2	0	0	2	50	50	100	2 Hrs.
7.	CAP4004	Software Lab-II	0	0	2	1	50	-	50	-
8.	CAP4005	Software Lab-III	0	0	2	1	50	-	50	-
9.	CAP4006	Community Engagement Project	0	0	4	2	50	-	50	-
10.	HUT4003	Environmental Education	2	0	0	2	50	50	100	2 Hrs.
11.	HUT4004	Managerial Economics	2	0	0	2	50	50	100	2 Hrs.
		TOTAL	**18**	**0**	**10**	**23**			**900**	

Exit option : Award of UG Diploma in Major with 90 credits and an additional 8 credits		
Exit Courses		
1	Application Development (Android)	Online/offline certification Course	8
2	Certified software Engineer (Devop)		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Artificial Intelligence and Machine Learning)
(Semester - V)

Sr. No.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
			L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	CAT5001	Machine Learning	3	0	0	3	50	50	100	3 Hrs.
2.	CAP5001	Machine Learning Lab	0	0	2	1	50	-	50	-
3.	CAT5002	Computer Networks	3	0	0	3	50	50	100	3 Hrs.
4.	CAP5002	Computer Networks Lab	0	0	2	1	50	-	50	-
5.	CAT5003	Database Management Systems	3	0	0	3	50	50	100	3 Hrs.
6.	CAP5003	Database Management Systems Lab	0	0	2	1	50	-	50	-
7.	CAT5004	Program Elective-1	3	0	0	3	50	50	100	3 Hrs.
8.	CAT5005	Microcontroller Design	3	0	0	3	50	50	100	3 Hrs.
9.	CAP5005	Microcontroller Design Lab	0	0	2	1	50	-	50	-
10.	Open Elective	Open Elective III	2	0	0	2	50	50	100	2 Hrs.
		TOTAL	17	0	8	21			800	

(Semester - VI)

Sr. No.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
			L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	CAT6001	Deep Learning-I	3	0	0	3	50	50	100	3 Hrs.
2.	CAP6001	Deep Learning-I Lab	0	0	2	1	50	-	50	-
3.	CAT6002	Computer Vision	3	0	0	3	50	50	100	3 Hrs.
4.	CAP6002	Computer Vision Lab	0	0	2	1	50	-	50	-
5.	CAT6003	Program Elective-2	3	0	0	3	50	50	100	3 Hrs.
6.	CAP6003	Program Elective-2 Lab	0	0	2	1	50	-	50	-
7.	CAT6004	Program Elective-3	3	0	0	3	50	50	100	3 Hrs.
8.	CAP6004	Program Elective-3 Lab	0	0	2	1	50	-	50	-
9.	CAT6005	Internet of Things	2	0	0	2	50	50	100	2 Hrs.
10.	CAP6006	Mini Project	0	0	4	2	25	25	50	-
		TOTAL	14	0	12	20			750	

Exit option : Award of UG Degree in Major with 131 credits and an additional 8 credits		
Exit Courses		
1	Certified Network Engineer (CCNA,CISCO)		8
2	Certified Database Engineer (Oracle, DB2)	Online/offline certification Course	8
3	Certified Cloud Engineer (AWS, AZURE)		8
4	Certified AIML Engineer		8
5	Certified Data Science Engineer		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Artificial Intelligence and Machine Learning)
(Semester - VII)

Sr. No.	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	CAT7001	Deep Learning-II	3	0	0	3	50	50	100	3 Hrs.
2.	CAP7001	Deep Learning-II Lab	0	0	2	1	50	-	50	-
3.	CAT7002	Cloud Computing	3	0	0	3	50	50	100	3 Hrs.
4.	CAP7002	Cloud Computing Lab	0	0	2	1	50	-	50	-
5.	CAT7003	Data Analytics & Visualization	1	0	0	1	50	-	50	-
6.	CAP7003	Data Analytics & Visualization Lab	0	0	2	1	50	-	50	-
7.	CAT7004	Program Elective-4	3	0	0	3	50	50	100	3 Hrs.
8.	CAT7005	Robotics and Intelligent Systems	2	0	0	2	50	50	100	2 Hrs.
9.	CAP7006	Major Project-1	0	0	8	4	50	50	100	-
		TOTAL	**12**	**0**	**14**	**19**			**700**	

(Semester - VIII)

Sr. No.	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	CAT8001	Program Elective-5	3	0	0	3	50	50	100	3 Hrs.
2.	CAT8002	Program Elective-6	3	0	0	3	50	50	100	3 Hrs.
3.	CAP8003	Major Project-2	0	0	12	6	50	50	100	-
		OR								
1.	CAT8001	Program Elective-5	3	0	0	3	50	50	100	3 Hrs.
2.	CAT8004	Research Methodology	3	0	0	3	50	50	100	2 Hrs.
3.	CAT8005	Research Project	0	0	12	6	50	50	100	-
		OR								
1.	INTR-801	Industry Internship	0	0	24	12	100	100	200	-

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Artificial Intelligence and Machine Learning)
Electives Basket

Elective-I	Elective-II	Elective-III	Elective-IV	Elective-V	Elective-VI
Software Engineering	Natural Language Processing	Customer Relationship Management	Big Data Analytics	Human Computer Interaction	Financial Analysis
Design Pattern	Data Mining and Warehousing	Software Testing	Reinforcement Learning	Generative Adversarial Network	Time Series Analysis
Robotic Process Automation	Compiler Design	Blockchain Technology	System Design	Information Retrieval	Edge Computing

List of Open Electives

Sr. No.	Subject Code	Name of Subject
Open Elective-I	CAT3006	Statistical Computing with R
Open Elective-II	CAT4007	Fundamentals of Machine Learning
Open Elective-III	CAT5006	Big Data Analytics

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - I)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	CHT1001	Chemistry of Smart Materials	2	0	0	2	50	50	100	2 Hrs.
2.	BSC	CHP1001	Chemistry of Smart Materials Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT1002	Calculus	3	0	0	3	50	50	100	3 Hrs.
4.	ESC	CCT1001	Digital Electronics	3	0	0	3	50	50	100	3 Hrs.
5.	ESC	CCP1001	Digital Electronics Lab	0	0	2	1	50	-	50	-
6.	ESC	CCT1002	Programming for problem solving	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CCP1002	Programming for problem solving Lab	0	0	2	1	50	-	50	-
8.	VSEC	CCT1003	Computer Workshop – I	1	0	0	1	50	-	50	-
9.	VSEC	CCP1003	Computer Workshop – I Lab	0	0	2	1	50	-	50	-
10.	HSSM -IKS	HUT1001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs. -
11.	CCA	PET1001	Sports-Yoga-Recreation	1	0	0	1	50	-	50	-
12.	CCA	PEP1001	Sports-Yoga-Recreation Lab	0	0	2	1	50	-	50	-
			TOTAL	15	0	10	20			850	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - II)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	PHT2001	Introduction to Quantum Computing	2	1	0	3	50	50	100	3 Hrs.
2.	BSC	PHP2001	Introduction to Quantum Computing Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT2002	Discrete Mathematics	3	0	0	3	50	50	100	3 Hrs.
4.	BSC	MAP2001	Computational Mathematics Lab	0	0	2	1	50	-	50	-
5.	BSC	CHT2007	Bioinformatics	2	0	0	2	50	50	100	2 Hrs.
6.	ESC	CCT2001	Object Oriented Programming	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CCP2001	Object Oriented Programming Lab	0	0	2	1	50	-	50	-
8.	PCC	CCT2002	Computer Architecture	2	0	0	2	50	50	100	2 Hrs.
9.	VSEC	CCT2003	Computer Workshop- II	1	0	0	1	50	-	50	-
10.	VSEC	CCP2003	Computer Workshop – II Lab	0	0	2	1	50	-	50	-
11.	AEC	HUT2002	English for Professional Communication	2	0	0	2	50	50	100	2 Hrs.
12.	AEC	HUP2002	English for Professional Communication Lab	0	0	2	1	50	-	50	-
13	CCA	HUP0001	Liberal/Performing Art	0	0	2	1	50	-	50	-
14.	VEC	HUT2004	Foundational Course in Universal Human Values	1	0	0	1	50	-	50	-
			TOTAL	**16**	**1**	**12**	**23**	**700**	**300**	**1000**	

List of courses offered under the Basket of Liberal Arts (HUP0001)

Course Code	Course Name
HUP0001-1	Fundamentals of Indian Classical Dance: Bharatnatayam
HUP0001-2	Fundamentals of Indian Classical Dance: Kathak
HUP0001-3	Introduction to Digital Photography
HUP0001-4	Introduction to Japanese Language and Culture
HUP0001-5	Art of Theatre
HUP0001-6	Introduction to French Language
HUP0001-7	Introduction to Spanish Language
HUP0001-8	Art of Painting
HUP0001-9	Art of Drawing
HUP0001-10	Nature camp
PEP0001-21	Disaster Management through Adventure Sports
PEP0001-22	Self-defense Essentials and Basics Knowledge of Defense forces
CHP0001-31	Art of Indian traditional cuisine
CHP0001-32	Remedies by Ayurveda

Exit option : Award of UG Certificate in Major with 43 credits and an additional 8 credits.			
Exit Courses			
1	Web Designer		8
2	IT Support Engineer	Online/offline certification Course	8
3	Certified Programmer (language learned in Sem-1 and/or Sem-2 [C,C++,Java, Python])		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - III)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CCT3001	Data Structures	3	1	0	4	50	50	100	3 Hrs.
2.	PCC	CCP3001	Data Structures Lab	0	0	2	1	50	-	50	-
3.	PCC	CCT3002	Computer Networks	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CCP3002	Computer Networks Lab	0	0	2	1	50	-	50	-
5.	PCC	CCP3003	Software Lab-I	0	0	2	1	50	-	50	-
6.	MDM	MAT3003	Mathematics for Cyber Security	3	0	0	3	50	50	100	3 Hrs.
7.	OE	CCT3004	Open Elective - I	4	0	0	4	50	50	100	3 Hrs.
8.	HSSM	CCP3005	Idea Lab	0	0	4	2	50	-	50	-
9.	PCC	CCT3006	Cyber Law and Ethics	2	0	0	2	50	50	100	2 Hrs.
10.	AEC	HUT3001	Business Communication	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	19	1	10	23	500	300	800	

(Semester - IV)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CCT4001	Operating Systems	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CCP4001	Operating Systems Lab	0	0	2	1	50	-	50	-
3.	PCC	CCT4002	Cryptography	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CCP4002	Cryptography Lab	0	0	2	1	50	-	50	-
5.	PCC	CCT4003	Theory of Computation	3	0	0	3	50	50	100	3 Hrs.
6.	MDM	MAT4002	Probability and Queuing Theory	3	0	0	3	50	50	100	3 Hrs.
7.	OE	CCT4004	Open Elective - II	2	0	0	2	50	50	100	2 Hrs.
8.	PCC	CCP4005	Software Lab - II	0	0	2	1	50	-	50	-
9.	CEP/FP/ZZ	CCT4006	Community Engagement Project	0	0	4	2	50	-	50	-
10.	HSSM	MBT299-5	Business and Organizational Management	2	0	0	2	50	50	100	2 Hrs.
11.	VEC	HUT4002	Environmental Education	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	18	0	10	25	550	350	900	

Exit option : Award of UG Certificate in Major with 91 credits and an additional 8 credits.			
Exit Courses			
1	Application Development (Android)	Online/offline certification Course	8
2	Certified Software Engineer (Devop)		8
3	Certified Network Defender (CND) - EC - Council		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - V)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CCT5001	Design & Analysis of Algorithms	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CCT5002	Computer Security	3	0	0	3	50	50	100	3 Hrs.
3.	PCC	CCP5002	Computer Security Lab	0	0	2	1	50	-	50	-
4.	PCC	CCT5003	Basics of Ethical Hacking	3	0	0	3	50	50	100	3 Hrs.
5.	PCC	CCP5003	Basics of Ethical Hacking Lab	0	0	2	1	50	-	50	-
6.	PCC	CCT5004	Program Elective-1	3	0	0	3	50	50	100	3 Hrs.
7.	MDM	CCT5005	Artificial Intelligence and Machine Learning	3	0	0	3	50	50	100	3 Hrs.
8.	MDM	CCP5005	Artificial Intelligence and Machine Learning Lab	0	0	2	1	50	-	50	-
9.	OE	CCT5006	Open Elective - III	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**17**	**0**	**6**	**20**	**450**	**300**	**750**	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - VI)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CCT6001	Introduction to Cloud Security	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CCP6001	Introduction to Cloud Security Lab	0	0	2	1	50	-	50	-
3.	PCC	CCT6002	Database Management System	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CCP6002	Database Management System Lab	0	0	2	1	50	-	50	-
5.	PCC	CCT6003	Software Engineering and Project Management	3	0	0	3	50	50	100	3 Hrs.
6.	PCC	CCP6003	Software Engineering and Project Management Lab	0	0	2	1	50	-	50	-
7.	PCC	CCT6004	Program Elective-2	3	0	0	3	50	50	100	3 Hrs.
8.	PCC	CCT6005	Program Elective-3	3	0	0	3	50	50	100	3 Hrs.
9.	PCC	CCT6006	Deep Learning	2	0	0	2	50	50	100	2 Hrs.
10.	VSEC	CCP6007	Mini Project	0	0	4	2	25	25	50	-
			TOTAL	**17**	**0**	**10**	**22**	**475**	**325**	**800**	

Exit option : Award of UG Certificate in Major with 133 credits and an additional 8 credits.		
Exit Courses		
1	Certified Cloud Engineer (AWS, AZURE)	Online/offline certification Course	8
2	Certified Cloud Security (ZScalar)		8
3	Certified Ethical Hacker (EC - Council)		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - VII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CCT7001	Compiler Design	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CCT7002	Secure Coding	3	0	0	3	50	50	100	3 Hrs.
3.	PCC	CCP7002	Secure Coding Lab	0	0	2	1	50	-	50	-
4.	PCC	CCT7003	Network Security Administration	3	0	0	3	50	50	100	3 Hrs.
5.	PCC	CCP7003	Network Security Administration Lab	0	0	2	1	50	-	50	-
6.	PCC	CCT7004	Program Elective-4	3	0	0	3	50	50	100	3 Hrs.
7.	PCC	CCP7004	Program Elective-4 Lab	0	0	2	1	50	-	50	-
8.	MDM	CCT7005	Data Visualization Techniques	2	0	0	2	50	50	100	2 Hrs.
9.	Project	CCP7006	Major Project I	0	0	8	4	50	50	100	-
			TOTAL	14	0	14	21	450	300	750	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Cyber Security)
(Semester - VIII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PEC	CCT8001	Program Elective-5	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	CCT8002	Program Elective-6	3	0	0	3	50	50	100	3 Hrs.
3.	Project	CCP8003	Major Project II	0	0	12	6	50	50	100	-
			TOTAL					150	150	300	
			OR								
1.	PEC	CCT8004	Research Methodology	3	0	0	3	50	50	100	3 Hrs.
2.	Project	CCP8005	Research Project	0	0	12	6	50	50	100	-
3.	PEC	CCT8001	Program Elective-5	3	0	0	3	50	50	100	3 Hrs.
			TOTAL					150	150	300	
			OR								
1.	Internship	CCP8006	Internship / TBI Internship	0	0	24	12	100	100	200	-
			TOTAL	0	0	24	12			200	

Electives Basket

Program Elective - 1	Program Elective - 2	Program Elective - 3	Program Elective - 4	Program Elective - 5	Program Elective - 6
CCT5004 – 1 Operating Systems for Cyber Security	CCT6004 – 1 Wireless & Mobile Device Security	CCT6005 – 1 Managing Risk in Information Systems	CCT7004 – 1 Database & Email Forensics	CCT8001 -1 Vulnerability Assessment and Penetration Testing	CCT8002 – 1 Testing Cyber Crime Investigation and Digital Forensics
CCT5004 – 2 Threat and Malware Analysis	CCT6004 – 2 Incident Handling & Response	CCT6005 – 2 IOT Security	CCT7004 – 2 Auditing IT Infrastructure for Compliance	CCT8001- 2 Disaster Recovery & business continuity management	CCT8002 – 2 Executive Governance and Management in IT Security
CCT5004 – 3 Security Policies and implementation	CCT6004 – 3 Security Strategies in Windows & Linux	CCT6006 – 3 Application Security	CCT7004 – 3 Blockchain Security	CCT8001 - 3 Mobile Application Security Testing	CCT8002 – 3 Security in Social Networks

List of Open Electives

Sr. No.	Subject Code	Name of Subject
Open Elective I	CCT3004	Cyber Defense Strategies
Open Elective II	CCT4004	Network Security Fundamentals
Open Elective III	CCT5005	Basics of Ethical Hacking

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
(Semester - I)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	CHT1001	Chemistry of Smart Materials	2	0	0	2	50	50	100	2 Hrs.
2.	BSC	CHP1001	Chemistry of Smart Materials Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT1002	Calculus	3	0	0	3	50	50	100	3 Hrs.
4.	ESC	CDT1001	Digital Electronics	3	0	0	3	50	50	100	3 Hrs.
5.	ESC	CDP1001	Digital Electronics Lab	0	0	2	1	50	-	50	-
6.	ESC	CDT1002	Programming for problem solving	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CDP1002	Programming for problem solving Lab	0	0	2	1	50	-	50	-
8.	VSEC	CDT1003	Computer Workshop – I	1	0	0	1	50	-	50	-
9.	VSEC	CDP1003	Computer Workshop – I Lab	0	0	2	1	50	-	50	-
10.	HSSM -IKS	HUT1001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs.
11.	CCA	PET1001	Sports-Yoga-Recreation	1	0	0	1	50	-	50	-
12.	CCA	PEP1001	Sports-Yoga-Recreation Lab	0	0	2	1	50	-	50	-
			TOTAL	**15**	**0**	**10**	**20**			**850**	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
(Semester - II)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	PHT2001	Introduction to Quantum Computing	2	1	0	3	50	50	100	3 Hrs.
2.	BSC	PHP2001	Introduction to Quantum Computing Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT2002	Discrete Mathematics	3	0	0	3	50	50	100	3 Hrs.
4.	BSC	MAP2001	Computational Mathematics Lab	0	0	2	1	50	-	50	-
5.	BSC	CHT2007	Bioinformatics	2	0	0	2	50	50	100	2 Hrs.
6.	ESC	CDT2001	Object Oriented Programming	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	CDP2001	Object Oriented Programming Lab	0	0	2	1	50	-	50	-
8.	PCC	CDT2002	Computer Architecture	2	0	0	2	50	50	100	2 Hrs.
9.	VSEC	CDT2003	Computer Workshop – II	1	0	0	1	50	-	50	-
10.	VSEC	CDP2003	Computer Workshop – II Lab	0	0	2	1	50	-	50	-
11.	AEC	HUT2002	English for Professional Communication	2	0	0	2	50	50	100	2 Hrs.
12.	AEC	HUP2002	English for Professional Communication Lab	0	0	2	1	50	-	50	-
13	CCA	HUP0001	Liberal/Performing Art	0	0	2	1	50	-	50	-
14.	VEC	HUT2004	Foundational Course in Universal Human Values	1	0	0	1	50	-	50	-
			TOTAL	**16**	**1**	**12**	**23**			**1000**	

List of courses offered under the Basket of Liberal Arts (HUP0001)

Course Code	Course Name
HUP0001-1	Fundamentals of Indian Classical Dance: Bharatnatayam
HUP0001-2	Fundamentals of Indian Classical Dance: Kathak
HUP0001-3	Introduction to Digital Photography
HUP0001-4	Introduction to Japanese Language and Culture
HUP0001-5	Art of Theatre
HUP0001-6	Introduction to French Language
HUP0001-7	Introduction to Spanish Language
HUP0001-8	Art of Painting
HUP0001-9	Art of Drawing
HUP0001-10	Nature camp
PEP0001-21	Disaster Management through Adventure Sports
PEP0001-22	Self-defense Essentials and Basics Knowledge of Defense forces
CHP0001-31	Art of Indian traditional cuisine
CHP0001-32	Remedies by Ayurveda

Exit option : Award of UG Certificate in Major with 43 credits and an additional 8 credits.			
Exit Courses			
1	Web Designer	Online/offline certification Course	8
2	IT Support Engineer		8
3	Certified Programmer (language learned in Sem-1 and/or Sem-2 [C,C++,Java, Python])		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
(Semester - III)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CDT3001	Data Structures and Algorithms	3	1	0	4	50	50	100	3 Hrs.
2.	PCC	CDP3001	Data Structures and Algorithms Lab	0	0	2	1	50	-	50	-
3.	PCC	CDT3002	Theory of Computations	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CDP3003	Programming Language Lab	0	0	4	2	50	-	50	-
5.	MDM	MAT3002	Probability and Statistics	3	0	0	3	50	50	100	3 Hrs.
6.	VSEC	CDP3004	Software Laboratory - I	0	0	2	1	50	-	50	-
7.	OE	CDT3005	Open Elective - I	4	0	0	4	50	50	100	3 Hrs.
8.	AEC	HUT3001	Business Communication	2	0	0	2	50	50	100	2 Hrs.
9.	HSSM	CDP3006	Idea Lab	0	0	4	2	50	-	50	-
10.	VEC	CDT3007	Cyber Laws and Ethics in IT	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**17**	**1**	**12**	**24**	**500**	**300**	**800**	

(Semester - IV)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CDT4001	Operating Systems	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CDP4001	Operating Systems Lab	0	0	2	1	50	-	50	-
3.	PCC	CDT4002	Artificial Intelligence	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CDP4002	Artificial Intelligence Lab	0	0	2	1	50	-	50	-
5.	PCC	CDT4003	Design and Analysis of Algorithms	3	0	0	3	50	50	100	3 Hrs.
6.	MDM	MAT4001	Linear Algebra	3	0	0	3	50	50	100	3 Hrs.
7.	OE	CDT4004	Open Elective - II	2	0	0	2	50	50	100	2 Hrs.
8.	VSEC	CDP4005	Software Laboratory - II	0	0	2	1	50	-	50	-
9.	HSSM	HUT4003	Managerial Economics	2	0	0	2	50	50	100	2 Hrs.
10.	VEC	HUT4002	Environmental Education	2	0	0	2	50	50	100	2 Hrs.
11.	CEP	CDP4006	Community Engagement Project	0	0	4	2	50	-	50	-
			TOTAL	**18**	**0**	**10**	**23**	**550**	**350**	**900**	

Exit option : Award of UG Diploma in Major with 90 credits and an additional 8 credits		
Exit Courses		
1	Application Development (Android)	Online/offline certification Course	8
2	Certified Software Engineer (Devop)		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
(Semester - V)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CDT5001	Database Management Systems	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CDP5001	Database Management Systems Lab	0	0	2	1	50	-	50	-
3.	PCC	CDT5002	Machine Learning	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CDP5002	Machine Learning Lab	0	0	2	1	50	-	50	-
5.	PCC	CDT5003	Computer Networks	3	0	0	3	50	50	100	3 Hrs.
6.	PEC	CDT5004	Program Elective - I	3	0	0	3	50	50	100	3 Hrs.
7.	MDM	CDT5005	Financial Analytics	3	0	0	3	50	50	100	3 Hrs.
8.	MDM	CDP5005	Financial Analytics Lab	0	0	2	1	50	-	50	-
9.	OE	CDT5006	Open Elective - III	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	17	0	6	20	450	300	750	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
(Semester - VI)

Sr. No.	Category	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	CDT6001	Data Warehousing and Business Intelligence	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CDP6001	Data Warehousing and Business Intelligence Lab	0	0	2	1	50	-	50	-
3.	PCC	CDT6002	Deep Learning - I	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CDP6002	Deep Learning - I Lab	0	0	2	1	50	-	50	-
5.	PCC	CDT6003	Data Analysis and Visualization	1	0	0	1	50	-	50	-
6.	PCC	CDP6003	Data Analysis and Visualization Lab	0	0	2	1	50	-	50	-
7.	PEC	CDT6004	Program Elective - II	3	0	0	3	50	50	100	3 Hrs.
8.	PEC	CDP6004	Program Elective - II Lab	0	0	2	1	50	-	50	-
9.	PEC	CDT6005	Program Elective - III	3	0	0	3	50	50	100	3 Hrs.
10.	MDM	CDT6006	Applied Econometrics	2	0	0	2	50	50	100	2 Hrs.
11.	VSEC	CDP6007	Mini Project	0	0	4	2	25	25	50	-
			TOTAL	15	0	12	22	525	275	800	

Exit option : Award of UG Degree in Major with 131 credits and an additional 8 credits		
Exit Courses		
1	Certified Database Engineer (Oracle, DB2)	Online/offline certification Course	8
2	Certified Cloud Engineer (AWS, AZURE)		8
3	Certified Data Science Engineer		8

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
(Semester - VII)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	CDT7001	Deep Learning - II	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	CDP7001	Deep Learning - II Lab	0	0	2	1	50	-	50	-
3.	PCC	CDT7002	Cloud Computing	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	CDP7002	Cloud Computing Lab	0	0	2	1	50	-	50	-
5.	PEC	CDT7003	Program Elective - IV	3	0	0	3	50	50	100	3 Hrs.
6.	PEC	CDP7003	Program Elective - IV Lab	0	0	2	1	50	-	50	-
7.	MDM	CDT7004	Customer Management	2	0	0	2	50	50	100	2 Hrs.
8.	PRJ	CDP7005	Major Project - I	0	0	8	4	50	50	100	-
			TOTAL	10	0	16	18	400	250	650	

(Semester - VIII)

Sr. No.	Category	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PEC	CDT8001	Program Elective-V	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	CDT8002	Program Elective-VI	3	0	0	3	50	50	100	3 Hrs.
3.	Project	CDP8003	Major Project- II	0	0	12	6	50	50	100	-
			TOTAL	6	0	12	12	150	150	300	
			OR								
1.	PEC	CDT8001	Program Elective-V	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	CDT8004	Research Methodology	3	0	0	3	50	50	100	3 Hrs.
3.	Project	CDP8005	Research Project	0	0	12	6	50	50	100	-
			TOTAL	6	0	12	12	150	150	300	
			OR								
1.	INTR-801	CDP8006	Industry / TBI Internship	0	0	24	12	100	100	200	-
			TOTAL	0	0	24	12	100	100	200	

Teaching Scheme for Bachelor of Technology
B. Tech. CSE (Data Science)
Electives Basket

Elective-I	Elective-II	Elective-III	Elective -IV	Elective-V	Elective -VI
CDT5004-1 Compiler Design	CDT6004-1 Natural Language Processing	CDT6005-1 Data Science forHealth Care	CDT7003-1 Image Analysis and Computer Vision	CDT8001-1 Mining Massive Datasets	CDT8002-1 Human Computer Interaction
CDT5004-2 Design Patterns	CDT6004-2 Blockchain Technology	CDT6005-2 Data Science for Genomics	CDT7003-2 Spatial Data Management	CDT8001-2 Generative AI	CDT8002-2 Optimization for Data Science
CDT5004-3 Software Engineering	CDT6004-3 Distributed and Parallel Computing	CDT6005-3 Data Science for Marketing	CDT7003-3 Information Retrieval	CDT8001- 3 Information Security and Data Privacy	CDT8002-3 Reinforcement Learning

List of Open Electives

List of Open Electives		
Sr. No.	Subject Code	Name of Subject
Open Elective-I	CDT3005	Tools for Data Science
Open Elective-II	CDT4004	Statistics for Data Science
Open Elective-III	CDT5006	Exploratory Data Analysis

Shri Ramdeobaba College of Engineering and Management, Nagpur
Department of Electrical Engineering

Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) NEP-2020 based

Contains:

Sr. No	Description	Page No
1	Teaching and Examination Scheme B.Tech (Electrical) (I Sem to VIII Sem)	**2-9**
2	Program Elective Tracks and list of courses	**10**
3	Honors in "Distributed Energy Generation Systems" and list of courses	**11**
4	Minors in "Electric Vehicles (EV)" and list of courses	**12**
5	Open Electives Offered by the Department	**13**
6	Semester wise credit distribution as per NEP2020	**14**

Sr.No	Verticals	Courses and Abbreviations	
1	Basic and Engineering Science Courses and their Combinations to be offered in Mission Mode	Basic Science Course	**BSC**
		Engineering Science Course	**ESC**
2	Major Core Program Courses	Programme Core Course	**PCC**
		Programme Elective Course	**PEC**
3	Compulsory Multidisciplinary Minor	Multidisciplinary Minor	**MDM**
4	Generic/ Open Elective Courses;	Open Elective Other than a particular program	**OE**
5	Vocational and Skill Enhancement Courses	Vocational Skill Course Skill enhancement courses	**VSC** **SEC**
6	Humanities Social Science and Management (HSSM)	Ability Enhancement Course (AEC -01, AEC-02)	**AEC**
		Research Methodology	**RM**
		Entrepreneurship/Economics/ Management Courses	**HSSM**
		Indian Knowledge System	**IKS**
		Value Education Course	**VEC**
7	Field projects/ internship/ apprenticeship/ community engagement projects corresponding to the Major (core) subject,	Research Methodology	**RM**
		Community Engagement Projects (CEP)/Field Project	**FP**
		Project-I	**Project**
		Internship/Project-II/OJT	**OJT**
8	Co-curricular Courses	Co-curricular Courses	**CCA**

Shri Ramdeobaba College of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24
Semester - I

Sr. No.	Code	Course	L	T	P	Credits	Continuous Evaluation	End Sem Exam	Total	ESE Duration (Hrs)	Category
1.	PHT1001	Physics for Electrical Engineers	2	1	0	3	50	50	100	3	BSC
2.	PHP1001	Physics for Electrical Engineers Lab	0	0	2	1	50	--	50	--	BSC
3.	MAT1001	Applied Mathematics-I	2	1	0	3	50	50	100	3	BSC
4.	MAP1001	Computational Mathematics Lab	0	0	2	1	50	--	50	--	BSC
5.	EET1002	Industrial Safety	1	0	0	1	50	--	50	--	BSC
6.	EET1001	Basic Electrical Engineering-I	3	0	0	3	50	50	100	3	PCC
7.	EEP1001	Electrical Workshop - I	0	0	2	1	50	--	50	--	VSC
8.	HUT1002	English for Professional Communication	2	0	0	2	50	50	100	2	AEC
9.	HUP1002	English for Professional Communication Lab	0	0	2	1	50	--	50	--	AEC
10.	MET1004	Engineering Graphics	2	0	0	2	50	50	100	2	ESC
11.	MEP1004	Engineering Graphics Lab	0	0	2	1	50	--	50	--	ESC
12.	HUT1004	Foundational Course in Universal Human Values	1	0	0	1	50	--	50	--	VEC
13.		Liberal / Performing Art Lab	0	0	2	1	50	--	50	--	CCA
		TOTAL	**13**	**02**	**12**	**21**					

Semester - II

Sr. No.	Code	Course	L	T	P	Credits	Continuous Evaluation	End Sem Exam	Total	ESE Duration (Hrs)	Category
1.	CHT2003	Chemistry for Electrical Engineers	2	0	0	2	50	50	100	2	BSC
2.	CHP2003	Chemistry for Electrical Engineers Lab	0	0	2	1	50	--	50	--	BSC
3.	MAT2001	Applied Mathematics-II	2	1	0	3	50	50	100	3	BSC
4.	EET2002	Programming Skill	3	0	0	3	50	50	100	3	ESC
5.	EEP2002	Programming Skill Lab	0	0	2	1	50	--	50	--	ESC
6.	EET2001	Basic Electrical Engineering-II	3	0	0	3	50	50	100	3	PCC
7.	EEP2001	Basic Electrical Engineering-II Lab	0	0	2	1	50	--	50	--	PCC
8.	HUT2001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2	IKS
9.	PET2001	Sports-Yoga-Recreation	1	0	0	1	50	--	50	--	CCA
10.	PEP2001	Sports -Yoga-Recreation Lab	0	0	2	1	50	--	50	--	CCA
11.	EET2003	Analog Electronic Circuits	2	0	0	2	50	50	100	2	ESC
12.	EEP2003	Analog Electronic Circuits Lab	0	0	2	1	50	--	50	--	ESC
		TOTAL	**15**	**01**	**10**	**21**					

Exit option: Award of UG Certificate in Major after the completion of 42 credits and an additional 8 credits.						
Sr. No.	**Course Code**	**Course Title**	**Lecture**	**Tutorial**	**Practical**	**Credits**
1	EETE2001	Electrical Maintenance	3	0	0	3
2	EETE2002	Electrical Appliances	3	0	0	3
3	EEPE2003	Internship	Four weeks			2
		OR				
1	EEPE2004	Project/ Internship/On-Job Training (OJT)				8

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24
Semester - III

Sr. No.	Code	Course	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)	Category
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
1.	MAT3006	Mathematics for Electrical Engineering	2	0	0	2	50	50	100	2	ESC
2.	EET3001	Network Analysis	3	1	0	4	50	50	100	3	PCC
3.	EEP3001	Network Analysis Lab	0	0	2	1	50	--	50	--	PCC
4.	EET3002	Electrical Measurements and Instrumentation	2	1	0	3	50	50	100	3	PCC
5.	EEP3002	Electrical Measurements and Instrumentation Lab	0	0	2	1	50	--	50	--	PCC
6.	EET3003	Data Structures and Algorithms	3	0	0	3	50	50	100	3	MDM
7.	EEP3003	Data Structures and Algorithms Lab	0	0	2	1	50	--	50	--	MDM
8.	EET2980	Open Elective-I	2	0	0	2	50	50	100	2	OE
9.	CHT3001	Environmental Science	2	0	0	2	50	50	100	2	VEC
10.	HUT3001	Business Communication	2	0	0	2	50	50	100	2	AEC
		TOTAL	**16**	**02**	**06**	**21**					

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24
Semester - IV

Sr. No.	Code	Course	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)	Category
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
1.	EET4001	Signals and Systems	2	1	0	3	50	50	100	3	PCC
2.	EET4002	Electrical Machines-I	2	1	0	3	50	50	100	3	PCC
3.	EEP4002	Electrical Machines-I Lab	0	0	2	1	50	--	50	--	PCC
4.	EET4003	Power System-I	3	0	0	3	50	50	100	3	PCC
5.	EET4004	Digital Circuits and Microprocessor	3	0	0	3	50	50	100	3	PCC
6.	EEP4004	Digital Circuits and Microprocessor Lab	0	0	2	1	50	--	50	--	PCC
7.	EET2990	Open Elective-II	3	0	0	3	50	50	100	3	OE
8.	EET4005	Electrical Panel Control Design	1	0	0	1	50	--	50	--	VSC
9.	EEP4005	Electrical Panel Control Design Lab	0	0	2	1	50	--	50	--	VSC
10.	EEP4006	Field Project / Community Engagement Project	0	0	4	2	50	--	50	--	FP/CEP
11.	HUT4004	Constitution of India	2	0	0	2	50	50	100	2	VEC
12.	IDT4510	Creativity, Innovation and Design Thinking	1	0	0	1	50	--	50		SEC
		TOTAL	**17**	**02**	**10**	**24**					

Exit option: Award of UG Diploma in Major after the completion of 87 credits and an additional 8 credits.						
Sr. No.	Course Code	Course Title	Lecture	Tutorial	Practical	Credits
		Any two of following courses:	3	0	0	3
1	EETE4001 EETE4002 EETE4003 EETE4004	Electrical Energy Conservation and AuditUtilization of Electrical Energy PLC Programming Computer Aided Electrical Engineering Drawing	3	0	0	3
2	EEPE4005	Internship	Four weeks			2
OR						
1	EEPE4006	Project/ Internship/On-Job Training(OJT)				8

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24
Semester - V

Sr. No.	Code	Course	L	T	P	Credits	Continuous Evaluation	End Sem Exam	Total	ESE Duration (Hrs)	Category
1.	EET5001	Electrical Machines-II	2	1	0	3	50	50	100	3	PCC
2.	EEP5001	Electrical Machines-II Lab	0	0	2	1	50	--	50	--	PCC
3.	EET5002	Power Electronics	3	1	0	4	50	50	100	3	PCC
4.	EEP5003	Power Converters Lab	0	0	2	1	50	--	50	--	PCC
5.	EET5004	Microcontroller	3	0	0	3	50	50	100	3	PCC
6.	EEP5004	Microcontroller Based Automation Lab	0	0	2	1	50	--	50	--	SEC
7.	EET5005	Program Elective-I	3	0	0	3	50	50	100	3	PEC
8.	EET5006	Object Oriented Programming	3	0	0	3	50	50	100	3	MDM
9.	EEP5006	Object Oriented Programming Lab	0	0	2	1	50	--	50	--	MDM
10.	EET3980	Open Elective-III	3	0	0	3	50	50	100	3	OE
11.	EEP5007	Simulation Lab	0	0	2	1	50	--	50	--	SEC
		TOTAL	17	02	10	24					

Program Elective-I

V Sem	1	Electromagnetic Fields PHT5001	Electrical Energy Conservation andAudit EET5005 -1	Utilization ofElectrical Energy EET5005 -2	Applied Mechanics CET5015	Biology for Engineers IDT5510

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24
Semester - VI

Sr. No.	Code	Course	Hours/week L	T	P	Credits	Maximum marks Continuous Evaluation	End Sem Exam	Total	ESE Duration (Hrs)	Category
1.	EET6001	Power System–II	3	0	0	3	50	50	100	3	PCC
2.	EEP6001	Power System–II Lab	0	0	2	1	50	--	50	--	PCC
3.	EET6002	Control Systems	3	1	0	4	50	50	100	3	PCC
4.	EEP6003	Feedback Control Lab	0	0	2	1	50	--	50	--	PCC
5.	EET6004	Database Management Systems	3	0	0	3	50	50	100	3	MDM
6.	EEP6004	Database Management Systems Lab	0	0	2	1	50	--	50	--	MDM
7.	EET6005	Program Elective-II	3	0	0	3	50	50	100	3	PEC
8.	EET6006	Program Elective-III	3	0	0	3	50	50	100	3	PEC
9.	EEP6006	Program Elective-III Lab	0	0	2	1	50	--	50	--	SEC
10.	EET6007	Innovation and Entrepreneurship	2	0	0	2	50	50	100	2	HSSM
11.	EEP6008	Project Phase-I	0	0	2	1	50	--	50	--	Project
		TOTAL	**17**	**01**	**10**	**23**					

Program Elective – II and III

Sem	Program Elective	Power System Track	Control, Automation and Drives Track	Renewable Energy & Electric Vehicle
	II	Power Station Practice EET6005-1	Electric Drives and Control EET6005-2	Non-Conventional Energy Sources EET6005-3
6	III(T)	Electrical Machine Design EET6006-1	PLC and SCADA EET6006-2	Photovoltaic System Engineering EET6006-3
	III(L)	Electrical Workshop-II EEP6006-1	PLC and SCADA Lab EEP6006-2	Photovoltaic System Engineering Lab EEP6006-3

Exit option: Award of B.Voc in Major after the completion of 134 credits and an additional 8 credits.						
Sr. No.	Course Code	Course Title	Lecture	Tutorial	Practical	Credits
1	EETE6001 EETE6002 EETE6003	**Any two of following:** Industrial Electrical SystemsPower Quality in Industries Electric Vehicles	3	0	0	3
			3	0	0	3
2	EEPE6005	Internship	Four weeks			2
OR						
1	EEPE6006	Project/Internship/On-Job Training(OJT)				8

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24

Semester - VII

Sr. No.	Code	Course	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)	Category
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
1.	EET7001	Switchgear and Protection	3	0	0	3	50	50	100	3	PCC
2.	EEP7001	Switchgear and Protection Lab	0	0	2	1	50	--	50	--	PCC
3.	EET7002	Electric Vehicles	3	0	0	3	50	50	100	3	PCC
4.	EET7003	Program Elective-IV	3	0	0	3	50	50	100	3	PEC
5.	EEP7003	Program Elective-IV Lab	0	0	2	1	50	--	50	--	PEC
6.	HUT7001	Principles of Economics and Management	2	0	0	2	50	50	100	2	HSSM
7.	EEP7004	Project Phase-II	0	0	6	3	50	50	100	--	Project
		TOTAL	**11**	**00**	**10**	**16**					

Program Elective – IV

Sem	Program Elective	Power System Track	Control, Automation and Drives Track	Renewable Energy &Electric Vehicle
	IV(T)	High Voltage Engineering EET7003 -1	Digital Signal Processing EET7003 -2	IoT Applications for Energy EET7003 -3
7	IV(L)	High Voltage Engineering Lab EEP7003 -1	Digital Signal Processing Lab EEP700 3-2	IoT Applications for Energy Lab EEP7003 -3

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24

Semester - VIII

| Sr. No. | Code | Course | Hours/week | | | Credits | Maximum marks | | | ESE Duration (Hrs) | Category |
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
1.	EET8001	Program Elective-V	3	0	0	03	50	50	100	3	PEC
2.	EET8002	Program Elective-VI	3	0	0	03	50	50	100	3	PEC
3.	EEP8003	Project Phase-II	0	0	12	06	100	100	200	---	Project
		TOTAL	6	00	12	12			400		
OR											
1.	EEP8004	Full Semester Industry	--	--	--	12	200	200	400		Internship/
		Internship /TBI									OJT
OR											
1.	EET8005	Research Methodology	4	0	0	4	50	50	100		RM
2.	EEP8006	Research Internship	--	--	--	8	150	150	300	3	Internship

Program Elective- V and VI

Sem	Program Elective	Power System Track	Control, Automation and Drives Track	Renewable Energy & Electric Vehicle
8	V	Modern ElectricalGrids EET8001-1	Power Quality EET8001-2	Advance Electrical Drives EET8001-3
	VI	Flexible AC Transmission Systems EET8002-1	Industrial Electrical Systems EET8002-2	Energy Storage and EV Charging Infrastructure EET8002-3

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24

Program Elective Tracks and list of courses

Sem	Program Elective No			Courses		
5	I	Electromagnetic Fields PHT5001	Electrical Energy Conservation and Audit EET5005-1	Utilization of Electrical Energy EET5005-2	Applied Mechanics CET5015	Biology for Engineers IDT5510

Sem	Program Elective	Power System Track	Control, Automation and Drives Track	Renewable Energy & Electric Vehicle
6	II	Power Station Practice EET6005-1	Electric Drives and Control EET6005-2	Non-Conventional Energy Sources EET6005-3
	III (T)	Electrical Machine Design EET6006-1	PLC and SCADA EET6006-2	Photovoltaic System Engineering EET6006-3
	III (L)	Electrical Workshop-II Lab EEP6006-1	PLC and SCADA Lab EEP6006-2	Photovoltaic System Engineering Lab EEP6006-3
7	IV (T)	High Voltage Engineering EET7003-1	Digital Signal Processing EET7003-2	IoT Applications for Energy EET7003-3
	IV (L)	High Voltage Engineering Lab EEP7003-1	Digital Signal Processing Lab EEP7003-2	IoT Applications for Energy Lab EEP7003-3
8	V	Modern Electrical Grids EET8001-1	Power Quality EET8001-2	Advance Electrical Drives EET8001-3
	VI	Flexible AC Transmission Systems EET8002-1	Industrial Electrical Systems EET8002-2	Energy Storage and EV Charging Infrastructure EET8002-3

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24

Honors in "Distributed Energy Generation Systems"

| Sem | Code | Course | Hours/week | | | Credits | Maximum marks | | | ESE Duration (Hrs) | Category |
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
III	EETH3100	Renewable and Distributed Energy Sources	3	0	0	3	50	50	100	3	Honors
IV	EETH4100	Energy Storage System	3	0	0	3	50	50	100	3	Honors
V	EETH5100	Distributed Generation and Smart grids OR Equivalent SWAYAM NPTEL course approved by the Department	4	0	0	4	50	50	100	3	Honors
VI	EETH6100	Design of Power Converter for Distributed Generation System OR Equivalent SWAYAM NPTEL course approved by the Department	4	0	0	4	50	50	100	3	Honors
VII	EETH7100	Power Quality Improvement Techniques OR Equivalent SWAYAM NPTEL course approved by the Department OR Project	4	0	0	4	50	50	100	3	Honors
		TOTAL	18	00	00	18					

Honors with Research

Desirous students will be required to work on a research project or dissertation in Electrical Engineering for 18 credits in the fourth year (Semester VII and VIII). These credits will be over and above the minimum 162 credits prescribed for the B. Tech. Electrical Engineering Programme.

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24

Minors in Electric Vehicles (EV)

Sem	Code	Course	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)	Category
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
III	EETM3100	Basics of Electrical Engineering and EV	3	0	0	3	50	50	100	3	Minors
IV	EETM4100	EV Motors and their Control	3	0	0	3	50	50	100	3	Minors
V	EETM5100	EV Energy Management andCharging Infrastructure	4	0	0	4	50	50	100	3	Minors
VI	EETM6100	EV Communication and Instrumentation	4	0	0	4	50	50	100	3	Minors
VII	EETM7100	EV Policies and Safety Aspects	4	0	0	4	50	50	100	3	Minors
		TOTAL	18	00	00	18					

Open Elective courses offered by the Department

Scheme of Examination

Sem	Code	Course	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)	Category
			L	T	P		Continuous Evaluation	End Sem Exam	Total		
III	EET2980-1	Electrical Engineering: Introduction and Applications	2	0	0	2	50	50	100	2	OE
	EET2980-2	Renewable Energy Systems									
IV	EET2990-1	Electrical Appliances	3	0	0	3	50	50	100	3	OE
	EET2990-2	Energy Storage Systems									
	EET2990-3	Solar Photovoltaic Systems									
V	EET3980-1	Energy Management and Audit	3	0	0	3	50	50	100	3	OE
	EET3980-2	Automation with PLC									
	EET3980-3	Electric Vehicles									

Shri Ramdeobaba Collge of Engineering and Management, Nagpur
Teaching and Evaluation Scheme for B. Tech. (Electrical Engineering) Session : 2023-24

Sr. No	Vertical	Courses and Abbreviations		I	II	III	IV	V	VI	VII	VIII	Actual Credits	Actual Total
1	Basic and Engineering Science Courses and their Combinations to be offered in Mission Mode	Basic Science Course	BSC	9	6							15	27
		Engineering Science Course	ESC	3	7	2						12	
2	Major Core Program Courses	Programme Core Course	PCC	3	4	9	14	12	9	7		58	77/71
		Programme Elective Course	PEC					3	6	4	6/0	19/13	
3	Compulsory Multidisciplinary Minor	Multidisciplinary Minor	MDM			4		4	4			12	12
4	Generic/ Open Elective Courses;	Open Elective Other than a particular program	OE			2	3	3				8	8
5	Vocational and Skill Enhancement Courses	Vocational Skill Course	VSC	1			2					3	7
		Skill enhancement courses	SEC				1	2	1			4	
6	Humanities Social Science and Management (HSSM)	Ability Enhancement Course (AEC -01, AEC-02)	AEC	3		2						5	15
		Entrepreneurship/ Economics/ Management Courses	HSSM						2	2		4	
		Indian Knowledge System	IKS		2							2	
		Value Education Course	VEC			2	2					4	
7	Field projects/ internship/ apprenticeship/ community engagement projects corresponding to the Major (core) subject,	Research methodology	RM								4	4	16/22
		Comm. Engg. Project (CEP)/Field Project	FP				2					2	
		Project-I	Project						1	3		4	
		Internship/Project-II /OJT	OJT								6/12	6/12	
8	Co-curricularCourses	Co-curricular Courses	CCA	2	2							4	4
		Total Credits (Major)		**21**	**21**	**21**	**24**	**24**	**23**	**16**	**12**	**162**	

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - I)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	BSC	PHT1003	Semiconductor Physics	2	1	0	3	50	50	100	3 Hrs.
2.	BSC	PHP1003	Semiconductor Physics Lab	0	0	2	1	50	0	50	0
3.	BSC	MAT1001	Applied Mathematics I	2	1	0	3	50	50	100	3 Hrs.
4.	BSC	MAP1001	Computational Mathematics Lab	0	0	2	1	50	0	50	0
5.	BSC	EET1004	Basic Electrical Engineering	2	0	0	2	50	50	100	2 Hrs.
6.	PCC	ECT1001	Digital Circuits and Fundamentals of Microprocessor	3	0	0	3	50	50	100	3 Hrs.
7.	PCC	ECP1001	Digital Circuits and Fundamentals of Microprocessor Lab	0	0	2	1	50	0	50	0
8.	ESC	ECT1002	Programming for Problem Solving	2	0	0	2	50	50	100	2 Hrs.
9.	ESC	ECP1002	Programming for Problem Solving Lab	0	0	2	1	50	0	50	0
10.	AEC	HUT1002	English for Professional Communication	2	0	0	2	50	50	100	2 Hrs.
11.	AEC	HUP1002	English for Professional Communication Lab	0	0	2	1	50	0	50	0
12.	CCA	HUP0001/ PEP0001/ CHP0001	Liberal/Performing Art Lab basket	0	0	2	1	50	0	50	0
13.	VEC	HUT1004	Foundational course in Universal Human Value	1	0	0	1	50	0	50	0
			TOTAL	**14**	**2**	**12**	**22**				

Liberal/Performing Art Lab basket		
Sr. No.	Course Code	Course Name
1	HUP0001-1	Fundamentals of Indian Classical Dance: Bharatnatayam
2	HUP0001-2	Fundamentals of Indian Classical Dance: Kathak
3	HUP0001-3	Introduction to Digital Photography
4	HUP0001-4	Introduction to Japanese Language and Culture
5	HUP0001-5	Art of Theatre
6	HUP0001-6	Introduction to French Language
7	HUP0001-7	Introduction to Spanish Language
8	HUP0001-8	Art of Painting
9	HUP0001-9	Art of Drawing
10	HUP0001-10	Nature camp
11	PEP0001-21	Disaster Management through Adventure Sports
12	PEP0001-22	Self-defense Essentials and Basic Knowledge of Defense forces
13	CHP0001-31	Art of Indian traditional cuisine
14	CHP0001 -32	Remedies by Ayurveda

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - II)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	CHT2002	Chemistry of Functional Materials	2	0	0	2	50	50	100	2 Hrs.
2.	BSC	CHP2002	Chemistry of Functional Materials Lab	0	0	2	1	50	0	50	0
3.	BSC	MAT2001	Applied Mathematics II	2	1	0	3	50	50	100	3 Hrs.
4.	ESC	ECT2001	Network Theory	3	0	0	3	50	50	100	3 Hrs.
5.	PCC	ECT2002	Electronic Devices	3	0	0	3	50	50	100	3 Hrs.
6.	PCC	ECP2002	Electronic Devices Lab	0	0	2	1	50	0	50	0
7.	VSEC	ECT2003	Object Oriented Programming	3	0	0	3	50	50	100	3 Hrs.
8.	VSEC	ECP2003	Object Oriented Programming Lab	0	0	2	1	50	0	50	0
9.	ESC	ECP2004	Computer Workshop Lab	0	0	2	1	50	0	50	0
10.	IKS	HUT2001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs.
11.	CCA	PET2001	Sports-Yoga-Recreation	1	0	0	1	50	0	50	0
12.	CCA	PEP2001	Sports-Yoga-Recreation Lab	0	0	2	1	50	0	50	0
			TOTAL	16	1	10	22				

Exit option 1
(Additional 8 Credits)
Offline/Online (ESSC-India / NSQF skill) Certification Course on –   Assembly & Maintenance of Personal Computer / Electronics Servicing and Maintenance or similar course, approved by the BoS.   **OR**   Technical Project   **OR**   One Month Internship at Industry

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - III)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	ECT3001	Electronic Circuits	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	ECP3001	Electronic Circuits Lab	0	0	2	1	50	0	50	0
3.	PCC	ECT3002	Analog Circuits Design	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	ECP3002	Analog Circuits Design Lab	0	0	2	1	50	0	50	0
5.	PCC	ECT3003	Digital system Design with HDL	3	0	0	3	50	50	100	3 Hrs.
6.	PCC	ECP3003	Digital system Design with HDL Lab	0	0	2	1	50	0	50	0
7.	PCC	ECT3004	Signals and Systems	2	1	0	3	50	50	100	3 Hrs.
8.	OE	ECT2980	Open Elective - 1	2	0	0	2	50	50	100	2 Hrs.
9.	MDM	MAT3004	Applied Mathematics – III	2	1	0	3	50	50	100	3 Hrs.
10.	VEC	CHT3001	Environmental Science	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**18**	**3**	**6**	**22**				

Open Elective - I	
Course Code	**Course Name**
ECT2980 – 1	Electronic Sensors for Industrial applications
ECT2980 – 2	Fundamentals of Computer Networking

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - IV)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
				Hours/Week				Maximum marks			
1.	PCC	ECT4001	Electromagnetic Fields	2	1	0	3	50	50	100	3 Hrs.
2.	PCC	ECT4002	Analog and Digital Communication	3	0	0	3	50	50	100	3 Hrs.
3.	PCC	ECP4002	Analog and Digital Communication Lab	0	0	2	1	50	0	50	0
4.	PCC	ECT4003	Microcontrollers & Peripherals	3	0	0	3	50	50	100	3 Hrs.
5.	PCC	ECP4003	Microcontrollers & Peripherals Lab	0	0	2	1	50	0	50	0
6.	MDM	ECT4004	Data Structures and Algorithms	2	0	0	2	50	50	100	2 Hrs.
7.	MDM	ECP4004	Data Structures and Algorithms Lab	0	0	2	1	50	0	50	0
8.	OE	ECT2990	Open Elective - 2	2	1	0	3	50	50	100	3 Hrs.
9.	VSEC	ECP4005	Electronic Measurements & Instrumentation Lab	0	0	2	1	50	0	50	0
10.	CEA	ECP4006	Co curricula Activities/Community/Field Project	0	0	4	2	50	0	50	0
11.	AEC	HUT4001	Business Communication	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**14**	**1**	**8**	**22**				

Open Elective - II	
Course Code	**Course Name**
ECT2990 – 1	Electronics in Agriculture
ECT2990 – 2	Evolution in Communication Technologies

Exit option 2(Additional 8 Credits)
Offline/Online (ESSC-India / NSQF skill) Course on – Microprocessors/Microcontrollers   based Product Design / PCB Design and Circuit Simulation or similar course, approved by the BoS **OR** Technical Project **OR** One Month Internship at Industry

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - V)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	ECT5001	Probability Theory and Stochastic Processes	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	ECT5002	Digital Signal Processing	3	0	0	3	50	50	100	3 Hrs.
3.	PCC	ECP5002	Digital Signal Processing Lab	0	0	2	1	50	0	50	0
4.	PCC	ECT5003	VLSI Design	3	0	0	3	50	50	100	3 Hrs.
5.	PCC	ECP5003	VLSI Design Lab	0	0	2	1	50	0	50	0
6.	MDM	ECT5004	Computer Architecture and Organization	2	0	0	2	50	50	100	2 Hrs.
7.	MDM	ECP5004	Computer Architecture and Organization Lab	0	0	2	1	50	0	50	0
8.	VSEC	ECP5005	Electronic Design Workshop	0	0	2	1	50	50	100	2 Hrs.
9.	PEC	ECT5006	Program Elective 1	3	0	0	3	50	50	100	3 Hrs.
10.	OE	ECT3980	Open Elective 3	2	1	0	3	50	50	100	3 Hrs.
			TOTAL	16	0	8	21				

ProgramElective-1	
CourseCode	CourseName
ECT5006 – 1	Information Theory and Coding
ECT5006 – 2	Smart Sensors
ECT5006 – 3	MEMS and NEMS

OpenElective- III	
CourseCode	CourseName
ECT3980 – 1	Multimedia Communications
ECT3980 – 2	Information and Communication Technologies in Rural Sector

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - VI)

| Sr. No. | Course Type | Course Code | Course Name | Hours/Week | | | Credits | Maximum marks | | | ESE Exam Duration (Hrs.) |
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	ECT6001	Embedded Systems	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	ECP6001	Embedded Systems Lab	0	0	2	1	50	0	50	0
3.	PCC	ECT6002	Waveguides and Antennas	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	ECP6002	Waveguides and Antennas Lab	0	0	2	1	50	0	50	0
5.	PCC	ECT6003	Wireless Communication	3	0	0	3	50	50	100	3 Hrs.
6.	MDM	ECT6004	Data Base Management Systems	2	0	0	2	50	50	100	2 Hrs.
7.	MDM	ECP6004	Data Base Management Systems Lab	0	0	2	1	50	0	50	0
8.	PEC	ECT6005	Program Elective 2	3	0	0	3	50	50	100	3 Hrs.
9.	PRJ	ECP6006	Major Project Phase I	0	0	4	2	50	50	100	2 Hrs.
10.	HSSM	HUT6001	Financial Management for Engineers	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	16	0	10	21				

Program Elective - 2	
Course Code	**CourseName**
ECT6005 – 1	Speech and Audio Processing
ECT6005 – 2	Introduction to Internet of Things
ECT6005 – 3	System Verilog

Exit option 3
(Additional 8 Credits)
Offline/Online (ESSC-India / NSQF skill) Course on –   PC Hardware and Computer networking / Embedded system design IoTor similar course,   approved by the BoS   **OR**   Technical Project   **OR**   One Month Internship at Industry

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - VII)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
				Hours/Week				Maximum marks			
1.	PCC	ECT7001	Computer Networks	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	ECP7001	Computer Networks Lab	0	0	2	1	50	0	50	0
3.	PEC	ECT7002	Program Elective 3	3	0	0	3	50	50	100	3 Hrs.
4.	PEC	ECT7003	Program Elective 4	3	0	0	3	50	50	100	3 Hrs.
5.	PEC	ECT7004	Program Elective 5	3	0	0	3	50	50	100	3 Hrs.
6.	ESC	ECT7005	Control Systems	3	0	0	3	50	50	100	3 Hrs.
7.	MDM	ECT7006	System Software & Operating System	2	0	0	2	50	50	100	2 Hrs.
8.	PRJ	ECP7007	Major Project Phase 2	0	0	4	2	50	50	100	2 Hrs.
			TOTAL	**17**	**0**	**6**	**20**				

Program Elective - 3	
Course Code	**Course Name**
ECT7002– 1	Microwave Theory & Techniques
ECT7002– 2	Unmanned Aerial Systems
ECT7002– 3	Semiconductor Device Modelling

Program Elective - 4	
Course Code	**Course Name**
ECT7003– 1	Smart Antennas
ECT7003– 2	Artificial Intelligence
ECT7003– 3	Fundamentals of Physical Design

Program Elective - 5	
Course Code	**Course Name**
ECT7004– 1	Optical & Satellite Communication
ECT7004– 2	Digital Image Processing
ECT7004– 3	VLSI Signal Processing

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
(Semester - VIII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PEC	ECT8001	Program Elective 6	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	ECT8002	Program Elective 7	3	0	0	3	50	50	100	3 Hrs.
3.	PRJ	ECP8003	Project	0	0	12	6	50	50	100	3 Hrs.
			TOTAL	6	0	12	12				
			OR								
1.	INT	ECP8004	Full Semester Industry Internship	0	0	24	12				

Program Elective - 6	
Course Code	Course Name
ECT8001 – 1	Wireless Sensor Networks
ECT8001 – 2	Deep Learning
ECT8001 – 3	Advanced Semiconductor Devices

Program Elective - 7	
Course Code	Course Name
ECT8002 – 1	5G and Future Generation Communication Systems
ECT8002 – 2	Networks and Systems Security
ECT8002 – 3	RF Circuit Design

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Communication Engineering)
Honors with Multi-disciplinary Minor (Additional 18 Credits)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	ECTH3100	Communication System Analysis	3	0	0	3	50	50	100	3 Hrs
2.	IV	ECTH4100	Multimedia Networks	3	0	0	3	50	50	100	3 Hrs
3.	V	ECTH5100	Cryptography and Information Security	4	0	0	4	50	50	100	3 Hrs
4.	VI	ECTH6100	Evolution of Air Interface towards 5G	4	0	0	4	50	50	100	3 Hrs
5.	VII	ECPH7100	Project	0	0	8	4	50	50	100	3 Hrs
			TOTAL	**14**	**0**	**8**	**18**				

Honors with Research in Multi-disciplinary Minor (Additional 18 Credits)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	ECTR 3100	Research Methodology	3	0	0	3	50	50	100	3 Hrs
2.	IV	ECTR 4100	Communication System Analysis	3	0	0	3	50	50	100	3 Hrs
3.	V	ECTR 5100	LTE Technologies	4	0	0	4	50	50	100	3 Hrs
4.	VI	ECTR 6100	5G Wireless Technologies	4	0	0	4	50	50	100	3 Hrs
5.	VII	ECPR 7100	Project	0	0	8	4	50	50	100	3 Hrs
			TOTAL	**14**	**0**	**8**	**18**				

Minor with Minors Specialization (Additional 18 Credits)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	ECTM3100	Fundamentals of Communication Engineering	3	0	0	3	50	50	100	3 Hrs
2.	IV	ECTM4100	Sensors for Smart City	3	0	0	3	50	50	100	3 Hrs
3.	V	ECTM5100	IoT for Industrial Application	4	0	0	4	50	50	100	3 Hrs
4.	VI	ECTM6100	Future Generation Networks	4	0	0	4	50	50	100	3 Hrs
5.	VII	ECPM7100	Project	0	0	8	4	50	50	100	3 Hrs
			TOTAL	**14**	**0**	**8**	**18**				

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Semester - I)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	BSC	PHT 1006	Introduction to Quantum Computing	2	1	0	3	50	50	100	03 Hrs
2.	BSC	PHP 1006	Introduction to Quantum Computing Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT1002	Calculus	3	0	0	3	50	50	100	03 Hrs
4.	BSC	MAP1002	Computational Mathematics Lab	0	0	2	1	50	-	50	-
5.	ESC	ITT1001	Fundamentals of Programming	2	1	0	3	50	50	100	03 Hrs
6.	ESC	ITP1001	Fundamentals of Programming Lab	0	0	2	1	50	-	50	-
7.	ESC	ITT1002	Digital Circuits	2	1	0	3	50	50	100	03 Hrs
8.	ESC	ITP1002	Digital Circuits Lab	0	0	2	1	50	-	50	
9.	PCC	ITP1003	IT Workshop Lab	0	0	2	1	50	-	50	-
10.	HSSM-AEC	HUT1002	English for Professional Communication	2	0	0	2	50	50	100	03 Hrs
11.	HSSM-AEC	HUP1002	English for Professional Communication Lab	0	0	2	1	50	-	50	-
12.	HSSM-VEC	HUT1004	Foundational course in Universal Human Value	1	0	0	1	50	-	50	-
13.	CCA	HUP0001/ PEP0001/ CHP0001	Liberal/Performing Art	0	0	2	1	50	-	50	-
			TOTAL	12	3	14	22	650	250	900	

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Semester - II)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	BSC	CHT2006	Chemistry of Smart Materials	2	0	0	2	50	50	100	03 Hrs
2.	BSC	CHP2006	Chemistry of Smart Materials Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT2002	Discrete Mathematics	3	0	0	3	50	50	100	03 Hrs
4.	ECS	ITT2001	Object Oriented Programming	3	0	0	3	50	50	100	03 Hrs
5.	ECS	ITP2001	Object Oriented Programming Lab	0	0	2	1	50	-	50	-
6.	PCC	ITT2002	Data Structures	2	1	0	3	50	50	100	03 Hrs
7.	PCC	ITP2002	Data Structures Lab	0	0	2	1	50	-	50	-
8.	VSEC	ITT2003	Creativity, Innovation & Design Thinking	2	0	0	2	50	-	50	-
9.	IKS	HUT2001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	02 Hrs
10.	CCA	PET/PEP2001	Sports-Yoga-Recration	1	0	2	2	50	50	100	02 Hrs
			TOTAL	**15**	**1**	**8**	**20**	**500**	**300**	**800**	

Exit option: Award of UG Certificate in Major with 42 credits and an additional 8 credits.		
Exit Courses		
1 Introduction to Computer Hardware and Networking	Online/offline Certification Course	8

(Semester - III)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week L	T	P	Credits	Maximum marks Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	ITT3001	Computer Organization and Architecture	3	0	0	3	50	50	100	03 Hrs
2.	PCC	ITT3002	Design and Analysis of Algorithms	2	1	0	3	50	50	100	03 Hrs
3.	PCC	ITP3002	Design and Analysis of Algorithms Lab	0	0	2	1	50	-	50	-
4.	VSEC	ITT3003	IT Infrastructure Services	1	0	0	1	50	-	50	-
5.	VSEC	ITP3003	IT Infrastructure Services Lab	0	0	2	1	50	-	50	-
6.	MDM	MAT3002	Probability and Statistics	3	0	0	3	50	50	100	03 Hrs
7.	OE	ITT2980	Open Elective -I	2	0	0	2	50	50	100	03 Hrs
8.	HSSM	HUT3001	Business Communication	2	0	0	2	50	50	100	02 Hrs
9.	HSSM	HUT3002	Environmental Education	2	0	0	2	50	50	100	02 Hrs
10.	CEP/FP	ITP3005	Field Project	0	0	4	2	25	25	50	-
			TOTAL	**15**	**1**	**8**	**20**	**475**	**325**	**800**	

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Semester - IV)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	ITT4001	Formal Languages and Automata Theory	2	1	0	3	50	50	100	03 Hrs
2.	PCC	ITT4002	Database Management System	2	1	0	3	50	50	100	03 Hrs
3.	PCC	ITP4002	Database Management System Lab	0	0	2	1	50	-	50	-
4.	PCC	ITT4003	Software Engineering	2	1	0	3	50	50	100	03 Hrs
5.	PCC	ITP4003	Software Engineering Lab	0	0	2	1	50	-	50	-
6.	VSEC	ITP4005	Software Tools	0	0	4	2	50	-	50	-
7.	HSSM	ITT4006	Cyber Laws and Ethics	2	0	0	2	50	50	100	02 Hrs
8.	MDM	MAT4001	Linear Algebra	3	0	0	3	50	50	100	03 Hrs
9.	OE	ITT2990	Open Elective -II	3	0	0	3	50	50	100	03 Hrs
10.	HSSM	HUT4003	Managerial Economics (ED/ECO/MGM)	2	0	0	2	50	50	100	02 Hrs
			TOTAL	16	3	8	23	500	350	850	

Exit Courses			
1	Web Design & Development	Online/offline Certification Course	8

(Semester - V)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
1.	PCC	ITT5001	Compiler Design	3	0	0	3	50	50	100	03 Hrs
2.	PCC	ITT5002	Operating Systems	3	0	0	3	50	50	100	03 Hrs
3.	PCC	ITP5002	Operating Systems Lab	0	0	2	1	50	-	50	-
4.	PCC	ITT5003	Computer Networks	3	0	0	3	50	50	100	03 Hrs
5.	PCC	ITP5003	Computer Networks Lab	0	0	2	1	50	-	50	-
6.	PEC	ITT5004	Elective -I	3	0	0	3	50	50	100	03 Hrs
7.	MDM	ITT5005	Artificial Intelligence	3	0	0	3	50	50	100	03 Hrs
8.	MDM	ITP5005	Artificial Intelligence Lab	0	0	2	1	50	-	50	-
9.	OE	ITT3980	Open Elective -III	3	0	0	3	50	50	100	02 Hrs
10.	HSSM	HUT5001	Organizational Behaviour	2	0	0	2	50	50	100	02 Hrs
11.	ELC	ITP5007	Project-I	0	0	2	1	75	75	150	-
			TOTAL	20	0	8	24	575	425	1000	

Course Code	Elective-I
ITT504-01	Customer Relationship Management
ITT504-02	Product and Project Management

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Semester - VI)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
				Hours/Week				Maximum marks			
1.	PCC	ITT6001	Cryptography and Network Security	3	0	0	3	50	50	100	03 Hrs
2.	PCC	ITT6002	Internet and Web Programming	2	1	0	3	50	50	100	03 Hrs
3.	PCC	ITP6002	Internet and Web Programming Lab	0	0	2	1	50	-	50	-
4.	PCC	ITT6003	Cloud Computing	3	0	0	3	50	50	100	03 Hrs
5.	PCC	ITP6003	Cloud Computing Lab	0	0	2	1	50	-	50	-
6.	PEC	ITT6004	Elective -II	3	0	0	3	50	50	100	03 Hrs
7.	PEC	ITP6004	Elective -II Lab	0	0	2	1	50	-	50	-
8.	MDM	ITT6005	Machine Learning	2	1	0	3	50	50	100	03 Hrs
9.	MDM	ITP6005	Machine Learning Lab	0	0	2	1	50	-	50	-
10.	ELC	ITP6006	Project -II	0	0	4	2	75	75	150	-
			TOTAL	13	2	12	21	525	325	850	

Course Code	Elective-II
ITT6004-01/ ITP6004-01	Mobile Apps Development
ITT6004-02 /ITP6004-02	Advanced Java Programming

Exit Courses		
1 Software Project Management	Online/offline Certification Course	8

(Semester - VII)

Sr. No.	Course Type	Course Code	Course Name	L	T	P	Credits	Continuous Assessment	End Sem Exam	Total	ESE Exam Duration (Hrs.)
				Hours/Week				Maximum marks			
1.	PCC	ITT7001	Software Architecture	3	1	0	4	50	50	100	03 Hrs
2.	PCC	ITT7002	Human Computer Interaction	3	0	0	3	50	50	100	03 Hrs
3.	PEC	ITT7003	Elective -III	3	0	0	3	50	50	100	03 Hrs
4.	PEC	ITP7003	Elective -III Lab	0	0	2	1	50		50	
5.	MDM	ITT7004	Introduction to Deep Learning	3	0	0	3	50	50	100	03 Hrs
6.	MDM	ITP7004	Introduction to Deep Learning Lab	0	0	2	1	50		50	-
7.	RM	ITT7005	Research Methodology	3	0	0	3	50	50	100	03 Hrs
8.	ELC	ITP7006	Project -III	0	0	4	2	75	75	150	-
			TOTAL	15	1	8	20	425	375	750	

Course Code	Elective-III
ITT7003-01/ ITP7003-01	Data Warehouse and Business Intelligence
ITT7003-02/ ITP7003-02	Digital Forensics

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Semester - VIII)

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	PCC	ITT8001	Game Programming	3	0	2	3	50	50	100	03 Hrs
2.	PCC	ITP8001	Game Programming Lab	0	0	2	1	50	-	50	-
3.	PEC	ITT8002	Elective -IV	4	0	0	4	50	50	100	03 Hrs
4.	PEC	ITT8003	Elective -V	3	0	2	3	50	50	100	03 Hrs
5.	PEC	ITP8003	Elective -V Lab	0	0	2	1	50		50	-
			TOTAL	10	0	8	12	250	150	400	

Course Code	Elective-IV
ITT8002-01	Natural Language Processing
ITT8002-02	Blockchain & Cryptocurrency Technologies

Course Code	Elective-V
ITT8003-01/ ITP8003-01	Information Retrieval
ITT8003-02/ ITP8003-02	Social and Information Networks

OR

Sr. No.	Course Type	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	ELC		Full Semester Internship/ Research Internship/TBI	0	0	0	12	200	200	400	-

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Honors Specialization)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	ITTH3001-01	Introduction to Web 3 Programming	3	-	-	3	50	50	100	03 Hrs.
		ITTH3001-02	NPTEL Course	-	-	-	3	100	-	100	-
2.	IV	ITTH4001-01	Development of Progressive Web Application	3	-	-	3	50	50	100	03 Hrs.
		ITTH4001-02	NPTEL Course	-	-	-	3	100	-	100	-
3.	V	ITTH5001-02	Cloud Native App Development	4	-	-	4	100	-	100	-
		ITTH5001-02	NPTEL Course	-	-	-	4	100	-	100	-
4.	VI	ITTH6001-01	Introduction to DevOps	4	-	-	4	100	-	100	-
		ITTH6001-02	NPTEL Course	-	-	-	4	100	-	100	-
5.	VII	ITPH7001	Project	-	-	8	4	50	50	100	-
			TOTAL	14	-	8	18			500	

Teaching Scheme for Bachelor of Technology
B. Tech. (Information Technology)
(Minors Specialization)

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	III	ITTM3001-01	Web Designing	2	1	-	3	50	50	100	03 Hrs.
		ITTM3001-02	NPTEL Course	-	-	-	3	100	-	100	-
2.	IV	ITTM4001-01	Advanced Java Programming	2	1	-	3	50	50	100	03 Hrs.
		ITTM4001-02	NPTEL Course	-	-	-	3	100	-	100	-
3.	V	ITTM5001-01	Mobile App Development	3	1	-	4	50	50	100	03 Hrs.
		ITTM5001-02	NPTEL Course	-	-	-	3	100	-	100	-
4.	VI	ITTM6001-01	Amazon Web Services	3	1	-	4	50	50	100	03 Hrs.
		ITTM6001-02	NPTEL Course	-	-	-	3	100	-	100	-
5.	VII	ITTM7001	Project			8	4	50	50	100	-
			TOTAL	10	04	8	18			500	

Teaching Scheme and Examination for Bachelor of Technology (Mechanical Enginnering)
Semester - I

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BSC	PHT1005	Physics for Mechanical Engineering	2	1	0	3	50	50	100	3
2.	BSC	PHP1005	Physics for Mechanical Engineering Lab	0	0	2	1	25 + 25	-	50	-
3.	BSC	MAT1001	Applied Mathematics - I	2	1	0	3	50	50	100	3
4.	BSC	MAP1001	Computational Mathematics Lab	0	0	2	1	25 + 25	-	50	-
5.	ESC	MET1001	Mechanical Marvels	1	0	0	1	50	50	100	1*
6.	ESC	MET1002	Engineering Mechanics	3	0	0	3	50	50	100	3
7.	ESC	MET1003	Engineering Graphics	2	0	0	2	50	50	100	3
8.	VSEC	MEP1003	Engineering Graphics Lab	0	0	4	2	50 + 50	-	100	-
9.	AEC-1	HUT1002	English for Professional Communication	2	0	0	2	50	50	100	2
10.	AEC-1	HUP1002	English for Professional Communication Lab	0	0	2	1	25 + 25	-	50	-
11.	CCA	HUP1003-1 to 10/ PEP0001-21 to 22/ CHP0001-31 to 32	Liberal/Performing Arts Lab	0	0	2	1	25 + 25	-	50	-
12.	VEC	HUT1004	Universal Human Values	1	0	0	1	50	-	50	1*
			TOTAL	13	2	12	21			950	

NOTE : Liberal/Performing Arts Lab - To be selected from the basket of Liberal/Performing Arts.

Sr. No.	Course Code	Course Name	Department
1	HUP1003-1	Fundamentals of Indian Classical Dance: Bharatnatayam	Humanities
2	HUP1003-2	Fundamentals of Indian Classical Dance: Kathak	Humanities
3	HUP1003-3	Introduction to Digital Photography	Humanities
4	HUP1003-4	Introduction to Japanese Language and Culture	Humanities
5	HUP1003-5	Art of Theatre	Humanities
6	HUP1003-6	Introduction to French Language	Humanities
7	HUP1003-7	Introduction to Spanish Language	Humanities
8	HUP1003-8	Art of Painting	Humanities
9	HUP1003-9	Art of Drawing	Humanities
10	HUP1003-10	Nature camp	Humanities
11	PEP0001-21	Disaster Management through Adventure Sports	Physical Education
12	PEP0001-22	Self-defence Essentials and Basics Knowledge of Defence Forces	Physical Education
13	CHP0001-31	Art of Indian Traditional Cuisine	Chemistry
14	CHP0001-32	Introduction to Remedies by Ayurveda	Chemistry

Teaching Scheme and Examination for Bachelor of Technology
(Mechanical Engineering)
Semester - II

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BSC	CHT2004	Chemistry for Mechanical Engineers	2	0	0	2	50	50	100	3
2.	BSC	CHP2004	Chemistry Lab for Mechanical Engineers	0	0	2	1	25+25	-	50	-
3.	BSC	MAT2001	Applied Mathematics - II	2	1	0	3	50	50	100	3
4.	PCC	MET2001	Thermal and Fluid Sciences	3	0	0	3	50	50	100	3
5.	PCC	MET2002	Theory of Mechanisms & Elasticity	3	0	0	3	50	50	100	3
6.	ESC	EET2001	Basics of Electrical & Electronics Systems	3	0	0	3	50	50	100	3
7.	ESC	MET2003	Programming for Problem Solving	1	0	0	1	50	-	50	-
8.	ESC	MEP2003	Programming for Problem Solving Lab	0	0	2	1	25+25	-	50	-
9.	IKS	HUT2001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2
10.	VSEC	MET2004	Fab Lab - I	1	0	0	1	50	50	100	1*
11.	VSEC	MEP2004	Fab Lab - I	0	0	2	1	25+25	-	50	-
12.	CCA	PET2001	Sports-Yoga-Recreation	1	0	0	1	50	50	100	-
	CCA	PEP2001	Sports-Yoga-Recreation Lab	0	0	2	1	25+25	-	50	-
			TOTAL	18	1	8	23			1050	

Exit option 1 : Finishing School Certificate for a UG certificate course on Industry 4.0 Technologies			
In association with TATA-Technologies Ltd (Additional 8 Credits)			
	1	Certificate courses in association with TATA- Technologies Ltd on	Offline certification Course offered by RCOEM-TATA-CIIIT (RTC)
	RTC01	Basics of Solid Modeling	
	RTC02	3-D Printing	
	RTC03	Reverse Engineering	
	RTC04	Multi Body Dynamics (MBD)	
	RTC05	Internet of Things	
	RTC06	CNC Operations and Programming	
	RTC07	Finite Element Analysis	13 Hrs. -1 Credit each (any 8 to be selected)
	RTC08	Manufacturing Execution System	
	RTC09	Robotic Welding	
	RTC10	AutoCAD Drafting	
	RTC11	Profile engraving and Laser cutting (SIL)	
	RTC12	Electro Discharge Machining (P 20)	
	RTC13	Solar Technician	
	RTC14	Computer proficiency	
OR	2	One Month Internship at Industry	As prescribed by Industry
OR	3	Project Work (one month)	As prescribed by Industry/Institute

Teaching Scheme and Examination for Bachelor of Technology (Mechanical Engineering)
Semester - III

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MDM	MAT3001	Statistics for Engineers	2	0	0	2	50	50	100	2
	MDM	MAP3001	Statistics for Engineers	0	0	2	1	25+25	-	50	-
2.	PCC	MET3001	Mechanics of Solids	3	0	0	3	50	50	100	3
3.	PCC	MEP3002	Mechanical Engineering Software Lab	0	0	4	2	25+25	-	50	-
4.	PCC	MET3003	Manufacturing Engineering	3	0	0	3	50	50	100	3
5.	VSEC	MEP3004	Fab Lab-II	0	0	4	2	25+25	-	50	-
6.	OE	MET2980	Open Elective-I OR MOOC Course	2	0	0	2	50	50	100	2
7.	MGT	HUT3005	Engineering Economics	2	0	0	2	50	50	100	2
8.	FP	MEP3005	Field Project- Rural Technology	0	0	4	2	25+25	-	50	-
9.	VEC	CHT3001	Environmental Science	2	0	0	2	50	50	100	-
			TOTAL	14	0	14	21			800	

Open Elective - I	
Course Code	**Course Name**
MET2980-1	Solar Energy Utilization
MET2980-2	Product Design and 3D Printing
MET2980-3	Mechanical Engineering in Daily Life

Teaching Scheme and Examination for Bachelor of Technology
(Mechanical Engineering)
Semester - IV

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MDM	MET4001	Material Science and Testing	1	0	0	1	50	50	100	1
2.	MDM	MEP4001	Material Science and Testing Lab	0	0	2	1	25+25	-	50	-
3.	PCC	MET4002	Design of Machine Elements	3	0	0	3	50	50	100	3
4.	PCC	MET4003	Kinematics & Dynamics of Machinery	3	0	0	3	50	50	100	3
5.	PCC	MEP4003	Kinematics & Dynamics of Machinery Lab	0	0	2	1	25+25	-	50	-
6.	PCC	MET4004	Fluid Dynamics and HydraulicMachines	3	0	0	3	50	50	100	3
7.	PCC	MEP4004	Fluid Dynamics and HydraulicMachines Lab	0	0	2	1	25+25	-	50	-
8.	PCC	MET4005	Heat Transfer	3	0	0	3	50	50	100	3
9.	PCC	MEP4005	Heat Transfer Lab	0	0	2	1	25+25	-	50	-
10.	OE	MET2990	Open Elective-II OR MOOC Course	3	0	0	3	50	50	100	3
			TOTAL	**16**	**0**	**8**	**20**			**800**	

Open Elective - I I	
Course Code	**Course Name**
MET2990-1	Automobile Engineering
MET2990-2	Project Management
MET2990-3	CAD-CAM

Exit option 2 : Finishing School for a UG Diploma course of Machining Supervisor			
In association with TATA-Technologies Ltd. (Additional 8 Credits)			
	1	A course for Certified Machining Supervisor	Offline certification Course
OR	2	Prescribed Courses for Machining Supervisor	Online certification Course
OR	3	One Month Internship at Industry	As prescribed by Industry

Teaching Scheme and Examination for Bachelor of Technology
(Mechanical Engineering)
Semester - V

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MDM	MAT5001	Numerical Methods	2	0	0	2	50	50	100	2
2.	MDM	MAP5001	Numerical Methods Lab	0	0	2	1	25+25	-	50	-
3.	PCC	MET5001	Robotics and Mechatronics	3	0	0	3	50	50	100	3
4.	PCC	MEP5001	Robotics and Mechatronics Lab	0	0	2	1	25+25	-	50	-
5.	PCC	MET5002	Manufacturing Technology and Processes	3	0	0	3	50	50	100	3
6.	PCC	MEP5002	Manufacturing Technology and Processes Lab	0	0	2	1	25+25	-	50	-
7.	PCC	MET5003	Instrumentation and control	3	0	0	3	50	50	100	3
8.	PCC	MEP5003	Instrumentation and control Lab	0	0	2	1	25+25	-	50	-
9.	PSE	MET5004	Program Specific Elective-I (List Specified)	3	0	0	3	50	50	100	3
10.	OE	MET3980	Open Elective-III OR MOOC Course	3	0	0	3	50	50	100	3
			TOTAL	17	0	8	21			800	

Program Specific Elective – I			
Course Code	Course Name	Course Code	Course Name
MET5004-1	Mechanical Electrical & Plumbing	MET5004-5	Data Visualization Tools
MET5004-2	Automotive Powertrains	MET5004-6	Digital Twins & Cyber Physical Systems
MET5004-3	Advanced Materials & Composites	MET5004-7	Machine Learning for Mechanical Engineering
MET5004-4	Manufacturing Execution Systems	MET5004-8	Ancient Indian Machines

Open Elective - III	
Code Code	Course Name
MET3980-1	Electric Vehicle Technology
MET3980-2	Robotics and Drone Technology
MET3980-3	Heating Ventilation & Air-Conditioning

Teaching Scheme and Examination for Bachelor of Technology
(Mechanical Engineering)
Semester - VI

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MDM	MEP6001	Robotic Process Automation	3	0	0	3	50	50	100	3
2.	PCC	MET6002	Computer Aided Engineering	3	0	0	3	50	50	100	3
3.	PCC	MEP6002	Computer Aided Engineering Lab	0	0	2	1	25+25	-	50	-
4.	PCC	MET6003	Automation in Manufacturing	3	0	0	3	50	50	100	3
5.	PCC	MET6004	Product Innovation and Entrepreneurship **OR** Patent Filing/Appling linked to TBI	2	0	0	2	50	50	100	3
6.	PSE	MET6005	Program Specific Elective-II (List specified)	3	0	0	3	50	50	100	3
7.	PSE	MEP6005	Program Specific Elective-II Lab (List specified)	0	0	2	1	25+25	-	50	-
8.	PSE	MET6006	Program Specific Elective-III (List specified)	3	0	0	3	50	50	100	3
9.	PSE	MEP6006	Program Specific Elective-III Lab (List specified)	0	0	2	1	25+25	-	50	-
10.	VSEC	MEP6007	Object oriented Programming (Skill Based Course) **OR** Industry based Mini Project (working Model) with Seminar	0	0	4	2	50	50	100	2
			TOTAL	19	0	6	22			850	

Program Specific Elective – II with Lab			
Course Code	**Course Name**	**Course Code**	**Course Name**
MET6005-1	3-D Printing & Additive Manufacturing	MEP6005-1	3-D Printing & Additive Manufacturing Lab
MET6005-2	Renewable Energy Systems	MEP6005-2	Renewable Energy Systems Lab
MET6005-3	Human Machine Interface	MEP6005-3	Human Machine Interface Lab
MET6005-4	Drone & Electric Vehicle Technology	MEP6005-4	Drone & Electric Vehicle Technology ab

Program Specific Elective – III with Lab			
Course Code	**Course Name**	**Course Code**	**Course Name**
MET6006-1	Synthesis of Mechanisms	MEP6006-1	Synthesis of Mechanisms Lab
MET6006-2	Automated System Integration	MEP6006-2	Automated System Integration Lab
MET6006-3	Industrial Internet of Things	MEP6006-3	Industrial Internet of Things Lab
MET6006-4	Hydraulics & Pneumatics	MEP6006-4	Hydraulics & Pneumatics
MET6006-5	Relational DBMS	MEP6006-5	Relational DBMS Lab
MET6006-6	Automotive Mechanics	MEP6006-6	Automotive Mechanics
MET6006-7	Human Factors in Engineering	MEP6006-7	Human Factors in Engineering Lab

		Exit option 3 : Finishing school for B. Voc. Degree for a course on A Graduate/Trainee Mechanical Engineer	
		In association with TATA-Technologies Ltd (Additional 8 Credits)	
	1	A course for B. Voc. Degree in Mechanical Engineering	Offline certification Course
OR	2	Prescribed Courses for B. Voc. Degree in Mechanical Engineering	Online certification Course
OR	3	One Month Internship at Industry	As prescribed by Industry

Teaching Scheme and Examination for Bachelor of Technology (Mechanical Engineering)
Semester - VII

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MDM	MET7001	PLC & Industrial Control System	2	0	0	2	50	50	100	2
2.	MDM	MEP7001	PLC & Industrial Control System	0	0	2	1	25+25	-	50	-
3.	PCC	MET7002	Applied Thermal Engineering	3	0	0	3	50	50	100	3
4.	PCC	MEP7002	Applied Thermal Engineering Lab	0	0	2	1	25+25	-	50	-
5.	PSE	MET7003	Program Specific Elective-IV (List specified)	3	0	0	3	50	50	100	3
6.	PSE	MET7004	Program Specific Elective-V (List specified)	3	0	0	3	50	50	100	3
7.	PSE	MEP7004	Program Specific Elective-V Lab (List specified)	0	0	2	1	25+25	-	50	-
8.	PSE	MET7005	Program Specific Elective-VI (List specified)	3	0	0	3	50	50	100	3
9.	PSE	MEP7005	Program Specific Elective-VI Lab (List specified)	0	0	2	1	25+25	-	50	-
10.	PBL	MEP7006	Project Based Learning (Project stage-1)	0	0	8	4	100	100	200	3
			TOTAL	**15**	**0**	**14**	**22**			**900**	

Program Specific Elective – IV			
Course Code	**Course Name**	**Course Code**	**Course Name**
MET7003-1	Artificial Intelligence	MET7003-7	Power Plant Engineering
MET7003-2	Micro Fluidics	MET7003-8	Six Sigma Management
MET7003-3	Micromachining	MET7003-9	Motion Control Systems
MET7003-4	Wealth Creation & Management	MET7003-10	Elements of Marine Engineering
MET7003-5	Armament Technology in Defence	MET7003-11	Space Technology
MET7003-6	Introduction to Corporate Law Practice	MET7003-12	Standards and Certification Processes

Program Specific Elective – V with Lab			
Course Code	**Course Name**	**Course Code**	**Course Name**
MET7004-1	Augmented Reality & Virtual Reality	MEP7004-1	Augmented Reality & Virtual Reality Lab
MET7004-2	Computational Fluid Dynamics	MEP7004-2	Computational Fluid Dynamics Lab
MET7004-3	Supply Chain Management	MEP7004-3	Supply Chain Management Lab
MET7004-4	Industrial Robotics	MEP7004-4	Industrial Robotics Lab
MET7004-5	Operations Research & Optimization	MEP7004-5	Operations Research & Optimization Lab
MET7004-6	Unmanned Aerial Systems (UAS)	MEP7004-6	Unmanned Aerial Systems (UAS) Lab
MET7004-7	Enterprise Resource Planning	MEP7004-7	Enterprise Resource Planning Lab
MET7004-8	National Accreditation Board for Testing and Calibration Laboratories	MEP7004-8	National Accreditation Board for Testing and Calibration Laboratories Course Lab
MET7004-9	Non-Destructive Testing	MEP7004-9	Non-Destructive Testing Lab

Program Specific Elective – VI with Lab			
Course Code	**Course Name**	**Course Code**	**Course Name**
MET7005-1	Product Lifecycle Engineering	MEP7005-1	Product Life Cycle Engineering Lab
MET7005-2	Refrigeration & Air Conditioning	MEP7005-2	Refrigeration & Air Conditioning Lab
MET7005-3	Stress Analysis	MEP7005-3	Stress Analysis Lab
MET7005-4	Field and Service Robots	MEP7005-4	Field and Service Robots Lab
MET7005-5	Noise Vibration & Harshness	MEP7005-5	Noise Vibration & Harshness Lab
MET7005-6	Work System Design	MEP7005-6	Work System Design Lab

Teaching Scheme and Examination for Bachelor of Technology (Mechanical Engineering)
Semester - VIII

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PSE	MET8001	Occupational Health & Safety OR MOOC courses	3	0	0	3	50	50	100	3
2.	PSE	MET8002	Multi-criteria Decision Making OR MOOC Courses	3	0	0	3	50	50	100	3
3.	PBL	MEP8003	Field project based on Engineering Strategies for Sustainability	0	0	12	6	100	100	200	3
			TOTAL	**6**	**0**	**12**	**12**			**400**	
			OR								
1.	ELC	MET8004	Research Methodology OR Research Paper Publication in WoS/SCOPUS/SCI Journal	4	0	0	4	50	50	100	3
2.	ELC	MEP8005	Full Semester Research Internship at the Institute	0	0	16	8	100	100	200	-
			TOTAL	**4**	**0**	**16**	**12**			**300**	
			OR								
1.	ELC	MEP8006	TBI Internship	0	0	24	12	100	100	200	-
			OR								
1.	ELC	MEP8007	Full Semester Industry Internship	0	0	24	12	100	100	200	-
			TOTAL			**24**	**12**			**400**	

* For Online MOOC Courses only the SWAYAM portal is allowed

Semester VIII Level 6.0 (B. Tech. in Mechanical Engineering with Multi-disciplinary Minor)
(The Student will take honor courses of additional 18 credits, over and above 160 minimum credits.)

Teaching Scheme and Examination for Bachelor of Technology (Mechanical Engineering)
Honors Courses

Semester	Course Code	Name	L	T	P	Credit
III	METH3100	Geometric Dimensioning and Tolerance	2	0	2	3
IV	METH4100	Mechanical Estimation and Costing	2	0	2	3
V	METH5100	Integrated Advanced Manufacturing	3	1	0	4
VI	METH6100	Advanced Heat and Mass Transfer	3	1	0	4
VII	METH7100	Design of Mechanical Systems	3	0	2	4
			13	**2**	**6**	**18**

Semester VIII Level 6.0 (B. Tech. in Mechanical Engineering Honors with Research & Multi-disciplinary minor)

(The Student will take research project in semester VII & VIII of additional 18 credits, over and above 160 minimum credits.)

Semester	Course Code	Name	L	T	P	Credit
VII	MEPR8001-1	Research Project Phase – I	0	0	12	6
VIII	MEPR8001-2	Research Project Phase – II	0	0	24	12
		TOTAL	**0**	**0**	**36**	**18**

Semester VIII Level 6.0 (B. Tech. in Mechanical Engineering with double minor & multi-disciplinary minor)

(The student will take additional minor courses of 18 credits in another Engineering discipline, over and above 160 minimum credits.)

Teaching Scheme and Examination for Bachelor of Technology (Mechanical Enginnering)
Minors Specialization

Semester	Course Code	Name	L	T	P	Credit
III	METM3100	Elements of Mechanical Engineering	3	0	0	3
IV	METM4100	Additive Manufacturing	3	0	0	3
V	METM5100	CNC Programming & Operations	4	0	0	4
VI	METM6100	Energy Systems	4	0	0	4
VII	METM7100	Product Lifecycle Management (PLM)	4	0	0	4
		TOTAL	**18**	**0**	**0**	**18**

Scheme of Teaching & Examination for Bachelor of Technology List of Multi-Disciplinary Minors (MDM) - Automation (Mechanical Engineering)

Semester	Course Code	Name	L	T	P	Credit
III	MAT3001	Statistics for Mechanical Engineering	2	0	0	2
III	MAP3001	Statistics for Mechanical Engineering Lab	0	0	2	1
IV	MET4001	Material Science & Testing	1	0	0	1
IV	MET4001	Material Science & Testing Lab	0	0	2	1
V	MAT5001	Numerical Methods	2	0	0	2
V	MAP5001	Numerical Methods Lab	0	0	2	1
VI	MET6001	Robotic Process Automation	3	0	0	3
VII	MET7001	PLC & Industrial Control System	2	0	0	2
VII	MEP7001	PLC & Industrial Control System	0	0	2	1
		TOTAL	**10**	**0**	**8**	**14**

Teaching Scheme and Examination for Bachelor of Technology
B. Tech. (Electronics & Computer Science)
Semester - I

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BSC	PHT1007	Physics	2	1	0	3	50	50	100	3 Hrs.
2.	BSC	PHP1007	Physics Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT1001	Applied Mathematics -I	2	1	0	3	50	50	100	3 Hrs.
4.	BSC	MAP1001	Computational Mathematics Lab	0	0	2	1	50	-	50	-
5.	BSC	CHP1002	Environmental Science Lab	0	0	2	1	50	-	50	-
6.	ESC	ECST1001	Programming for Problem Solving	3	0	0	3	50	50	100	3 Hrs.
7.	ESC	ECSP1001	Programming for Problem Solving Lab	0	0	2	1	50	-	50	-
8.	VSEC	ECST1002	Fundamentals of Computer Engineering	2	0	0	2	50	50	100	2 Hrs.
9.	VSEC	ECST1003	Electronics and Computer Workshop	1	0	0	1	50	-	50	-
10.	VSEC	ECSP1003	Electronics and Computer Workshop Lab	0	0	2	1	50	-	50	-
11.	HSSM - AEC	HUT1002	English for Professional Communication	2	0	0	2	50	50	100	2 Hrs.
12.	HSSM - AEC	HUP1002	English for Professional Communication Lab	0	0	2	1	50	-	50	-
13.	CCA	HUP0001-1 to HUP0001-10 PEP0001-21 PEP0001-22 CHP0001-31 CHP0001-32	Liberal/ Performing Arts	0	0	2	1	50	-	50	-
14.	HSSM - VEC	HUT1004	Foundation course in Universal Human Value	1	0	0	1	50	-	50	-
			TOTAL	13	2	14	22				
				29 Hrs.							

Teaching Scheme and Examination for Bachelor of Technology
B. Tech. (Electronics & Computer Science)
Semester - II

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BSC	CHT2006	Chemistry of Smart Materials	2	0	0	2	50	50	100	2 Hrs.
2.	BSC	CHP2006	Chemistry of Smart Materials Lab	0	0	2	1	50	-	50	-
3.	BSC	MAT2001	Applied Mathematics -II	2	1	0	3	50	50	100	3 Hrs.
4.	ESC	ECST2001	Elements of IoT	3	0	0	3	50	50	100	3 Hrs.
5.	ESC	ECSP2001	Elements of IoT Lab	0	0	2	1	50	-	50	-
6.	ESC	ECST2002	Object Oriented Programming	2	1	0	3	50	50	100	3 Hrs.
7.	ESC	ECSP2002	Object Oriented Programming Lab	0	0	2	1	50	-	50	-
8.	PCC	ECST2003	Digital Electronics	3	0	0	3	50	50	100	3 Hrs.
9.	PCC	ECSP2003	Digital Electronics Lab	0	0	2	1	50	-	50	-
10.	HSSM - IKS	HUT2001	Foundational Literature of Indian Civilization	2	0	0	2	50	50	100	2 Hrs.
11.	CCA	PET2001	Sports-Yoga- Recreation	1	0	0	1	50	-	50	-
12.	CCA	PEP2001	Sports-Yoga- Recreation Lab	0	0	2	1	50	-	50	-
			TOTAL	15	2	10	22				
				27 Hrs.							

Exit option : Award of UG Certificate with additional 8 credits		
Exit Courses		
1	IT Support Engineer	Online/Offline Certification Course	8
2	Python		8
3	Web Designer		8

Teaching Scheme and Examination for Bachelor of Technology
B. Tech. (Electronics & Computer Science)
Semester - III

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECST3001	Data Structures	2	1	0	3	50	50	100	3 Hrs.
2.	PCC	ECSP3001	Data Structures Lab	0	0	2	1	50	-	50	-
3.	PCC	ECST3002	Electronic Devices and Circuits	2	1	0	3	50	50	100	3 Hrs.
4.	PCC	ECSP3002	Electronic Devices and Circuits Lab	0	0	2	1	50	-	50	-
5.	PCC	ECST3003	Digital System Design	2	1	0	3	50	50	100	3 Hrs.
6.	PCC	ECSP3003	Digital System Design Lab	0	0	2	1	50	-	50	-
7.	MDM	ECST3004	Discrete Mathematics	2	0	0	2	50	50	100	2 Hrs.
8.	OE		Open Elective-I/ MOOCs	2	0	0	2	50	50	100	2 Hrs.
9.	HSSM	HUT3003	Managerial Economics	2	0	0	2	50	50	100	2 Hrs.
10.	HSSM - VEC	ECST3005	Cyber Laws and Ethics in IT	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**14**	**3**	**6**	**20**				
				23 Hrs.							

Semester - IV

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECST4001	Computer Architecture and Organization	2	1	0	3	50	50	100	3 Hrs.
2.	PCC	ECSP4001	Computer Architecture and Organization Lab	0	0	2	1	50	-	50	-
3.	PCC	ECST4002	Design and Analysis of Algorithms	2	1	0	3	50	50	100	3 Hrs.
4.	PCC	ECST4003	Software Engineering	2	1	0	3	50	50	100	3 Hrs.
5.	PCC	ECSP4003	Software Engineering Lab	0	0	2	1	50	-	50	-
6.	MDM	ECST4004	Statistics for Data Analytics	3	1	0	4	50	50	100	3 Hrs.
7.	OE		Open Elective- II/MOOCs	3	0	0	3	50	50	100	3 Hrs.
8.	VSEC	ECSP4005	Software Laboratory - I	0	0	4	2	50	-	50	-
9.	HSSM	MBT	Business Management and Entrepreneurship	2	0	0	2	50	50	100	2 Hrs.
			TOTAL	**14**	**4**	**8**	**22**				
				26 Hrs.							

Exit option : Award of UG Diploma with additional 8 credits		
Exit Course		
1	Application Development (Android)	Online/Offline Certification Course	8
2	Software Engineer (Developer)		8
3	PCB Designer		8

Teaching Scheme and Examination for Bachelor of Technology
B. Tech. (Electronics & Computer Science)
Semester - V

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECST5001	Operating System	2	1	0	3	50	50	100	3 Hrs.
2.	PCC	ECSP5001	Operating System Lab	0	0	2	1	50	-	50	-
3.	PCC	ECST5002	Embedded System Design	2	1	0	3	50	50	100	3 Hrs.
4.	PCC	ECSP5002	Embedded System Design Lab	0	0	2	1	50	-	50	-
5.	PCC	ECST5003	Digital VLSI Design	2	1	0	3	50	50	100	3 Hrs.
6.	PCC	ECSP5003	Digital VLSI Design Lab	0	0	2	1	50	-	50	-
7.	MDM	ECST5004	Machine learning	3	0	0	3	50	50	100	3 Hrs.
8.	MDM	ECSP5004	Machine learning Lab	0	0	2	1	50	-	50	-
9.	PEC	ECST5005	Program Elective-I	3	0	0	3	50	50	100	3 Hrs.
10.	PEC	ECSP5005	Program Elective-I Lab	0	0	2	1	50	-	50	-
11.	OE		Open elective-III/ MOOCs	3	0	0	3	50	50	100	3 Hrs.
			TOTAL	**15**	**3**	**10**	**23**				
					28 Hrs.						

Semester - VI

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECST6001	Database Management System	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	ECSP6001	Database Management System Lab	0	0	2	1	50	-	50	-
3.	PCC	ECST6002	System Verilog for Verification	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	ECSP6002	System Verilog for Verification Lab	0	0	2	1	50	-	50	-
5.	PEC	ECST6003	Programme Elective-II	3	0	0	3	50	50	100	3 Hrs.
6.	PEC	ECSP6003	Programme Elective-II Lab	0	0	2	1	50	-	50	-
7.	PEC	ECST6004	Programme Elective-III	3	0	0	3	50	50	100	3 Hrs.
8.	PEC	ECSP6004	Programme Elective-III Lab	0	0	2	1	50	-	50	-
9.	MDM	ECST6005	Data Handling and Visualization	2	0	0	2	50	50	100	2 Hrs.
10.	VSEC	ECSP6006	Software Laboratory-II	0	0	4	2	50	-	50	-
11.	FP	ECSP6007	Project-1	0	0	4	2	50	50	100	-
			TOTAL	**14**	**0**	**16**	**22**				
					30 Hrs.						

Exit option : Award of UG Degree with additional 8 credits		
Exit Course		
1	TBI Internship	
2	Centre for Microsystem Internship	Online/offline Certification Course	8
3	Research Internship	8

Teaching Scheme and Examination for Bachelor of Technology
B. Tech. (Electronics & Computer Science)
Semester - VII

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECST7001	Computer Networks	3	0	0	3	50	50	100	3 Hrs.
2.	PCC	ECSP7001	Computer Networks Lab	0	0	2	1	50	-	50	-
3.	PCC	ECST7002	SOC Design	3	0	0	3	50	50	100	3 Hrs.
4.	PCC	ECSP7002	SOC Design Lab	0	0	2	1	50	-	50	-
5.	PCC	ECST7003	Information Security and Cryptography	3	0	0	3	50	50	100	3 Hrs.
6.	MDM	ECST7004	Digital Signal Processing	3	0	0	3	50	50	100	3 Hrs.
7.	PEC	ECST7005	Program Elective-IV	3	0	0	3	50	50	100	3 Hrs.
8.	PRJ	ECSP7006	Project-2	0	0	4	2	50	50	100	-
9.	FP	ECSP7007	Internship Evaluation	0	0	2	0	-	-	-	-
			TOTAL	**15**	**0**	**10**	**19**				
				25 Hrs.							

Semester - VIII

Sr. No.	Course Type	Course Code	Course Title	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PEC	ECST8001	Program Elective-V	3	0	0	3	50	50	100	3 Hrs.
2.	PEC	ECST8002	Program Elective-VI	3	0	0	3	50	50	100	3 Hrs.
3.	PRJ	ECSP8003	Project-3	0	0	12	6	50	50	100	-
				6	**0**	**12**	**12**				
				18 Hrs.							
1.	Intern./ OJT	ECSP8006	Industry Internship/TBI Internship/ Research Internship	0	0	24	12	50	50	100	-
			TOTAL				**12**				
				24 Hrs.							

Teaching Scheme for Bachelor of Technology
B. Tech. (Electronics & Computer Science)

Honors Specialization in Research

Sr. No.	Sem.	Course Code	Course Name	Hours/Week			Credits	Maximum marks			ESE Exam Duration (Hrs.)
				L	T	P		Continuous Assessment	End Sem Exam	Total	
1.	RM	ECST8004	Research Methodology	4	0	0	4	50	50	100	3 Hrs
2.	PRJ	ECSP8005	Research Internship	0	0	28	14	50	50	100	-
			TOTAL	**4**	**0**	**28**	**18**				
				32 Hrs.							

Programme Electives

Micro Specialization		Semester V	Semester VI		Semester VII	Semester VIII	
		Elective-I	**Elective-II**	**Elective-III**	**Elective-IV**	**Elective-V**	**Elective-VI**
AI/ML	**Course Code**	ECST5005-1/ ECSP5005-1	ECST6003-1/ ECSP6003-1	ECST6004-1/ ECSP6004-1	ECST7005-1	ECST8001-1	ECST8002-1
	Course Name	Deep Learning-I	Image Processing	Deep Learning-II	Natural Language Processing	Generative Adversari al Network	Reinforcement Learning
VLSI	**Course Code**	ECST5005-2/ ECSP5005-2	ECST6003-2/ ECSP6003-2	ECST6004-2 / ECSP6004-2	ECST7005-2	ECST8001-2	ECST8002-2
	Course Name	VLSI Signal Processing	C Based VLSI Design	Design for Testability	Advanced Computer Architecture	Flexible Electronics and Sensors	Nano Electronics
IoE	**Course Code**	ECST5005-3/ ECSP5005-3	ECST6003-3/ ECSP6003-3	ECST6004-3 / ECSP6004-3	ECST7005-3	ECST8001-3	ECST8002-3
	Course Name	IoT Sensors and Devices	IoT Networks and Protocols	IoT Programming and Big Data	Cyber Security and Privacy in IoT	Autonomous Vehicle	Capston eProject
General	**Course Code**	ECST5005-4/ ECSP5005-4	ECST6003-4/ ECSP6003-4	ECST6004-4 / ECSP6004-4	ECST7005-4	ECST8001-4	ECST8002-4
	Course Name	Cloud Computing	Data Mining and Warehousing	Big Data Web Intelligence	System Design	Block Chain	Sales Force

List of Open Electives

Sr.No.	Semester	Course Code	Course Name
1	III	ECST2980	Basics of Linux Operating System
2	IV	ECST2990	Designing with Raspberry Pi
3	V	ECST3980	Programming for Vedic Mathematics Sutras

Regulation	Description
R 1. General	
R 1.1	These regulations shall be called as "Regulations for the UG programmes of the Institute".
R 1.2	These regulations shall come into force with effect from the date of its approval by the Academic Council.
R. 2 Undergraduate Programmes	
R 2.1	The Institute shall offer Undergraduate programmes as shown in Table 1.
R 2.2	The minimum duration of UG programmes leading to B.Tech. degree is eight semesters (spread over four years). The duration of the UG programme may be altered in accordance with the decision of the Competent Authority.
R 2.3	Reservation of seats for admission to UG programmes shall be as per the norms of the Government for Minority Institutions.
R 2.4	Direct second-year UG admission (lateral entry) shall be made as per norms and procedures of Government for Minority Institutions.
R 2.5	The candidate shall be provisionally admitted to UG programme subject to fulfillment of eligibility criterion as prescribed by the Competent Authority.
R 2.6	In the matter of admissions to the UG programmes, the decision of the competent authority shall be final.
R 2.7	A student should have obtained the eligibility certificate from the University in the first semester at the time of admission.
R 3. Semester System	
R 3.1	The academic programmes in the Institute shall be based on semester system; two semesters typically July – December and January – June in a year with winter and summer vacations.
R 3.2	The curriculum shall consist of credit and audit (non-credit) courses.
R 3.3	Each credit course shall have a certain number of credits assigned to it depending upon the academic load of the course, which would be assessed on the basis of weekly contact hours of theory lectures, tutorial, laboratory classes and field study if required.
R 3.4	The courses, practicals, seminars and projects offered in a semester shall be continuously assessed and evaluated to judge the performance of a student as the scheme.
R 4. Curriculum Structure	
R 4.1	**The programmes will consist of the following components.** • Basic Sciences • Engineering Sciences • Programme Core Courses • Programme Elective Courses • Multidisciplinary Minor • Open Elective • Vocational and Skill Enhancement Courses • Ability Enhancement Courses • Entrepreneurship / Economics / Management Courses • Indian Knowledge System • Value Education Courses • Research Methodology • Community Eng. Project / Field Project • Project • Internship • Co-curricular Courses / Liberal Learning
R 4.2	Each UG programme will have a curriculum and course contents (syllabi) for the courses designed by the BOS and approved by Academic Council.
R 4.3	The curriculum of any UG programme is designed to have credits of 162 for award of the degree. In case of direct second year diploma student, credits shall be calculated from second year onwards and the minimum credit requirement for award of degree shall be

	as per the credits mentioned in the scheme of department from II semester to VIII semester..
R 4.4	The Total contact hours for UG programmes shall be as per norms prescribed by the Competent Authority.
R 4.5	The medium of instruction, examination and project reports will be English.
R 4.6	Every UG student will have to earn the credits by passing all the credit courses and will have to earn 'SF' grade in all the audit courses to become eligible for award of the Degree.
R 4.7	**Credit structure:** One credit of theory will be equivalent to **13-15 hours** of teaching spread across the semester. One credit of lab will be equivalent to **26-30 hours** of laboratory work spread across the semester. One credit of the project will be **26-30 hours** of project work spread across the semester. One Credit of Workshop, Skill based activity shall be of **26-30 hours** spread across the semester. One credit of the internship will be a two-week internship [**36-40 hours**]. One Credit of Field project and Community Engagement Project shall be of **26-30 hours**.
R 5. Course Credits	

R 5.1	Each credit course shall have an integer number of credits, which reflects its weight. The student earns credits by passing corresponding courses in minimum 'CD' grade in theory course examination and in minimum 'CC' grade in practical course examination. The number of credits of a course in a semester shall normally be calculated as under (however there may be some exceptions)
	    a) Lectures & Tutorial : One lecture or tutorial hour per week shall be assigned one credit.
	    b) Practical : One laboratory hour per week shall be assigned half credit. Not more than two credits may be assigned to a practical course having only laboratory component.
	    c) Project : One project hour per week will be assigned half credits.
	    d) Self Learning: This component allows students to perform "self learning" of curriculum topics.
	Special courses like minor and major projects, seminars, and general proficiency in the UG programme shall be treated as any other practical course and shall be assigned such number of credits as reflected in the respective scheme approved by the BOS and Academic Council.

R6. Incentive to the Students for Achievement/Participation in R&D, SRC, Sports, NSS, NCC, TBI, T&P, Swachch Bharat Internship, Co-curricular/Extra-curricular Activities, and all competitive examination such as GATE, GRE, CAT, UPSC.	
R 6.1	The achievement/participation of any undergraduate or postgraduate student (admitted to any UG or PG programme), in various co-curricular/extra-curricular activities will be treated as an additional course and shall be awarded grade points as follows from the academic year 2023-24. For the award of incentive marks, student shall be required to apply with required proofs/certificate/endorsement received from the respective Professor Incharge to the HoD of parent department. Evaluation of student for SRC, NCC/NSS/Sports, TBI, T&P, Swachch Bharat Internship shall be done by Dean-Student Affairs, HoD (Physical Education), Professor Incharge-III Cell, Dean-T&P and Nodal Officer-Swachch Bharat Internship respectively. Evaluation for achievement/participation in remaining activities, compilation of all incentive marks and submission of final incentive marks to CoE shall be done by parent department of the student. The summation of all incentive marks put together for different achievements/activities should not go above 100 marks in a semester. Student will not be eligible for incentives if any of the parameter for which the incentive marks are claimed by student, is a part of curriculum. The award of grade points based on absolute marks out of 100 shall be made as follows :

For 162 credit schemes of UG programmes	
Grade Points	Range of Marks
10	91-100
9	81-90
8	71-80
7	61-70
6	51-60
5	41-50
4	31-40
0	Less than 31

A) **R and D activities:** The student participating in Co-curricular Learning, Research and Consultancy is eligible for award of incentives as per following table.

Sr. No.	*Particulars	Incentive Marks
A	**Co-curricular Learning:**	
**1	Offline or online certificate course of minimum 30 Hrs duration offered by IITs / IIMs / IIITs / NITs / Department of Ministries, Govt. of India / MOOCs / Premier organization / Professional bodies (Course Passed/Course Attended)	80/60
**2	Offline or online certificate course of minimum 20 Hrs duration offered by IITs / IIMs / IIITs / NITs / Department of Ministries, Govt. of India / MOOCs / Premier organization/ Professional bodies (Course Passed/Course Attended)	60/40
B	**Research/Consultancy Projects:**	
1	Winner in research/innovation competitions of repute, organized by IITs / IIMs / IIITs / NITs / other institutes having NIRF rank / Departments of Ministries, Govt. of India / Premier organizations / Professional bodies.	80
2	Participation in research / innovation competitions of repute, organized by IITs / IIMs / IIITs / NITs / other institutes having NIRF rank / Department of Ministries, Govt. of India / Premier organizations / Professional bodies.	60
3	Participation in Research / Consultancy projects of the college	60
4	Patent filed jointly with RCOEM	100
C	**Research Publications:**	
1	Research Paper accepted for publication in journal indexed in Science Citation Index (SCI) / Scopus / Emerging Sources of Citation Index (ESCI)	100
2	Research Paper accepted for publication in Wos Indexed journal other than SCI, SCOPUS, ESCI	80
3	Research Paper accepted and presented in scopus conference organized by IITs / IIMs / IIITs / NITs / other institutes having NIRF rank/Premier organizations / Professional bodies.	60

* Student will not be eligible for incentive in case, if any of the above stated parameters is a part of curriculum.

* If more than one student is involved, the marks awarded will be divided equally amongst the students.

** Incentives shall be awarded subject to approval of the online / offline MOOCs by the concerned department and passing of the examination conducted for that course in the environment created by that department.

(B)   Extra-curricular and T&P activities: The student participating in extra-curricular activity is eligible for the award of incentives as per the following table : Extra-Curricular Activities : Cultural Activities

Sr. No.	Particulars	Incentive Marks
1	All office bearers of Departmental societies	40
2	Participation in Intercollegiate competitions (University)	60
3	Winners in Intercollegiate competitions (University)	80
4	SRC Team member [Post holder [	80
5	Participation in Inter University/National level competitions	100
6	Branch-wise student placement coordinators (excluding central student placement committee)	40
7	Central student placement committee member [Per branch Two students]	80

C)   Sports / NSS / NCC activities: The student participating in Sports/NSS/NCC related activity etc. is eligible for the award of incentives as per the following:

Sr. No.	Parameter	Incentive Marks
1	Participation in Inter collegiate activities/NSS Regular Volunteer/NCC	51-60
2	Securing III/II/I Place in University, Sport – NSS Joint Secretary, Sports – NSS Secretary	71-80
3	West Zone/National level Participation (Sports/NSS/NCC)	100
4	Completion of Swachcha Bharat Summer Internship (Allowed once per year)	100

D)   TBI-related activities: The students participating in TBI related activities are eligible for the award of incentives as per the following.

Sr. No.	Parameter	Incentive Marks
A	Incubation Stages:	
	i) Idea Pre-incubation Stage	40
	ii) Incubation Stage	60
	iii) Start-up Phase	80
B	Participation in Intercollegiate BP Competitions organized by IIMs/IITs and any other nationally renowned TBI/ Organization / Professional Bodies	60
	Participation and securing top 3 positions held at IIMs/IITs and any other nationally renowned TBI/ Organization/ Professional Bodies	80
C	i) RCOEM TBI Foundation core Committee	60
	ii) RCOEM TBI Foundation President/Vice President / Secretary / Jt. Secretary	80
D	Seed Funding Support Received for start-ups in Lakhs:	
	i) 2 to 5 Lakhs	60
	ii) 5 to 10 Lakhs	80
	iii) 10 to 25 Lakhs	100
E	Selection for Incubation/acceleration phase at IIM/IITs/ Nationally Renowned TBI/ acquisition by VC	100

Note : Incentives for start-up related activities shall be offered subject to fulfilment of the criteria & guidelines decided and revised by RCOEM TBI Foundation from time to time and after due scrutiny by Team TBI on case to case basis.

R 6.2	Community Service Programme (CSP) will be announced by the Sports/Humanities/ NSS department time to time at the start of academic year. The students should register in the concerned department and shall participate in the CSP conducted during that academic year.
R 6.3	**"Incentive Scheme for Performance in GATE"** • A student of RCOEM who is pursuing B.E. programme, and who has qualified GATE examination with valid pass or higher score as certified by the competent authority, shall be eligible for the award of GATE incentive-grade points (IPG) after the completion of VIII Semester subject to submission of written request by the student along-with necessary supporting documents. This will be effective from academic year 2023-24. • The GATE incentive grade points (IPG) awarded after qualifying GATE shall be over and above the incentive marks / grade points awarded as per UG Regulation R 7.1 (for achievements/ participation in R & D, SRC, Sport, NSS, NCC, TBI, T & P, Swachcha Bharat Internship, Co-curricular/ extra-curricular activities). • The GATE incentive grade points (IPG) will be decided such that there should be an addition of 0.1 in CGPA with a maximum limit of CGPA equal to 10.

Sr. No.	Teaching Scheme	GATE incentive-grade points (IPG)	Rise in CGPAVIII Due to (IPG)
1	UG schemes of 162 credits (implemented progressively from 2023-24)	16	0.1

The incentive-grade points (IPG) shall be used for the calculation of CGPA of VIII Semester as under, after successful completion of the programme in which the student was admitted, as per regulations :

$$CGPA_{VIII} = \frac{\sum_{j=1}^{m} C_j P_J + \sum_{l=0}^{k} C_{al} P_{al} + IP_G}{\sum_{j=1}^{m} C_j}$$

Where:

Cj = Number of credits offered in the jth course up to the semester for which CGPA is to be calculated

Pj = Grade points earned in the jth course

j = 1,2,. , m represent the number of courses in which a student is registered upto the semester for which the CGPA is to be calculated.

Cal = Incentive credit in a semester as per UG Regulation R28

Pal = Grade points for involvement in various activities in a semester as per UG Regulation R7.1

l = 0,I. K represent number of semester of participation.

R 7 Academic Council	
R 7.1	Academic Council shall consist of 1. Principal (Chairman) 2. All Heads of the Departments in the Institute. 3. Four teachers of the Institute representing different categories of teaching staff by rotation on the basis of seniority of service in the Institute. 4. Not less than four experts from outside the Institute representing such areas as Industry, Commerce, Law, Education, Medicine, Engineering etc. to be nominated by the Board. 5. Three nominees of the University. 6. The Controller of Examination of the Institute A Faculty member nominated by the Principal (Member secretary).

R 7.2	Without prejudice to the generality of functions mentioned the Academic Council will have powers to:
	a) Scrutinize and approve the proposals with or without modifications of the Board of Studies with regard to the course of study, academic regulations, curricula, syllabi and modifications. Thereof, instructional and evaluation arrangement, methods, procedures relevant thereto etc.
	b) Make regulations regarding the admission of students to different programmes of study in the college.
	c) Make regulations for sports, extra-curricular activities, and proper maintenance and functioning of the playgrounds and hostels.
	d) Recommend to the Board proposals for the institution of new programmes of study.
	e) Recommend to the Board, scholarships, studentship, fellowships, prizes and medals, and to frame regulations for the award of the same.
	f) Advise to the Board on suggestion(s) pertaining to academic affairs made by it.
	g) Perform such other functions as may be assigned by the Board.
	Any other matters time to time through necessary by the Principal and the Board
R 8. Programme Assessment Committee [PAC] and Department Examination Coordinator [DEC]	
R 8.1	Every HOD will appoint a Programme Assessment Committee and Department Examination Coordinator [DEC] for necessary implementation of institute examination policies.
R 9. Course Coordination Committees	
R 9.1	Every HOD will appoint a coordination committee for each subject group which shall contain the senior departmental faculty related to the subject/group and invited members from other departments and industry if required.
R 10. Board of Studies (BOS)	
R 10.1	Every department shall have its own Board of Studies (BOS) to look after all matters pertaining to the programmes offered by that department.
	Composition:
	a) Head of the department concerned (Chairman)
	b) The entire faculty of each specialization. Two experts in the subject from outside the Institute are to be nominated by the Academic Council.
	c) One expert to be nominated by the Vice Chancellor from a panel of six recommended by the Principal.
	d) One representative from the industry/corporate sector/allied area relating to placement.
	e) One alumnus to be nominated by the Principal.
	The Chairman BOS, may with the approval of the Principal, co-opt
	I. Expert from outside the college whenever sufficient courses of study are to be formulated.
	II. Other member of staff of the same faculty.
	Provided that in the case of Applied Sciences, the Chairman of the Board will be HOD of Physics, Chemistry, Mathematics and Humanities by rotation. The remaining composition of the Board will be the same.
R 10.2	Functions:
	BOS of a department in the Institute shall:
	a) Prepare syllabi for various courses keeping in view the objectives of the Institute, interest of the stakeholders and national requirement for consideration and approval of the Academic Council;
	b) Suggest methodologies for innovative teaching and evaluation techniques;
	c) Suggest panel of names to the Academic Council for appointment of examiners; and
	Coordinate research, teaching, extension and other academic activities in the department/Institute.
R 10.3	The Principal of the Institute shall appoint the BOS in consultation with the respective Head of the Department. In case of vacancies in BOS replacement shall be done by Chairman BOS with the approval of the Principal. For an interdisciplinary programme, an ad-hoc board

	shall be constituted by Dean Academics. A Programme Coordinator shall be appointed by the Principal in consultation with the Dean Academics and the Heads of the concerned Departments to look after all the administrative and academic matters related to the interdisciplinary programme.
	The Programme/Course Coordinator shall exercise the functions of the Chairman, of such ad-hoc Boards.
R 11. Courses of Special Nature	
R 11.1	**(a) Minor-Project** A curriculum may contain a course on minor project, which may be offered in the third/fourth/ fifth/sixth semester onwards to carry out a design, fabrication, site visits, market survey, etc. Not more than four students may carry out the minor project together. It shall be considered as compulsory field project in the scheme. **(b) Major Project** A curriculum shall contain a credit component of **seminar** and **major project**, offered in the sixth/seventh and eight semesters of the UG programme. Not more than four students may carry out the major project together. The batch formation norms and allotment of guide shall be carried out by concerned Department. **(c) Offering an Elective** An elective course in a department shall run only if the minimum of 15 students register for it in a regular semester. If registration is in between 10-15, special permission may be sought from Chairman, the Academic Council for starting the course.
R 12. Starting a New Programme	
R 12.1	(a) The Institute is free to start diploma (UG and PG) or certificate courses without the prior approval of the university. Diplomas and certificates shall be issued under the seal of the college. (b) The Institute is free to start a new degree or postgraduate programme with the approval of the academic council. Such programmes shall fulfil the minimum standards prescribed by the University/UGC in terms of the number of hours, and curricular content and the university shall be duly informed of such programmes. (c) The Institute may rename the existing programme after restructuring/redesigning it with the approval of the academic council as per UGC norms. The university should be duly informed of such proceedings so that it may award new degrees in place of the old. (d) An interdisciplinary programme may be proposed by a Department in consultation with other participating Department(s), or by a group of Department(s) or by a Committee appointed by the Principal. A new programme proposed by the Department(s) shall be placed before the APEC and the Academic Council for their recommendation to the Board/Government/AICTE for obtaining its approval.
R 13. Registration	
R 13.1	The student admitted shall have his/her unique Student ID. The Student ID of a student shall consist of alpha-numerals nnPPPmmmPPP where, nn: Indithe cates year of admission, PPP: Indicates programme, and mmm: Indicates serial number of the student in a programme. Example, 15EEU001EEU; 15-year of admission, EEU- programme in which admitted, 001- is serial number of the student, EEU- programme in which student is admitted. If the branch is changed to CS, then the ID will change as; 15EEU001CSU.
R 13.2	Registration at the beginning of each year, on the prescribed dates announced from time to time, by payment of the stipulated fees along with duly filled in admission form is compulsory for every student till he/she completes the Programme.
R 13.3	Registration, according to the rules, should be carried out on the first four days of each year. Late registration may be permitted only for valid reasons and on payment of a late registration fee. In any case, registration must be completed before the prescribed last date of registration, failing which his/her studentship is liable to be cancelled. Students having outstanding dues to the Institute or hostel shall be permitted to register on after clearing the dues.

R 13.4	In-absentia registration may be allowed only in rare cases at the discretion of the Dean Academic in case of circumstances beyond the control of students.
R 13.5	The number of attempts and promotion rules for all undergraduate programs for existing and incoming batches to be implemented from academic year 2023-24 and onwards shall be as follows. The attempts pattern tabulated below shall be implemented from 2023-24.
R 13.6	The student taking admission in the first semester of all courses including UG and PG shall be registering in Academic Bank of Credit [ABC] portal. The portal will be used for submission of credits and other relevant documents of the registered students. The credit transfer scheme have to be applicable from time to time with respect to guidelines received from the NAD **(National Academic Depository)** and ABC **(Academic Bank of Credits)** authorities.

Semester	Regular Winter	Makeup Winter	Regular Summer	Makeup Summer
I	Yes	Yes	Yes	Yes
II	Yes	Yes	Yes	Yes
III	Yes	Yes	Yes	-
IV	Yes	-	Yes	Yes
V	Yes	Yes	Yes	-
VI	Yes	-	Yes	Yes
VII	Yes	Yes	Yes	-
VIII	Yes	-	Yes	Yes

Promotion Rules:
- For being eligible to register for (or take admission in) Semester III, student must have secured at least 60% of the total credits (rounded off to nearest lower integer) in first year (Semester I & II together).
- For being eligible to register for (or take admission in) Semester V, student must have completed successfully all courses & earned all the credits offered in first year and secured at least 60% of the total credits (rounded off to nearest lower integer) in second year (Semester III & IV together).
- For being eligible to register for (or take admission in) Semester VII, student must have completed successfully all courses & earned all the credits offered in first & second year and secured at least 60% of the total credits (rounded off to nearest lower integer) in third year (Semester V & VI together).

R 14. Equivalence and Absorption of students	
R 14.1	The students from the University pattern, desirous of seeking admission to III, V and VII semester in autonomous pattern, has to fulfill the prevailing ATKT norms of the University, to become eligible for admission. However, such students have to clear backlog subjects (courses) if any, by appearing for the respective examinations of University. In addition the student also has to register and pass new courses, if any, introduced in earlier semesters of the autonomous pattern in three attempts. The norms of absorption/equivalence shall be decided by the Academic Council on the recommendations of the Equivalence Committee from time to time.
R 14.2	The student, desirous of seeking readmission to II, IV, VI, and VIII semester in particular academic year (because of detention in university pattern) will have to register and pass in I, III, V and VII semester of the same academic year for all such courses which have not been covered (fully or partially) in previous semester in university pattern.

| R 14.4 | When a student switches from a University to the Institute, the additional courses offered in previous semester of that programme in Autonomous pattern of the institute and not covered in the corresponding University curriculum, such additional courses shall be treated as audit courses and he/she will have to earn 'Satisfactory Grade' in those courses.
Provided that the/she clears all the backlog subjects in a university and earns 'Satisfactory grade for the additional course/s in the institute, which is/are not covered in university curriculum, prior to switch over.
Provided further that, for a student/s seeking transfer from an autonomous college to the |

	Institute will have to clear all the backlogs of his parent institute and all those additional courses offered in previous semester/s of the Institute.
R 14.5	For direct admission to second year (lateral entry)/transfer the calculation of CGPA and award of credits shall be governed by R 14.3 and R 14.4, in that case percentage of the diploma certificate shall be considered for the absolute grading system instead of the first year.
R 14.6	The students from any University/Autonomous college desirous of seeking admission to III/V/VII semester is eligible to take admission as per norms laid down by the Equivalence Committee of the college after obtaining the permission from the competent authority. The Entry rules of the institute and competent authorities will be applicable at the time of admission process.
R 15. Change of Branch	
R 15.1	A student seeking a change of branch at III semester must have earned all the credits of I and II semesters. The necessary rules and regulations will be released by office of Dean Admission time-to-time, for students opting for change of branch. The change of branch shall be permitted as per the rules and norms approved by the Government from time to time.
R 16. Discipline and Conduct	
R 16.1	Every student is required to observe discipline and decorous behavior both inside and outside the campus and not to indulge in any activity, which will tend to bring down the prestige of the Institute.
R 16.2	The following acts of omission and/or commission by the students within or outside the college campus shall constitute gross violation of 'Code of Conduct' punishable as indiscipline. a) Lack of courtesy and decorum, as well as indecent behavior; b) Willful damage of property of Institute/Hostel or of fellow students; c) Possession/Consumption/Distribution of alcoholic drink and banned drugs; d) Mutilation or unauthorized possession of library materials like books, journals etc. e) Noisy and Unseemly behavior disturbing peace in Institute and Hostel; f) Hacking in Computer system, either hardware or software or both; Any other act considered by the Institute as a gross indiscipline.
R 16.3	Any act of student's indiscipline will be addressed by Discipline Committee duly constituted and notified by the Principal. The Committee will enquire into the charges of indiscipline and recommend appropriate measures/punitive action to the Principle. The Discipline committee may inform the recommendations to the students. Decision of the Principal would be final.
R 16.4	If the student while studying in the Institute is found indulging in anti-national activities contrary to the provisions of acts and laws enforced by Government he/she will be liable to be expelled from the Institute without any notice.
R 16.5	If a student is involved in any kind of ragging, the student shall be liable for strict action as per Maharashtra anti-ragging act 1999, which is in effect for 15th may 1999.
R 16.6	If any statement/information supplied by the student in connection with his/her admission is found to be false/incorrect at any time, his/her admission shall be cancelled and he/she shall be expelled from the Institute and fees paid shall be forfeited.
R 16.7	Student once admitted in the Institute has to follow dress code, if any, as well as other instructions issued by the administration from time to time, failing which disciplinary action shall be initiated against such student.
R 16.8	If a student is found guilty of overall misconduct during his/her stay in the Institute, he/she will be punished as per the recommendations of the Dean, Student Affairs. The maximum punishment may be expulsion from the Institute.
R 16.9	If a student is found guilty of malpractice in examination he/she will be punished as per the recommendations of the COE in consultation with EXC.
R 17. Attendance, Absence, Leave Rules and Dismissals	
R 17.1	All the students are expected to be present in every lecture, tutorial, practical, NCC / NSS / CSP / Games & Sports / Yoga scheduled for them. Attendance will be closely monitored during a semester as per the guidelines.
R 17.2	If a student is continuously absent from classes for more than four weeks without informing the Course Coordinator, the Coordinator shall immediately bring it to the notice of First Year Coordinator/ the Head of the concerned department as the case may be and they in turn will inform the same to the Office of Dean Academic.

R 17.3	The names of the students who have remained absent, for more than 25% of the actual classes held in a course will be intimated by the Course Coordinator himself on the last teaching day of each month of the respective semester, to the students in the class with written intimation to the HOD / First Year Coordinator, who will arrange to consolidate the list for all such students for all the courses and display it on the notice board of the department with an intimation to Dean Academics.
R 17.4	A student must have an overall 75% attendance of the total number of classes including lecture/tutorials and practicals. Student is not permitted to appear for the end semester examination if the shortfall of attendance exists. He/She shall be awarded 'Z' grade in that semester. This grade shall appear in the grade card till the successful completion of course requirements in that semester. The decision in this regard taken by the Academic Council will be final.
R 17.5	**Condonation of Attendance :** Condonation of attendance can only be considered in case the overall attendance of the student is minimum 60%. A deficiency of overall attendance to the extent of 15% may be condoned by the Principal on the recommendation of Head of the Department/First Year Incharge on being satisfied that the same deficiency in attendance was due to circumstances beyond the control of the student. For availing such condonation, a student will have to apply to the Head of concerned department along with requisite documents. However the decision in this matter will be finally taken by the Principal.
R 17.6	In case the overall attendance is below 60%, his/her attendance in individual courses shall be considered. If in any course his/her attendance is a minimum 60%, he/she shall be eligible to appear in the end-semester examination of that course. However the decision in this matter will be finally taken by the Principal.
R 17.7	Student who is not permitted to appear for the end semester examinations due to shortfall in attendance in a course shall be awarded 'Z' grade in that course. This grade shall appear on the Grade Card till the successful completion of course requirements in that course.
R 18. Withdrawals	
R 18.1	A student who wants to withdraw from a semester shall apply through the HOD to the Principal, on a prescribed from within one week from the end of the Test I Examination and it will be recorded in the registration record of the student. The student will be awarded a withdrawal grade 'W' at the end of the semester.
R 18.2	In case a student is unable to attend classes for more than four weeks in a semester, he/she may apply to the Principal through HOD for withdrawal from the semester. However, such application shall be made as early as possible and latest before the start of the End Semester-Examination.
R 18.3	In case the period of absence on medical grounds is more than fourteen working days during the semester, a student may apply for withdrawal from the semester, if he/she so desires. But such an application must be made to the Principal through HOD, as early as possible and latest before the beginning of End Semester Examination.
R 18.4	The maximum duration for completion of a UG degree programme will be eight years. In case of direct Second Year admitted, diploma student, the maximum duration for completion of a UG degree programme will be six years. In case, a student is absorbed in autonomy from university, the maximum duration for completion of UG degree programme will be twice the remaining duration of the programme. In case, a student is unable to complete a programme as per the duration mentioned above, the student may be declared as not fit for technical education on the recommendation of Academic Council.
R 19 Examination Scheme	
In a semester, a student shall be evaluated for his/her academic performance in a theory (lecture/tutorial) course through Continuous Evaluation and End Semester Examination (ESE). All the examinations shall be conducted as per the syllabi prescribed by the respective BOS and approved by the Academic Council.	
R 19.1	a) For Theory courses, out of a total **100% weightage**, 50% shall be based on continuous evaluation out of which 40% evaluation shall be through Tests [Test-1 and Test-2: 20 marks each] and 10% shall be by Teacher assessment of students' performance. The remaining 50% evaluation shall be based on End Semester Examination. Valued answer books of theory courses shall be shown to the students within four working days after the last day of

	the theory examination (Test as well as ESE). The examination will be scheduled as per the timetable released from time to time by CoE office.
	b) Teachers' assessment of students' performance covering 10% evaluation of Theory courses shall be done on the basis of any two heads such as home assignments, tutorials, open-book test, seminars, group discussions, projects, quizzes etc. The Course Coordinator shall declare the two heads chosen for each course, within the date prescribed by the Dean Academics.
	c) For the courses with one credit in the scheme, the end semester examination will be done at the "Department" level and grades will be submitted to CoE office on or before the dates mentioned in the academic calendar.
	d) For the courses with two credits in the scheme the end examination duration will be typically two hours and for the courses with three credits in the scheme, the examination duration will be typically three hours. However, the necessary rules laid down by the Board of Studies, approved by the examination committee and Academic Council will be applicable from time to time.
	e) The marks on attendance if awarded as a part of Teachers' assessment, shall be given to those students having attendance more than or equal to 75% in that course. However, assigning marks on student attendance will not be mandatory and will be declared in the beginning of the semester by course coordinators. This will be applicable for existing and forthcoming batches with effect from 2023-24.
	f) End Semester examination shall be conducted as per the schedule in the Academic Calendar. A detailed timetable of End Semester Examinations shall be prepared and disseminated by the office of Controller of Examination. The duration of the examination may vary as per the need of the theory course. Valued answer books shall be shown to the students within four working days after the last day of theory examination. Grievances, if any, shall be addressed by the HoD on application of the students within next two days. After Grievance redressal, the answer book can be seen by the student within the time period notified by the course coordinator and correction in marks, if any, should be communicated to the office of COE by the course coordinator in the format prescribed within ten working days after the day of examination.
R 19.2	A student who skips teachers' assessment or a part thereof shall be awarded zero marks under the respective head.
R 19.3	A student who remains absent for End Semester examination, shall be awarded 'I' Grade in end semester examination. A student eligible for 'FF' or 'I' grade shall be allowed to appear for the make-up examination. The make-up examination shall be conducted within one month from the declaration of results of the end semester examination. Make up examination shall be for end semester examination of that academic year only.
R 19.4	A student shall be evaluated for his/her academic performance in a laboratory course on the basis of continuous evaluation only as per the schedule mentioned in the academic calendar. There will be no "external examination" for the laboratory courses. The evaluation will be based on two assessments scheduled during the Test-1 and Test-2 of the semester or there can be continuous evaluation throughout the semester by the course coordinator. The laboratory course evaluation will be completed before the last teaching day mentioned in the academic calendar. **In case of failure:** The student will appear for the extra work/examination based on the laboratory course, as decided by the course coordinator in consultation with the Head of Department. The extra work/examination process of failed students will be completed within 15 days of the declaration of the result. The necessary schedule will be declared by "DEC" in consultation with the Head of the Department. The student will be allowed to "forgo" the marks scored with respect to the laboratory course. **In case of detention:** The institute detention rules will be applicable. In case of failure, the necessary laboratory hours of the course will be essentially required to be completed by the student.
R 19.5	The seminar shall be evaluated through the quality of work carried out, the report submission and presentation/s as per the guidelines prescribed by the respective BOS from time to time.

R 19.6	Project work shall be evaluated by mid-term seminar/s, the quality of work carried out, project report submission and the viva-voce examination. There will be external evaluation for all the project courses. There will be two evaluation for all project courses with weightage of 50% each.
R 19.7	Notwithstanding contained in above, any specific norms in respect of examination, criterion of passing, results, valuation, grading, discipline, award of degree, attendance will be prepared by the respective departmental faculty board, approved by BOS and Academic Council, if required.
R 19.8	An examinee securing 'FF' or 'Z' grade in any course of an examination of an Under Graduate programme shall have an option to forego his/her continuous assessment marks in a course or courses. In such cases he/she shall be examined for a total marks comprising theory/practical end semester examination and continuous assessment together, at his/her successive attempt at the examination Such an option can be availed by an examinee incase he/she is appearing for the successive attempts at the examination as ex-student for that particular course. The Option of forego cannot be availed by examinee in an examination incase he/she is appearing for the examination as regular student for that particular course. A student who is detained from appearing in an examination in a course(s) for lack of attendance can exercise the option of forego in successive attempts at the examination. To avail this, the examinee would indicate the same in his or her 'Application for the examination' and the option once exercised, shall be 'Final and Binding' on the examinee concerned for all the subsequent examinations in that course. (Modified regulation as approved by Academic Council in its meeting dated 15th April 2014). For the examinee opting for forego, his/her marks in continuous assessment shall be ascertained proportionately on the basis of his/her marks in the end semester examination of that course. a. For Example, in case of a theory course wherein out of a total of 100 marks, 50 marks and 50 marks are allotted to end semester examination and continuous assessment respectively, the proportion would be 1:1 i.e. for every 1 mark scored in end semester examination, 1 mark would be assigned to continuous assessment. b. For example, in case of a practical course wherein out of a total of 50 marks, allotted for continuous evaluation, the course coordinator in consultation with Head of Department and Senior Faculty members will decide the mode of assessment. The assessment mode will be declared in the first session of the laboratory course.
R 19.9	Thereafter, the End Semester evaluation pattern/conduction method for courses which are closed by the department shall be decided by respective Board of Studies for such courses only. On successful completion of the course as per the evaluation pattern decided by BoS, the student shall be awarded grade not higher than 'BC' based on his/her performance.
R 20. The Grading System	
R 20.1	For every course taken by a student he/she is assigned a grade based on his/her combined performance in all components of evaluation scheme of a course / practical. The grade indicates a qualitative assessment of the student's performance and is associated with equivalent number called a grade point.
R 20.2	The academic performance of a student shall be graded on a ten-point scale following guideline Table 2.
R 20.3	The letter Grades (up to 'CD' only in theory courses and up to 'CC' grade in practical courses) awarded to a student in all the credit courses shall be converted into a SGPA and CGPA, to be calculated as given in R 28.
R 20.4	For computation of Standard Relative Grades, for the evaluation of the academic performance of an examinee in a course, in Makeup Examination, the Mean and the Standard Deviation would be the same as the Mean and Standard Deviation in the End Semester Examination for which the Makeup Examination was conducted.

R 20.5	A student passing a course in Makeup examination shall be treated as having cleared the course in First Attempt.
R 20.6	In case, an ex-student appears for examination of the course along with regular students appearing in that course then the cut-off marks of the regular examination shall be applicable. In all other cases the cut-off marks of the previous regular examination shall be applicable.
R 21. Grade Moderation Committee	
R 21.1	The Grade Moderation Committee for the programmes except those for the first year shall be appointed semester wise by the Chairman, BOS. This committee shall be responsible for adherence to the guidelines for the award of grades and shall include all the concerned Course Coordinators. The Chairman, Grade Moderation Committee shall be responsible for the display of grades in the department and for forwarding the final grades to the COE.
R 21.2	The Grade Moderation Committee for the first and second semester (first year) shall consist of all the Course Coordinators of the courses offered to the first and second semester students in a semester, with the Coordinator (First year In-charge) as the Chairman. The Chairman, Grade Moderation Committee shall be responsible for the display of grades and for forwarding the final grades to the COE.
R 22. Award of Degree	
R 22.1	The Degrees shall be awarded by the Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur along with the name of College, on recommendations of the Academic Council/Board.
R 23. Grade Card	
R 23.1	The grade card shall be issued at the end of the semester to each student and will contain the following : a) The credits for each course registered for that semester. b) The grade points and letter grades obtained in each course. c) The total number of credits earned by the student up to the end of that semester in each of the course. d) The SGPA and the CGPA. Refer R. 28 and R. 31 for computation of grades from the marks and conversion to the SGPA & CGPA.
R 23.2	Grade card will not indicate class or division or rank.
R 23.3	Where required the conversion of CGPA to percentage of marks will be done using following table.

CGPA	4.0	5.0	6.0	7.0	8.0	9.0	10.0
Percentage	40	50	60	70	80	90	100

The intermittent percentages should be calculated based upon the extrapolation of the values in the table.

R 24. Minimum Requirements for the Award of the Degree	
R 24.1	The student should have taken and passed all the prescribed courses including seminar and projects under the general institutional and departmental requirements.
R 24.2	A student, who has earned all the credits for the degree but fails to obtain the minimum specified CGPA for this purpose (as prescribed in the teaching & examination scheme of respective programme), shall take additional courses or repeat the courses mentioned in the program till the minimum CGPA is attained subject to maximum duration of program as specified in R 18.4 and R 25.1.
R 24.3	The credits for the courses in which a student has obtained 'CD' grade or higher shall be counted as credits earned by him/her. The grades awarded for successful and unsuccessful completion shall be 'Satisfactory' and 'Unsatisfactory' respectively. The grades shall be denoted by 'SF' and 'USF' respectively. The student should also have 'Satisfactory' grade in all the audit courses otherwise he/she will have to repeat the audit course provided that a student should have no case of indiscipline pending against him/her.

R 25 Extension of Maximum Period for Completion of a Programme	
R 25.1	The maximum duration for any programme may be extended for genuine cases and unavoidable circumstances only, as verified by the concerned BOS Chairman and a Special Power Committee at the central level and approved the by Academic Council. Genuine cases on confirmation of valid reasons may be subjected to the said procedure. The decision of academic bodies will be final.
R 26. Award of Medals / Scholarships	
R 26.1	Awards available under excellent performances in sports, cultural, extra-curricular, debate, tec. Shall be given to the students as per prevailing norms.
R 26.2	The award of scholarships/freeships and other benefits will be in accordance with rules framed by the Government of Maharashtra and Govt. of India.
R 26.3	The award of merit scholarships / Medals, if any, to the students will be governed by the regulations framed by the Board / Academic Council from time to time.
R 26.4	Students Clearing all courses offered in a programme in regular examination in first attempt shall be considered for the award of merit / medal. In case, a student has cleared any course offered in a programme in Makeup examination he/she shall not considered for the award of merit/medal.
R 27. Academic Calendar	
R 27.1	The Academic Calendar will be designed, updated and followed up by Dean Academics from time to time. The academic activities of the Institute are regulated by Academic Calendar approved by the Principal on the recommendation of Dean Academics from time to time and made available to the students/Faculty members and all other concerned in printed and electronics form. It is mandatory for students / Faculty to strictly adhere to the Academic Calendar for completion of academic activities until and unless permitted.
R 28. Calculation of SGPA and CGPA	
R 28.1	(i) Calculation of Semester Grade Point Average (SGPA) The performance of a student in a semester in indicated by a number called SGPA. The SGPA is the weighted average of the grade points obtained in all the courses registered by the student during the semester. The Grades as specified in R 20.3 will be used for calculating the CGPA and SGPA. $$\text{SGPA } \frac{\sum_{i=1}^{n} C_i P_i + C_a Pa}{\sum C_i}$$ Where, C_i = The number of credits offered in the ith course of a semester for which SGPA is to be calculated P_i = Grade Point earned in the ith course i = 1, 2, ..., n represent the number of course in which a student is registered in the concerned semester C_a = 1 ; Incentive credit per activity P_a = Grade point for participating in activities NCC/NSS/Games & sports/Cultural Activities/ACEES. SGPA is rounded up to two decimal places and SGPA shall not exceed 10. **(i) Calculation of Cumulative Grade Point Average (CGPA)** Up-to-date assessment of the overall performance of a student from the time of his first registration is obtained by calculating a number called CGPA, which is weighted average of the grade points obtained in all the courses registered by the student since he/she entered the Institute. $$\text{CGPA} = \frac{\sum_{j=l}^{m} C_j P_j + \sum_{l-0}^{k} C_{al} P_{al} + IP_G}{m \sum C_j}$$ Where, C_j = The number of credits offered in the jth course up to the semester for which CGPA is to be calculated P_j = Grade point earned in the jth course. j = 1, 2, ..., m represent the number of courses in which a student is registered up to the semester for which the CGPA is to be calculated

	C_{al} ; Incentive credit in semester P_{al} = Grade point for participating in activities NCC/NSS/Games & Sports/Cultural Activities/ACEES in the semester. l = number of semester of participation, IPG = GATE incentive grade points CGPA is rounded up to two decimal places and shall not exceed 10.

R 29. Guidelines for Award of Grades

	Following are the general guideline for the award of grades :
	(i) Standard relative grading system is followed.
	(ii) For each student, evaluation in different components of a course shall be done in absolute the marks considering the weightage in the scheme.
	(iii) The marks of various components shall be added to get total marks secured on a 100-points scale. The rounding off shall be done on the higher side.
	(iv) The provisional grades shall be awarded by the Examination Committee. The grades shall be finalized within fifteen working days after the End Semester Examination.
	(v) If required, the grades so awarded shall be moderated by a Grade Moderation committee within next three working days. This committee will finalize the grades and display a copy of the grades awarded on the Notice Board of the Department. All the final grades shall be communicated to the Controller of Examination within three working days from the date of display of grades.
	The procedures for evaluation and award of grades for project, training, seminar and group discussion shall be decided by the respective DFB.
	(vi) In case of audit courses the students would be awarded grades as follows
	    i. Satisfactory
	    ii. Unsatisfactory
	The grades shall be awarded by the course coordinators and communicated to the controller of examinations. The course coordinator shall decide and declare the mode of evaluation for the audit courses within the date prescribed by the Dean Academics.

R 29.1 Standard Relative Grading System

| R 29.1 | Computation of Standard Relative Grades
The Mean and Standard Deviation would be calculated for the course based upon the marks obtained by the students in that course

Formula for Mean $(\bar{x})$
$$\bar{x} = \frac{\sum_{i=1}^{n} X_i}{n}$$
Formula for standard Deviation(s)
$$S = \sqrt{\frac{\sum_{i=1}^{N}(x_i - \bar{x})^2}{N-1}}$$
For UG Courses having 30 or more students |

Grades	Grade Points	Range for Grade Calculation
AA	10	$\geq \bar{x} + 1.5\ s$
AB	9	$< AA\ and\ \geq \bar{x} + 1.0\ s$
BB	8	$< AB\ and\ \geq \bar{x} + 0.25\ s$
BC	7	$< BB\ and\ \geq \bar{x} - 0.5\ s$
CC	6	$< BC\ and\ \geq \bar{x} - 1.0\ s$
CD	5	$< CC\ and\ \geq \bar{x} - 1.5\ s$
FF	0	$< \bar{x} - 1.5\ s$

R 30. Guidelines for project Evaluation	

	• Every student has to undertake a project of professional interest. The project may be related to a theoretical analysis, an experimental investigation, a proto-type design, a new correlation and analysis of data, and fabrication and setup of new equipment. The Project Coordinator appointed by the department normally assigns the project towards the end of the pre-final year and the work is done uniformly during both semesters of the final year.
	• The first phase of project work will be carried out in the seventh semester and assessed at the end of the VII semester.
	• The assessment of the project phase – II work is evaluated on the following basis;
	   - The 1st stage of progressive project work carries 50% of the total weightage,
	   - The final stage of project work carries 50% weightage,
	   - At each stage of progressive project work, a report should be submitted and the
	• Every student has to undertake a project of professional interest. The project may be related to a theoretical analysis, an experimental investigation, a proto-type design, a new correlation and analysis of data, fabrication and setup of new equipment. The Project Coordinator appointed by the department normally assigns the project towards the end of the pre-final year and the work is done uniformly during both the semesters of the final year.
	• The first phase of project work to be carried out in seventh semester and will be assessed at the end of the semester under the head of seminar.
	• The assessment of the project phase-II work is evaluated on the following basis;
	   - The 1st stage of progressive project work carries 50% of the total weightage,
	   - The final stage of project work carries 50% weightage,
	   - At each stage of progressive project work, a report should be submitted and the work should be presented which will be assessed by the panel of examiners as an internal assessment.
	The final project report should be submitted by the prescribed date. The final project report and the work should be presented, which will be assessed by the expert from industry and if not from academic institute.

R 31. Award of Grade Based on Absolute Marks System (Equivalence of University scheme)	
	The award of grades based on absolute marks out of 100 shall be made as follows for transfer of marks of university scheme to the Grades. Grade points will be computed as earlier. | Percentage of Marks	Grade
≥ 90%	AA
80-89	AB
70-79	BB
60-69%	BC
50-59%	CC
40-49%	CD
Less than 40%	FF	
R 32. Indication of Attempt on Grade Card	
	The following Characters will be displayed in the Grade Card to indicate the attempts. The Degree will not have any such indication. Single Grade Card will be provided for the regular mand makeup examinations. The Grade Cards of successive attempts will be separately provided. However a single Grade Card for a semester may be provided after all the subjects of that semester are passed in more than one attempt. But it will be marked 'N' as already said. The student will have to separately apply to the Controller of Examinations for the single semester Grade Card with Copies of all the intermediate semester Grade Card along with a fees decided by the Finance Committee. M – With makeup Examination N – Not in the First Attempt IG – Improvement Grade

R 33. (b) Improvement of Grade/CGPA after successful completion of a Programme	
	Student shall be permitted to improve their grade under the following conditions.
	1. The examination for improvement of grades shall hereafter be termed as 'Improvement Examination'.
	2. A candidate admitted to the institute prior to the commencement of this ordinance, shall also be allowed to avail provisions as per this ordinance. The facility for improvement of grades will be available to the students having CGPA below 6.00
	3. The improvement is possible only in theory papers. No improvement is permissible in practical's/lab courses, projects, workshops and assignments.
	4. The improvement examination shall be conducted along with the Makeup Examination.
	5. The Improvement Examination can be undertaken only for the courses in which a candidate had appeared as a regular student in the end term examination for which the Makeup is being conducted.
	6. Additional examination fees will be paid by the student for appearing in the examination for improvement in the grade. The fee payable shall be as prescribed by the Finance Committee.
	7. After the improvement examination result of the course taken for improvement of grade, better of the two grades, that is grade already awarded and the grade secured in the improvement examination will be considered.
	8. A candidate who has reappeared for the above examinations under the provision of this ordinance and fails to improve his/her grade, his/her performance at such reappearance shall be ignored.
	9. Student having undertaken Improvement Examination will not be eligible for the award of any medal/merit position.
	10. The student shall be issued a fresh replacement grade card indicating the new grade with a mark which shall be explained as 'Improved Grade' only if he/she has improved the grades.
	For calculation of standard relative grade for evaluation of the academic performance of an examinee in a course in improvement examination, the mean and standard deviation of that course in the regular examination shall be applicable.
R 33. (c) Credit Transfer Scheme for completion of one semester in other institute	
	1. The facility of improving CGPA at Bachelor's Degree Level through re-appearance shall be available only to the candidates who have earned all credits offered in the programme and have secured not less than 5 CGPA similarly at Maters' Degree Level through re-appearance shall be available only to the candidates who have earned all credits offered in the programme and secured not less than 6 CGPA.
	2. A Candidate who desires to improve the CGPA will be permitted at his/her option to reappear again for the courses of his/her choice.
	3. A candidate will be allowed to reappear for the examination for improvement of CGPA within a period of two years from the date of his/her passing Bachelor's / Master's degree examination.
	4. A candidate shall have to reappear for any number of theory courses offered in the programme as per the scheme prevalent at the time of his appearance.
	5. A candidate appearing for the improvement of CGPA shall not be entitled to get any prize/medal/scholarship/award etc.
	6. A candidate who desires to apply for improvement of CGPA should submit his/her examination application form prescribed for improvement of CGPA from the College along with the prescribed fee for improvement and relevant documents.
	7. A person eligible to take the examination under the provisions of this Ordinance shall pass the entire examination in maximum three attempts within two years from the date he/she first applies for improvement of CGPA.
	8. Candidate will not be allowed to change any paper or papers which he had opted for improvement at subsequent reappearances. Further, all the papers of reappearance shall have to be cleared at one and the same sitting.
	9. If an applicant fails in any of the papers opted for improvement, he/she will have to appear again for all those papers he/she had applied for improvement including the

<table>
<tr><td></td><td>papers in which he/she had already passed during re-appearance.</td></tr>
<tr><td></td><td>10. Each examination for which candidate appears for improvement shall be considered as one attempt.</td></tr>
<tr><td></td><td>11. The result of the candidate appearing for improvement of CGPA shall be declared and communicated to him/her even if he/she does not obtain the required CGPA higher than the CGPA he/she already possesses.</td></tr>
<tr><td></td><td>12. A candidate who has reappeared for the examination under the provision of this Ordinance for improvement of his/her CGPA and improves his CGPA by such re-appearance, he/she shall have to return the original grade cards to the College, within one month from the date of declaration of result.</td></tr>
<tr><td></td><td>13. A candidate shall be issued revised grade card only after he/she surrenders his/her original grade cards to the College.</td></tr>
<tr><td></td><td>14. In the revised grade card, mention will be made of the fact that he/she has improved his/her CGPA under this Ordinance.</td></tr>
<tr><td></td><td>15. On award of a fresh grade card under this scheme, his/her previous grade card shall be treated as cancelled.</td></tr>
<tr><td></td><td>16. A candidate who has re-appeared for the above examination/s under the provision of this Ordinance and fails to improve his/her CGPA, his/her performance at such re-appearance shall be ignored.

Candidate, who has passed his/her degree examination under the old course/syllabus or scheme of examination which is not in existence, shall have to seek absorption/equivalence certificate regarding the absorption/equivalence of old courses with the existing ones from the respective Board of Studies. (Regulation introduced as directed by Academic Council in its meeting dated 15th April 2014).</td></tr>
<tr><td colspan="2">**R.34 Emergent Cases**</td></tr>
<tr><td>**R 34.1**</td><td>Notwithstanding anything contained in the above regulations, the Chairman of the Academic Council may, in emergent situations, take action on behalf of the Academic Council as he thinks necessary and shall at the earliest opportunity, report it in the next meeting of the Academic Council.</td></tr>
<tr><td colspan="2">**R.35 Interpretation of Regulation**</td></tr>
<tr><td>**R 35.1**</td><td>In case of any dispute, a difference of opinion in interpretation of these regulations or any other matter not covered in these regulations, the decision of the Chairman, the Academic Council shall be final and binding.</td></tr>
<tr><td colspan="2">**R.36 Power to modify**</td></tr>
<tr><td>**R 36.1**</td><td>Notwithstanding all that has been stated above, the Board has the right to modify any of the above regulations from time to time.</td></tr>
<tr><td colspan="2">**R.37 Internship**</td></tr>
<tr><td>**R 37.1**</td><td>The internship scheme will be available to undergraduate students of the institute during the VIII Semester of respective programme. This scheme will provide students to undergo internship with stream majors at industry/well known academic institutions/R&D Laboratory premises and earn real world exposure.

This scheme will incorporate Academic Component and Industry Component. The academic component will be completed in the respective department of the institute before the student is relived for Internship. This will include conduction of classes and internal evaluation of the theory and lab courses of compulsory subjects of VIII semester. The student will be relieved for his/her internship on the start of the VIII semester. Such students will appear for End Semester Examination along with other regular students of VIII semester as per the time-table provided by the institute. The industry component will be conducted and evaluated by industry partner in coordination with the institute. It will cover electives and Project work of VIII Semester. The head of concerned department will assign a Mentor Faculty for a group comprising maximum four students each. The mentor faculty will also act as the Internal Supervisor for their respective projects in the industry.

This internship scheme during VIII Semester shall be offered subject to fulfillment of selection criteria by the student as decided by concerned department, grant of permission by industry/organization where internship is to be carried out, approval by head of department at RCOEM, availability of faculty and other requirements/constraints if any. On selection, it will be mandatory for the student to abide by the guidelines issued by respective department and</td></tr>
</table>

	the industry regarding internship.
	The various types of internship typically available to the students will be
	    1) Full complete VIII Semester internship at industry.
	    2) Full complete VIII Semester internship offered by TBI.
	Full complete VIII Semester internship offered by department. [Research]

Table – 1 : UG Programmes Leading to B. Tech. Degree

Sr. No.	Branch	Degree	Code
1	Civil Engineering	B. Tech (Civil Engineering)	CEU
2	Computer Science & Engineering	B. Tech (Computer Science & Engineering)	CSU
3	Electrical Engineering	B. Tech (Electrical Engineering)	EEU
4	Electronics and Computer Science	B. Tech (Electronics and Computer Science)	ECS
5	Electronics and Communication Engineering	B. Tech (Electronics and Communication Engineering)	ECU
6	Information Technology	B. Tech (Information Technology)	ITU
7	Mechanical Engineering	B. Tech (Mechanical Engineering)	MEU
8	Computer Science & Engineering	B. Tech (Computer Science & Engineering (Data Science))	CDU
9	Computer Science & Engineering	B. Tech (Computer Science & Engineering (Artificial Intelligence & Machine learning))	CAU
10	Computer Science & Engineering	B. Tech (Computer Science & Engineering (Cyber Security))	CCU
11	Biomedical Engineering	B. Tech (Biomedical Engineering)	BMU

R 38	**Swachha Bharat Summer Internship for UG & PG Students:** Student who completes the Swachha Bharat Summer Internship as per the guidelines of Ministry of Human Resource Development, Department of Higher Education, Government of India as communicated through the websites of UGC, New Delhi and AICTE, New Delhi, and submits a copy of Swachch Bharat Internship Certificate to Head of parent department through Nodal Officer of RCOEM shall be eligible to get incentives as per the regulation R7.1.
R.39	**Mandatory Internship (06-08 weeks) for UG Students:** Students admitted in B.E. Semester-I during 2023-24 and thereafter (or admitted laterally in Sem-III during 2024-25 and thereafter) are required to complete minimum six-week internship in industry/research organization/IIT/IISc/IIIT/NIT/In-house research internship at RCOEM during the winter/summer vacation prior to the commencement of Semester-VII as per the scheme. On completion, the student has to submit the internship report/s and internship completion certificate/s issued by the organization(s) where it was completed, to the department. The department will evaluate the same by way of Seminar/Viva-voce etc in the department in Semester-VII as an Audit Course. Student shall be required to secure Satisfactory 'SF' grade in it. The student opting for the internship programme will have to inform the CDPC office about the internship and duration at least one month before the start of the internship. On successful completion of internship, the necessary completion certificate will be submitted to the Head of department and CDPC office. The certificate submitted for the internship opted by the students without prior approval of Head of Department and CDPC office will not be considered.

R.40	**Credit transfer to the extent of 20% in every semester**
	Credit transfer to the extent of 20% in every semester through the online courses provided by SWAYAM platform is permitted. Board of Studies prepares a mapping of Open Elective courses of regular scheme of programme with the course offered through SWAYAM platform. Credit transfer would be allowed for only those course which are permitted by the respective BOS. Make-up examination for the course offered under 20% credit transfer scheme for online SWAYAM courses would be held at college, in case the student could not achieve the certificate in the regular run of the courses.
R.41	**Credit Transfer of MOOC against Open Elective for UG students:**
	Students shall be eligible for credit transfer by successful completion of MOOC offered by SWAYAM platforms with pass/successful grade in its examination against the Open Elective course that is being offered to students at ROCEM provided that, the total number of credits earned through MOOC should be greater than or equal to the number of credits allotted to open elective course at RCOEM. Credit transfer of MOOC is permitted against **all three** open electives. The MOOC which is identical (in terms of contents) to any course (Offered by RCOEM/MOOC) for which student is already awarded the credit shall not be allowed for credit transfer. The MOOC which is identical (in terms of contents) to any compulsory / Program Elective course of succeeding semesters shall not be allowed for credit transfer. To avail this facility, students shall submit an application to the HoD of parent department for approval before registering for the MOOC course. After successful completion, the MOOC completion certificate issued by the host institute of MOOC should be submitted to Dean Academics (with recommendation for HOD and the Chairperson, IDBOS at RCOEM) for consideration, prior to the allotment of Open Electives at RCOEM. The process of application for credit transfer would be notified by the Dean Academics and the Chairman IDBOS as per the prevailing situation. For CGPA calculation the actual number of credits allotted for open elective at RCOEM shall be taken into consideration. In case, if no credits/grade are assigned by the host institution, a MOOC of minimum ten/twelve week duration and approved by RCOEM will be allowed for credit transfer against open elective.
R.42	**Choice of Open Electives:**
	The NEP 2020 UG curriculum implemented progressively from 2023-24 & onwards will have three open electives, one each in semesters III, IV and V, as per the scheme and syllabi approved in Board of studies meeting with subsequent approval from the Academic Council. The option of MOOC courses on SWAYAM platform will be available for the students for credit transfer. The MOOC courses permitted shall be approved by the BoS of respective departments, prior to offerings to the students.
R.43	**One Semester, RCOEM Technology Business Incubation (TBI) start-up scheme**
	RCOEM TBI Foundation Start-up scheme will be available to UG students of RCOEM during the last semester of respective program. For eligibility, student should (i) be eligible for admission in semester VIII / Final year and (ii) had undergone various training sessions / programs organized by RCOEM TBI Foundation and had continually presented / shown progress through predefined time bound activities prior to the commencement of final semester. This scheme will incorporate the Academic component and Start-up component. The academic component will be completed in the respective department of the institute before the student is relieved for Start-up.
	For UG students admitted in the program having scheme / curriculum existing before 2023-24, the academic component will include conduction of classes in internal evaluation of compulsory Theory and Lab courses of VIII semester to be held during the Winter Term prior to VIII Semester. For UG students admitted in the program having new scheme / curriculum implemented progressively from 2023-24 onwards, the academic component will include conduction of classes and internal evaluation of All the theory and lab courses of VIII semester to be held during Winter Term prior to VIII Semester. In both cases, minimum 75% student attendance during Winter term shall be mandatory and such students will appear for End Semester Examination along with other regular of VII semester as per the timetable provided by the institute.
	The Start-up component will include working on various aspects of startups like, market survey / customer identification, validation / technology / product / service development / business plan / MVP/ detailed project report. It will be conducted and evaluated by RCOEM

	TBI Foundation in coordination and consultation with the Head of concerned department. For UG students admitted in the program having scheme/curriculum existing before 2023-24, the Start-up component will cover the Electives and Project work of VIII Semester whereas for UG students admitted in the program having new scheme / curriculum implemented progressively from 2023-24 onwards, the Start-up component will cover only the Project work of VIII Semester.
	There will be one Internal Mentor and One External Advisor assigned for each Start-up. The RCOEM TBI Foundation and Head of respective department will assign an internal mentor who in association with RCOEM TBI Foundation will continually monitor and evaluate the progress of each startup. The External Advisor shall be identified and assigned by RCOEM TBI Foundation.
	This Start-up scheme during VIII Semester shall be offered subject to fulfillment of selection criteria by the student as decided and revised by RCOEM TBI Foundation, permission granted by RCOEM TBI Foundation and Head of respective department at RCOEM. The process of selection shall start by submission of application by the student in the beginning of VII Semester (as notified by RCOEM TBI Foundation).
	The same rule will be also applicable to the students admitted in 2023-24, under the NEP-2020 scheme.
R.44	**Honors and Minor Scheme: NEP2020**

	The NEP-2020, offers students with following different variants of degree courses.
	    (i) B.Tech [Programme name] with Multidisciplinary Minor: 162 Credits
	    (ii) B.Tech [Programme name] with Honors and Multidisciplinary Minor: 180 Credits
	    (iii) B.Tech [Programme name] with Double Minor: 180 Credits
	    (iv) B.Tech [Programme name] with Honor [Research] and Multidisciplinary Minor: 180 Credits.
	These schemes provide opportunities for supplementing the learning experience by crediting additional courses, in parent as well as in diverse areas. Each stream have provided opportunities to the students towards vertical knowledge growth in "emerging trends" of the programme, with an objective for enhancement of employability.
	All the courses apart from the regular degree course are of 18 credits. The credits are distributed over III to VII semester [3-3-4-4-4]. There is a project course in the VII Semester of "4" credits.
	For the lateral entry students in III semester, a MOOC course offering will be provided by each department in IV semester of the course. The student will be completing both MOOC course against the III semester and regular IV semester course before starting the V semester course of Honor/Minor schemes.
	There will be multiple options for B.Tech [Programme name] with Honor [Research] and Multidisciplinary Minor **in VIII Semester**. In all the options a "4" credit "Research Methodology" course along with **"12" credits** "Research Internship" is mandatory. The "Research Internship" can be offered by the Industry, TBI, or by a faculty of cadre "**Associate Professor" or "Professor**" with defined research problem. For all types of offerings a "Scopus" publication in index journal with "Scopus Citation" will be compulsory for result declaration of the student.
	The allocation of Honor/Minor course will be based on CGPA at result declared for II semester of the programme. The students having CGPA greater than or equal to 6.75, will be only eligible **registration of interest** for Honor/Minor courses. The student should not have received "Z" grade in any of previous courses at the time of registration of interest.
	Examination scheme for additional 18 credits:
	The evaluation scheme of Honors/Minor courses will be 50% continuous evaluation and 50% End Semester Examination. Students will be allowed only two chances to pass the Honors/Minor course i.e. regular End Semester Examination and its immediately followed Make-up examination. If a student is not able to pass the course in these examinations, no additional chance shall be given as ex-student at any stage and he/she will be discontinued from the honors/Minor scheme.
	In Honors courses, it will be mandatory for student to secure minimum 'BC' grade else, it won't be counted as completion of Honors course. Performance evaluation of students in both Honors and Minor courses will be by Relative Grading. **The grades secured by the student in**

	Honors and Minor courses shall be used for CGPA.
	Calculation at the end of Final Semester (VII Semester) only provided that the student had secured 18 credits of Honors/Minor courses in addition to the 162 minimum credits of the respective program curriculum.
	Eligibility of students:
	Student having CGPA more than or equal to **6.75** and no backlog shall be eligible to register for Honor/Minor theory courses from the list prescribed by the department. Also the student should not have received "Z" grade in any of the previous courses at the time of registration of Honor/Minor course. The scheme shall start from III Semester and will complete at VII Semester. **There will be project course of four credits in the VII semester.**
	Duration of program with Honors:
	All requirements of the program and Honors/Minors have to be completed within the stipulated period of the original program i.e. 04 years for UG students who were admitted in First Year of the program and 03 years for those who got lateral entry in second year of the program. No additional period will be permitted. If a student is unable to earn additional 18 credits along with all the prescribed credits of parent program within the stipulated allowed duration of the parent program, he/she will not be given the honors/minor degree. The student may get a certificate against the three completed courses of honor/minor program.
	The partial credits earned in any honor/minor program will not be adjusted against any regular course of the program opted by the student.
	Dropping /Withdrawal/Termination from Honors/ Double Minor:
	If a student drops or withdraws from the Honors/Minor scheme at any stage, the additional credits earned through Honors/Minors courses shall not be converted into program credits (course/electives/lab/project etc) and they will remain extra. If the students drops or withdraws after successfully completing THREE courses of Honor/Minor programme, a "Certificate" will be given to the student by the institute, and if the drop or withdraw is before THREE courses, there will be no recognition on paper. If at any stage during the duration of the program, if the student is found indulge in any in disciplinal activity (against the Code of Conduct at RCOEM), he/she shall be terminated from the Honors/Minor scheme and no Honors/Minor certificate shall be awarded to him/her.
	Class & Medal:
	    (i) B.Tech [Programme name] with Multidisciplinary Minor: 162 Credits
	    (ii) B.Tech [Programme name] with Honors and Multidisciplinary Minor: 180 Credits
	    (iii) B.Tech [Programme name] with Double Minor: 180 Credits
	    (iv) B.Tech [Programme name] with Honor [Research] and Multidisciplinary Minor: 180 Credits.
	On the basis of above four types of award of degree, there will be separate award of medal for each type of degree. The Gold and Silver Medal will be awarded to students for each type of degree.
	The Ramdeobaba Gold Medal will be awarded to the student with Highest CGPA

R.45	**Multiple Entry and Multiple Exit option.**
	The student will be allowed to Exit the degree course by following rules and regulations.

Level	Exit After	Credit Required	Awarded with	Institute Requirements
4.5	First Year: Two Semester	42	One Year Certification in **General Science**	**08 Credit course work / project**
5.0	Second Year: Four Semester	84	Diploma in Engineering	**08 Credit course work / project**
5.5	Third Year: Six Semester	122	B.Sc. Degree	**08 Credit course work / project**
6.0	Final Year: Eight Semesters	162 **+ 3***	B.Tech. [Engineering] with Multidisciplinary Minor	**All courses and credits completed for degree**

6.0	Final Year: Eight Semester	162 **+ 3*** + 18 = 180 + 3*	B.Tech. [Engg] Honor with Multidisciplinary Minor	
6.0	Final Year: Eight Semester	162 + 3* + 18 = 180 **+ 3***	B.Tech.[Engg] Double Minor	
6.0	Final Year: Eight Semester	162 + 3* + 18 = 180 **+ 3***	B.Tech [Engg] Research with Multidisciplinary Minor	

At any point of time the exit rules defined by the parent affiliated university will be also applicable. **[3* represents credits offered for Co-curricular and other activities such as industry training, courses etc.. offered by the department approved by BoS]** The students will be allowed for Multiple Entry as per following rules:

Re-entry point	Requirement	Eligibility check	Condition
Exit after First Year and Re-Entry into Second Year Maximum: 2 Entry-Exit allowed	Bridge Course of the respective programme [08 Credits]	Period of Re-entry should not be more than 1 years	Degree Completion condition: Maximum duration
Exit after Second Year and Re-entry into Third Year. Maximum: 2 Entry-Exit allowed	Bridge Course of the respective department. [08 Credits]	Period of Re-entry should not be more than 2 years	Degree Completion condition: Maximum duration
Exit after Third Year and Re-entry into Third Year **Maximum: 1 Entry-Exit allowed**	Bridge Course of the respective department [08 Credits]	Period of Re-entry should not be more than 3 years	Degree Completion condition: Maximum duration
For Students: Entering in RCOEM from other institute	Apart from the above conditions: Approval from the parent institute, Approval from concerned authorities, and availability of seats in the respective stream. RCOEM will fix up maximum threshold and admission conditions.		

R.46	**Distribution of credits**

The distribution of credits will be as per the following table, but can be varied as per the guidelines received from Board of Studies and Academic Council time to time.

S.No.	Abbreviation	Credits
1	Basic Science Courses	14-18
2	Engineering Science Courses	12-16
3	Programme Core Courses	44-56
4	Programme Elective Courses	20
5	Multidisciplinary Courses	14
6	Open Elective	08
7	Vocational and Skill Enhancement Courses	08
8	Ability Enhancement Courses	08
9	Entrepreneurship / Economics	04
10	Indian Knowledge System	02
11	Value Education Courses	04
12	Research Methodology	04
13	Community Engagement Project	02

	14	Project	04	
	15	Internship	12	
	16	Co-curricular courses	04	
	17	Institutional and Skill enhancement activities	03	
	TOTAL		162 **+ 03***	

Table 2: Structure of Relative Grading of Academic Performance (UG)

Academic Performance	Grades	Grade Points
Outstanding	AA	10
Excellent	AB	9
Very Good	BB	8
Good	BC	7
Satisfactory	CC	6
Average	CD	5
Poor	FF	0
Incomplete	I	-
Withdrawal	W	-
Non completion of course requirement	Z	-
Extension (in projects only)	X	-

Explanation :

'FF' Grade

- The 'FF' grade denoted poor performance amounting to failure.
- A student has to repeat all courses in which he/she obtains 'FF' grade, till a passing grade is obtained within the prescribed duration.
- For the elective course in which 'FF' or 'Z' grade has been obtained, the student may take the same course or any other course from the same elective group. If the course is not offered/available in the current semester he will have to take it whenever it is offered by the department and then appear for the examination.

'I' Grade

This grade indicates absence in End Semester Examination

'W' Grade

This refers to withdrawal from the course as per the regulations.

'X' Grade

This grade is awarded for incomplete Project Work and will be converted to a regular grade on the completion of the Project work and its evaluation.

'Z' Grade

This grade stands for non-completion of course requirement

NOTES