



# **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**

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### 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 Sarvajanic 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

#### 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	

**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.

<b>Short Title and Commencement</b>	(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.
<b>Definitions</b>		Unless the context requires otherwise;
	(i)	<b>“Government”</b> shall mean the Government of Maharashtra/ Government of India as may be applicable.
	(ii)	<b>“DTE”</b> shall mean Director of Technical Education, Government of Maharashtra.
	(iii)	<b>“University”</b> shall mean Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.
	(iv)	<b>“Regulating Authority”</b> shall mean any regulatory or controlling body for the Technical Education in India.
	(v)	<b>“UGC”</b> shall mean University Grants Commission, Government of India, New Delhi.
	(vi)	<b>“AICTE”</b> shall mean the All India Council for Technical Education, New Delhi.
	(vii)	<b>“Institute”</b> shall mean Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur 440013.
	(viii)	<b>“Board”</b> 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)	<b>“Principal”</b> shall mean the Principal of the Institute.
	(x)	<b>“Vice-Chancellor”</b> shall mean the Vice-Chancellor of the University.
	(xi)	<b>“APEC”</b> 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)	<b>“Finance Committee”</b> shall mean the Finance committee of the Institute constituted as per the guidelines of UGC for autonomous colleges.
	(xiii)	<b>“BOS”</b> shall mean the Board of Studies of the department, constituted as per the Guidelines of UGC for autonomous colleges.
	(xiv)	<b>“Degree”</b> 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)	<b>“Applicant”</b> shall mean an individual who applies for admission to any PG programme of the Institute.



(xvi)	<b>"Student"</b> 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)	<b>"Direct Admission Student"</b> 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)	<b>"Course"</b> shall mean a curricular component identified by a designated number and title.
(xix)	<b>"Programme"</b> Programme shall mean the stream in which the degree is awarded.
(xx)	<b>"Scheme of Teaching and Examination"</b> shall mean the scheme of teaching and examination for a programme of study as approved by the Academic Council.
(xxi)	<b>"Course Coordinator"</b> 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)	<b>"Departmental Faculty Board (DFB)"</b> shall mean the committee of the faculty members involved in teaching a course or a group of courses of technically relevant subjects.
(xxiii)	<b>"Grade Moderation Committee"</b> shall mean the committee appointed by the Academic Council to moderate grades awarded by the examiner, if required.
(xxiv)	<b>"SGPA"</b> shall mean the Semester Grade Point Average.
(xxv)	<b>"CGPA"</b> shall mean the Cumulative Grade Point Average.
(xxvi)	<b>"Academic Council"</b> 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)	<b>"EXC"</b> shall mean Examination committee constituted as per the Direction No. 4/1999 of the University for autonomous colleges.
(xxviii)	<b>"COE"</b> shall mean the Controller of Examinations appointed as per the Guidelines of UGC for autonomous colleges.
(xxix)	<b>"ISV"</b> shall mean In-charge of Spot Valuation, appointed by the Principal.
(xxx)	<b>"OIC"</b> shall mean Officer In-charge of the End Semester Examination.
(xxxi)	<b>"DEC"</b> shall mean the Departmental Examination Committee.
(xxxii)	<b>"Guide"</b> shall mean a person who is qualified to supervise a project / dissertation work of students and is approved by the Academic Council.
(xxxiii)	<b>"RCC"</b> shall mean Departmental Research Coordination Committee.
(xxxiv)	<b>"GRC"</b> shall mean Grievance Redressal Committee formed by the Academic Council.
(xxxv)	<b>"Competent Authority"</b> shall mean the Board of Management / Academic Council of the Institute/ University/Government/UGC/Regulating Authority as the case may be.
(xxxvi)	<b>"Equivalence Committee"</b> shall mean the Equivalence Committee appointed by the Academic Council.
(xxxvii)	<b>"APAC"</b> shall mean Academic Performance Evaluation Committee.



## Under Graduate Ordinance / Regulations 2021-2022

	(xxxviii)	"DAPAC" shall mean Departmental Academic Performance Advisory Committee'.
<b>Ordinances</b>	(1)	<p>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.</p> <p><i>Provided</i> 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.</p>
	(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.





## Under Graduate Ordinance / Regulations 2021-2022

### Scheme of Teaching & Examination B. Tech. (First Year) Semester I / II

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1	PHT152	Oscillations, waves and Optics	3	1	0	4	40	60	100	3
	PHT154	Introduction to Quantum Computing								
	PHT155	Physics of Materials								
	PHT156	Semiconductor Physics								
	PHT158	Mechanics, Optics and Acoustics								
2	PHP152	Oscillations, waves and Optics Lab	0	0	3	1.5	25	25	50	-
	PHP 154	Introduction to Quantum Computing Lab								
	PHP155	Physics of Materials Lab								
	PHP156	Semiconductor Physics Lab								
	PHP158	Mechanics, Optics and Acoustics Lab								
3	MAT152/ MAT151	Differential Equations, Linear Algebra, Statistics and Probability/ Calculus	3	0/1	0	3/4	40	60	100	-
4	MAP151	Computational Mathematics Lab	0	0	2	1	25	25	50	-
5	EET151	Basic Electrical Engineering	3	1	0	4	40	60	100	3
	CAT103	Digital Electronics								
	CCT103	Digital Electronics								
	CDT103	Digital Electronics								
	BMT101	Fundamentals of Electrical and Electronics								
6	EEP151	Basic Electrical Engineering Lab	0	0	2	1	25	25	50	-
	CAP103	Digital Electronics Lab								
	CCP103	Digital Electronics Lab								
	CDP103	Digital Electronics Lab								
	BMP101	Fundamentals of Electrical and Electronics Lab								
7	MET151	Engineering Graphics & Design	1	0	0	1	40	60	100	3
	CAT104/	Object Oriented Programming								
	CCT104/	Object Oriented Programming								
	CDT104	Object Oriented Programming								
8	MEP151	Engineering Graphics & Design Lab	0	0	1	2	50	50	100	-
	CAP104/	Object Oriented Programming Lab								
	CCP104/	Object Oriented Programming Lab								
	CDP104	Object Oriented Programming Lab								
9	HUT152	Constitution of India	2	0	0	0	-	-	-	-
10	PEP151	Yoga/Sports	0	0	2	0	--	--	-	--
<b>Total (CIVIL, IT, CSE, EC, EE, IND, MECH, EN)</b>			<b>12</b>	<b>2/3</b>	<b>13</b>	<b>17.5/18.5</b>			<b>650</b>	
<b>Total (AI&amp;ML, Cyber Security, Data science Engineering)</b>			<b>14</b>	<b>1/2</b>	<b>11</b>	<b>17.5/18.5</b>			<b>600</b>	
<b>Total (Biomedical Engineering)</b>			<b>12</b>	<b>1/2</b>	<b>13</b>	<b>16.5/17.5</b>			<b>650</b>	



**Scheme of Teaching & Examination  
B. Tech. (First Year)  
Semester I / II**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1	CHT151	Chemistry	3	1	0	4	40	60	100	3
	CHT152	Chemistry	3	1	0	4	40	60	100	3
	CHT153	Biochemistry	3	1	0	4	40	60	100	3
2	CHP151	Chemistry Lab	0	0	3	1.5	25	25	50	–
	CHP152	Chemistry Lab	0	0	3	1.5	25	25	50	–
	CHP153	Biochemistry Lab	0	0	3	1.5	25	25	50	–
3	MAT151/ MAT152	Calculus / Differential Equations, Linear Algebra, Statistics and Probability	3	1/0	0	4/3	40	60	100	3
4	CST151	Programming for Problem Solving	4	0	0	4	40	60	100	3
	CAT101	Programming for Problem Solving	4	0	0	4	40	60	100	3
	CCT101	Programming for Problem Solving	4	0	0	4	40	60	100	3
	CDT101	Programming for Problem Solving	4	0	0	4	40	60	100	3
5	CSP151	Programming for Problem Solving Lab	0	0	2	1	25	25	50	–
	CAP101	Programming for Problem Solving Lab	0	0	2	1	25	25	50	–
	CCP101	Programming for Problem Solving Lab	0	0	2	1	25	25	50	–
	CDP101	Programming for Problem Solving Lab	0	0	2	1	25	25	50	–
6	IDT151	Creativity, Innovation & Design Thinking	1	0	0	1	20	30	50	1.5
7	INT151	Workshop/Manufacturing Practices	1	0	0	1	20	30	50	1.5
	CAT102	Computer Workshop	1	0	0	1	20	30	50	1.5
	CCT102	Computer Workshop	1	0	0	1	20	30	50	1.5
	CDT102	Computer Workshop	1	0	0	1	20	30	50	1.5
	BMT102	Human Anatomy and Physiology for Engineers - I	3	0	0	3	40	60	100	3
8	INP151	Workshop/Manufacturing Practices Lab	0	0	2	1	25	25	50	–
	CAP102	Computer Workshop Lab	0	0	2	1	25	25	50	–
	CCP102	Computer Workshop Lab	0	0	2	1	25	25	50	–
	CDP102	Computer Workshop Lab	0	0	0	1	25	25	50	–
9	HUT151	English	2	0	2	2	40	60	100	3
10	HUP151	English Lab	0	0	0	1	25	25	50	–
<b>Total (CIVIL, IT, CSE, EC, EE, IND, MECH, EN)</b>			<b>14</b>	<b>2/1</b>	<b>9</b>	<b>20.5/19.5</b>			<b>700</b>	
<b>Total (AI&amp;ML, Cyber Security, Data science Engineering)</b>			<b>14</b>	<b>2/1</b>	<b>9</b>	<b>20.5/19.5</b>			<b>700</b>	
<b>Total (Biomedical Engineering)</b>			<b>16</b>	<b>2/1</b>	<b>7</b>	<b>21.5/20.5</b>			<b>700</b>	



## Under Graduate Ordinance / Regulations 2021-2022

### List of UG open elective by Physics Department

Sr. No.	Course Code	Course name	Sem	Branch
1	PHT299-1	Introduction to Quantum Computing	IV	All Branches Except Cyber Security and AIML
2	PHT299-2	Essentials of Classical Mechanics	IV	All Branches (Except Civil Engg. and Industrial)
3	PHT299-3	Principles of Electronic Materials	IV	All Branches
4	PHT299-4	Nanomaterials : Physics, Properties and Applications	IV	All Branches

### List of UG open elective by Chemistry Department

Sr. No.	Course Code	Course name	Sem	Branch
1	CHT-299-1	Introduction to Nano material Science and its applications	IV	All Branches
2	CHT-398-1	Alternative Fuels	V	All Branches
3	CHT-399-1	Pollution and Control Techniques	VI	All Branches
4	CHT-399-2	Renewable Energy resources and Battery Technology	VI	All Branches
5	CHT-399-3	Waste management and Energy Recovery	VI	All Branches
6	CHT-399-4	Energy Efficient Buildings	VI	All Branches

### List of UG open elective by Mathematics Department

Sr. No.	Course Code	Course name	Sem	Branch
1	MAT 299-1	Random Processes	IV	All Branches Except Core CSE And IT
2	MAT 299-2	Discrete Mathematics and its Applications	IV	All Branches Except Core CSE And IT
3	MAT399-1	Combinatorial Theories	VI	VI SEM All Branches
4	MAT399-2	Numerical Techniques	VI	VI SEM All Branches Except ME
5	MAT399-3	Statistical Methods for Business and Management	VI	VI SEM All Branches Except IND

### List of UG open elective by Dept. of Humanities

Sr. No.	Course Code	Course name	Sem	Branches
1	HUT299-1	Human Relationship Dynamics	IV	All Branches
2	HUT299-2	Applied Psychology	IV	All Branches
3	HUT299-3	Basic Ornithology for Engineers	IV	All Branches
4	HUT398-1 (civil)	Education, Technology and Society (DE)	V	Civil
5	HUT398-2	Sanskrit For Technocrats	V	All Branches
6	HUT399-1	Employability and Professional Skills	VI	All Branches
7	HUT399-2	Psychology for professional growth	VI	All Branches
8	HUT399-3	Orientation in German Language	VI	All Branches
9	HUT399-4	Gender and Cultural Studies	VI	All Branches
10	HUT399-5	Communicative English	VI	All Branches
11	HUT399-6	Bhagwad Geeta- Science of Life	VI	All Branches
12	HUT498-1 (EC)	Technical Communication	VII	EC
13	HUT498-2 (CSE)	Managerial Economics	VII	CSE

### List of UG open elective by Dept. of Physical Education

1	PE299-1	Health and Well Being for Active Life Style	IV	All Branches
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**Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)  
Semester III**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BMT201	Human Anatomy and Physiology for Engineers-II	3	0	0	3	40	60	100	3 Hrs
2.	BMT202	Digital Circuit Design	3	0	0	3	40	60	100	3 Hrs.
3.	BMP202	Digital Circuit Design Lab	0	0	2	1	25	25	50	
4.	MAT274	Applied Mathematics and Descriptive Statistics	2	1	0	3	40	60	100	3 Hrs
5.	BMT203	Signals and Systems	3	1	0	4	40	60	100	
6.	BMT204	Data Structures and Algorithm	2	0	0	2	40	60	100	3 Hrs
7.	BMP204	Data Structures and Algorithm Lab	0	0	2	1	25	25	50	
8.	BMT205	Electronics Devices and Circuits	3	0	0	3	40	60	100	3 Hrs
9.	BMP205	Electronics Devices and Circuits lab	0	0	2	1	25	25	50	
<b>TOTAL</b>			<b>16</b>	<b>2</b>	<b>6</b>	<b>21</b>				

**Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)  
Semester IV**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BMT206	Network analysis and Synthesis	3	0	0	3	40	60	100	3Hrs
2.	BMT207	Digital Signal Processing	3	0	0	3	40	60	100	3Hrs.
3.	BMP207	Digital Signal Processing Lab	0	0	2	1	25	25	50	
4.	BMT208	Microprocessor and Microcontroller	3	0	0	3	40	60	100	3Hrs
5.	BMP208	Microprocessor and microcontroller Lab	0	0	2	1	25	25	50	
6.	BMT209	Analog Circuits	3	1	0	4	40	60	100	3Hrs
7.	BMP209	Analog Circuits Lab	0	0	2	1	25	25	50	
8.	BMP210	Project-I	0	0	2	1	25	25	50	
9.	BMT211	Open elective - I / MOOC's	3	0	0	3	40	60	100	3 Hrs.
10.	CHT252	Environmental Sciences	2	0	0	0				
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>20</b>				



**Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)  
Semester V**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BMT301	Programme Elective -I	3	0	0	3	40	60	100	3 Hrs
2.	BMP301	Programme Elective - I Lab	0	0	2	1	25	25	50	
3.	BMT302	Biomaterials	3	0	0	3	40	60	100	3 Hrs
4.	BMT303	FPGA Design for Healthcare applications	3	1	0	4	40	60	100	3 Hrs
5.	BMP303	FPGA Design for Healthcare applications lab	0	0	2	1	25	25	50	
6.	BMT304	Biomedical Sensors and Measurement Devices	3	0	0	3	40	60	100	3 Hrs
7.	BMP304	Biomedical Sensors and Measurement Devices Lab	0	0	2	1	25	25	50	
8.	BMT305	Open Elective - II / MOOC's	3	0	0	3	40	60	100	3 Hrs
9.	MBT391-1	Business Management and Entrepreneurship	3	0	0	3	40	60	100	3 Hrs
10.	HUT351	Professional Skill Development	2	0	0	0				
<b>TOTAL</b>			<b>20</b>	<b>1</b>	<b>6</b>	<b>22</b>				

Sr. No.	Course Code	Program Elective –I
1	BMT301-1	BiomedicalMicrosystems
2	BMT301-2	Medical Robotics& Automation
3	BMT301-3	Biostatistics

**Semester VI**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BMT306	Programme Elective -II	3	0	0	3	40	60	100	3Hrs
2.	BMP306	Programme Elective - II Lab	0	0	2	1	25	25	50	
3.	BMT307	Medical Imaging	3	0	0	3	40	60	100	3Hrs
4.	BMT308	Machine Learning	3	0	0	3	40	60	100	3Hrs
5.	BMP308	Machine Learning Lab	0	0	2	1	25	25	50	
6.	BMT309	Biocontrol Systems	3	0	0	3	40	60	100	3Hrs
7.	BMT310	Biomechanics	3	0	0	3	40	60	100	3Hrs
8.	BMP311	Project -II	0	0	2	1	25	25	50	
9.	BMT312	Open Elective - III / MOOC's	3	0	0	3	40	60	100	3Hrs
10.	BMP 313	Comprehensive Viva	0	0	2	1	50		50	
<b>TOTAL</b>			<b>18</b>	<b>0</b>	<b>8</b>	<b>22</b>				



Sr. No.	Course Code	Program Elective –II
1	BMT306-1	Bioinformatics
2	BMT306-2	Biomedical Image Processing
3	BMT306-3	Advanced Bio-Materials

**Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)  
Semester VII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BMT401	Programme Elective -III	3	0	0	3	40	60	100	3Hrs
2.	BMT402	Programme Elective -IV	3	0	0	3	40	60	100	3Hrs
3.	BMT403	Analytical & Diagnostic Equipments	3	0	0	3	40	60	100	3Hrs
4.	BMP404	Medical Equipments Lab	0	0	2	1	25	25	50	
5.	BMT405	Design and Manufacturing of Implants and prostheses	3	0	0	3	40	60	100	3Hrs
6.	BMP405	Design and Manufacturing of Implants and prostheses lab	0	0	2	1	25	25	50	
7.	BMT406	Open Elective-IV (Industry Module) / MOOC's	3	0	0	3	50		50	3Hrs
8.	BMP407	Industry Internship Evaluation (6-8 weeks)	0	0	2	0	50		50	
9.	BMT408	Biomedical Engineering: Legal & Ethical Perspective	2	0	0	0				
10.	BMP409	Project - III	0	0	10	5	50		50	
<b>TOTAL</b>			<b>17</b>	<b>0</b>	<b>16</b>	<b>22</b>				

Sr. No.	Course Code	Program Elective –III	Sr. No.	Course Code	Program Elective –IV
1	BMT401-1	Physiological Modeling and Simulation	1	BMT402-1	Introduction to Telemedicine
2	BMT401-2	Advanced Bio-Mechanics	2	BMT402-2	Hospital Engineering and Management
3	BMT401-3	Bio-Nanotechnology	3	BMT402-3	Bio-Fabrication Technology



Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)

Semester VIII

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BMT410	Program Elective -V	3	0	0	3	40	60	100	3 Hrs.
2.	BMT411	Program Elective -VI	3	0	0	3	40	60	100	3 Hrs
3.	BMP412	Project –IV	0	0	18	9	50	50	100	
		OR								
4.	BMP413	Internship / Incubation (six months)				15				
		<b>TOTAL</b>	<b>6</b>	<b>0</b>	<b>18</b>	<b>15</b>				

Sr. No.	Course Code	Program Elective – V
1	BMT410-1	Acoustics and optical Imaging
2	BMT410-2	Body Area Networks and Mobile Healthcare
3	BMT410-3	Molecular Biology and Genetics

Sr. No.	Course Code	Program Elective – VI
1	BMT411-1	Biomedical Hazards & Safety
2	BMT411-2	Rehabilitation Engineering
3	BMT411-3	Tissue Engineering





**Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)  
Honor Scheme**

Sr. No.	Semester	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	IV	BMTH41	Robotics systems	4	0	0	4	40	60	100	3 Hrs
2.	V	BMTH51	Bio-Mechatronics	4	0	0	4	40	60	100	3 Hrs.
3.	VI	BMTH61	Bioinspired Robotics	4	0	0	4	40	60	100	3 Hrs
4.	VII	BMTH71	Microrobotics	4	0	0	4	40	60	100	3 Hrs
5.	VIII	BMTH81	Project	0	0	4	4	50	50	100	3 Hrs
<b>TOTAL</b>							<b>20</b>				

**Note:** Credit transfer against above courses may be allowed if an appropriate MOOC course is completed by student after prior permission from HOD

**Scheme of Teaching & Examination  
B. Tech. (Biomedical Engineering)  
Minor Scheme**

Sr. No.	Semester	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	IV	BMTM41	Biomedical Engineering Fundamentals	4	0	0	4	40	60	100	3 Hrs
2.	V	BMTM51	Biomedical Imaging Modalities	4	0	0	4	40	60	100	3 Hrs.
3.	VI	BMTM61	Computer Analysis of Biomedical Image	4	0	0	4	40	60	100	3 Hrs
4.	VII	BMTM71	Imaging Applications of AI in healthcare	4	0	0	4	40	60	100	3 Hrs
5.	VIII	BMTM81	Mini Project	0	0	4	4	50	50	100	3 Hrs
<b>TOTAL</b>							<b>20</b>				

**Note:** If any of the above course is accessible to a student in his/her parent branch or Open electives then Credit transfer against above courses may be allowed if an appropriate MOOC course is completed by student after prior permission from HOD.



**Scheme of Teaching & Examination  
B. Tech. (Civil Engineering)  
III Semester**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	MAT251	Maths III (Transform and Discrete Maths)	4	0	0	4	40	60	100	3
2	CET251	Construction Materials	3	0	0	3	40	60	100	3
3	CEP251	Construction Materials Lab	0	0	2	1	25	25	50	–
4	CET252	Fluid Mechanics I	3	0	0	3	40	60	100	3
5	CEP252	Fluid Mechanics I Lab	0	0	2	1	25	25	50	–
6	CET253	Environmental Engineering I	3	0	0	3	40	60	100	3
7	CEP253	Environmental Engineering I Lab	0	0	2	1	25	25	50	–
8	CET261	Programming for Problem Solving	3	0	0	3	40	60	100	3
9	CEP261	Programming for Problem Solving Lab	0	0	2	1	25	25	50	3
10	CET255	Solid Mechanics	3	0	0	3	40	60	100	3
11	CEP255	Solid Mechanics Lab	0	0	2	1	25	25	50	–
<b>Total</b>			<b>19</b>	<b>0</b>	<b>10</b>	<b>24</b>				

**Scheme of Teaching & Examination  
B. Tech. (Civil Engineering)  
IV Semester**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CET256	Fluid Mechanics II	3	1	0	4	40	60	100	3
2	CEP256	Fluid Mechanics II Lab	0	0	2	1	25	25	50	–
3	CET257	Geotechnical Engineering	3	1	0	4	40	60	100	3
4	CEP257	Geotechnical Engineering Lab	0	0	2	1	25	25	50	–
5	CEP258	Computer Aided Civil Engg. Drawing Lab	0	0	2	1	25	25	50	–
6	CET259	Structural Analysis	3	1	0	4	40	60	100	3
7	CEP259	Structural Analysis Lab	0	0	2	1	25	25	50	–
8	CET260	Environmental Engineering II	3	0	0	3	40	60	100	3
9	CET299	Open Elective I	3	0	0	3	40	60	100	3
10	HUT260	Effective Technical Communication	3	0	0	3	40	60	100	3
<b>Total</b>			<b>18</b>	<b>3</b>	<b>8</b>	<b>25</b>				

Open Elective I	
Course Code	Course Name
CET299-1	Basic Building Components
CET299-2	Basics of Environmental Pollution



**Scheme of Teaching & Examination  
B. Tech. (Civil Engineering)**

**V Semester**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CET351	Surveying and Geomatics	3	1	0	4	40	60	100	3
2	CEP351	Surveying and Geomatics Lab	0	0	2	1	25	25	50	--
3	CET352	RCC Structures	3	1	0	4	40	60	100	3
4	CEP352	RCC Structures Lab	0	0	2	1	25	25	50	--
5	CET353	Transportation Engineering	3	0	0	3	40	60	100	3
6	CEP353	Transportation Engineering Lab	0	0	2	1	25	25	50	--
7	CET354	Foundation Engineering	3	0	0	3	40	60	100	3
8		Open Elective II (Humanities)	3	0	0	3	40	60	100	3
9	HUT356	Organizational Behaviour	3	0	0	0	--	--	--	--
			<b>18</b>	<b>2</b>	<b>6</b>	<b>20</b>				

**Scheme of Teaching & Examination  
B. Tech. (Civil Engineering)**

**VI Semester**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CET355	Estimation and Costing	3	0	0	3	40	60	100	4
2	CEP355	Estimation and Costing Lab	0	0	2	1	25	25	50	--
3	CET356	Steel Structures	3	0	0	3	40	60	100	3
4	CEP356	Steel Structures Lab	0	0	2	1	40	60	100	3
5	CET357	Hydrology and Water Resource Engineering	3	0	0	3	40	60	100	3
6	CET358	Elective I	3	0	0	3	40	60	100	3
7	CET359	Elective II	3	0	0	3	40	60	100	3
8	CEP360	Comprehensive Viva	0	0	2	1	25	25	50	--
9	CET399	Open Elective III	3	0	0	3	40	60	100	3
			<b>18</b>	<b>0</b>	<b>6</b>	<b>21</b>				

Open Elective III	
Course Code	Course Name
CET399-1	Metro Systems and Engineering
CET399-2	Intelligent Transport System



**Scheme of Teaching & Examination**  
**B. Tech. (Civil Engineering)**  
**VII Semester**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CET451	Elective III	3	0	0	3	40	60	100	3
2	CET452	Elective IV	3	0	0	3	40	60	100	3
3	CEP452	Elective IV Lab	0	0	2	1	25	25	50	--
4	CET453	Contracts Works Accounts and Management	2	0	0	2	40	60	100	3
5	CET454	Construction Engineering and Management	3	0	0	3	40	60	100	3
6	CEP455	Project Phase I	0	0	12	6	50	50	100	--
7	CEP456	Industry Internship Evaluation (6-8 weeks)	0	0	2	0	--	--	--	--
8	CET498	Open Elective IV	3	0	0	3	40	60	100	3
			<b>14</b>	<b>0</b>	<b>16</b>	<b>21</b>				

Open Elective IV	
Course Code	Course Name
CET498-1	Green Building

**Scheme of Teaching & Examination**  
**B. Tech. (Civil Engineering)**  
**VIII Semester**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CET457	Elective V	3	0	0	3	40	60	100	3
2	CET458	Elective VI	2	0	0	2	40	60	100	3
3	CEP459	Project Phase II / Industry Project	0	0	12	6	100	100	200	--
			<b>5</b>	<b>0</b>	<b>12</b>	<b>11</b>				
<b>OR</b>										
4	CEP460	Full Semester Internship (Industry / Research / TBI)	-	-	-	11	100	100	200	
						<b>11</b>				



**Scheme of Teaching & Examination  
B. Tech. (Civil Engineering)  
Honors Specialization**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CETH41	Construction Technology	4	0	0	4	40	60	100	3
2	CETH51	Fire-fighting system	4	0	0	4	40	60	100	3
3	CETH61	Geotechnical Design	4	0	0	4	40	60	100	3
4	CETH71	Foundation Design	4	0	0	4	40	60	100	3
5	CETH81-1	Design of Environmental Structures	4	0	0	4	40	60	100	3
	CETH81-2	Geometric Design of Highways	4	0	0	4	40	60	100	3

**Note :** Credit transfer against above courses may be allowed if an appropriate MOOC course is completed by student after prior permission from HOD

**Scheme of Teaching & Examination  
B. Tech. (Civil Engineering)  
Minors Specialization**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
			L	T	P		Continuous evaluation	End Sem Exam	Total	
1	CETH41	Basics of Civil Engineering	4	0	0	4	40	60	100	3
2	CETH51	Basics of Surveying in Civil Engineering	4	0	0	4	40	60	100	3
3	CETH61	Basics of Soil Engineering	4	0	0	4	40	60	100	3
4	CETH71	Plumbing System	4	0	0	4	40	60	100	3
5	CETH81-1	Instrumentation	4	0	0	4	40	60	100	3
	CETH81-2	Rural Water Supply & Sanitation	4	0	0	4	40	60	100	3

**Note :-** If any of the above course is accessible to a student in his/her parent branch or Open electives then Credit transfer against above courses may be allowed if an appropriate MOOC course is completed by student after prior permission from HOD.



## Under Graduate Ordinance / Regulations 2021-2022

### Scheme of Teaching & Examination B. Tech. (Computer Science Engineering) Semester : III

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
				L	T	P		Continuous evaluation	End Sem Exam	Total	
1	PCC	CST251	Fundamentals of Digital Logic and Computer Architecture	4	0	0	4	40	60	100	3 Hrs
2	PCC	CSP251	Fundamentals of Digital Logic and Computer Architecture Lab	0	0	2	1	25	25	50	-
3	PCC	CST252	Data Structures & Algorithms	3	0	0	3	40	60	100	3 Hrs
4	PCC	CSP252	Data Structures & Algorithms Lab	0	0	4	2	25	25	50	--
5	PCC	CSP253	Systems Lab-I	0	0	4	2	25	25	50	--
6	BSC	MAT252	Linear Algebra and Statistics	2	1	0	3	40	60	100	3 Hrs
7	HSSM	HUT253	Business Communication	3	0	0	3	40	60	100	3 Hrs
8	HSSM	HUT257	Cyber Laws & Ethics in IT	2	0	0	2	40	60	100	3 Hrs
	<b>Total</b>			<b>14</b>	<b>1</b>	<b>10</b>	<b>20</b>	<b>275</b>	<b>375</b>	<b>650</b>	

### Scheme of Teaching & Examination B. Tech. (Computer Science Engineering) Semester : IV

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
				L	T	P		Continuous evaluation	End Sem Exam	Total	
1	PCC	CST254	Discrete Mathematics and Graph Theory	4	0	0	4	40	60	100	3 Hrs
2	PCC	CST255	Operating Systems	3	0	0	3	40	60	100	3 Hrs
3	PCC	CSP255	Operating Systems Lab	0	0	4	2	25	25	50	-
4	PCC	CST256	Object Oriented Programming	3	0	0	3	40	60	100	3 Hrs
5	PCC	CSP256	Object Oriented Programming Lab	0	0	2	1	25	25	50	-
6	PCC	CST257	Formal Languages & Automata Theory	3	0	0	3	40	60	100	3 Hrs
7	PCC	CST258	System Programming & Device Drivers	3	0	0	3	40	60	100	3 Hrs
8	PCC	CSP258	System Programming & Device Drivers Lab	0	0	2	1	25	25	50	-
9	PCC	CSP259	Systems Lab-II	0	0	4	2	40	60	100	-
10	OEC	CST299	Open Elective-I	3	0	0	3	40	60	100	3 Hrs
11	MC	CHT252	Environmental Sciences	2	-	-	0	-	-	-	-
				<b>20</b>	<b>1</b>	<b>12</b>	<b>25</b>	<b>355</b>	<b>495</b>	<b>850</b>	<b>-</b>



**Department of Computer Science and Engineering**

**Scheme of Teaching & Examination B. Tech. (Computer Science Engineering); Semester : V**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
				L	T	P		Continuous evaluation	End Sem Exam	Total	
1	PCC	CST351	Database Management Systems	3	0	0	3	40	60	100	3 Hrs
2	PCC	CSP351	Database Management Systems Lab	0	0	4	2	25	25	50	-
3	PCC	CST352	Design & Analysis of Algorithms	3	1	0	4	40	60	100	3 Hrs
4	PCC	CSP352	Design & Analysis of Algorithms Lab	0	0	2	1	25	25	50	-
5	PCC	CST353	Computer Networks	3	0	0	3	40	60	100	3 Hrs
6	PCC	CSP353	Computer Networks Lab	0	0	2	1	25	25	50	-
7	PCC	CSP354	Mobile Prog. Lab	0	0	4	2	25	25	50	-
8	OEC	CST398	Open Elective-II	3	0	0	3	40	60	100	3 Hrs
9	PEC	CST355	Elective-I	3	0	0	3	40	60	100	3 Hrs
10	MC	HUT353	Indian Traditional Knowledge	2	-	-	0	-	-	-	-
				<b>17</b>	<b>1</b>	<b>12</b>	<b>22</b>	<b>300</b>	<b>400</b>	<b>700</b>	<b>-</b>

Course Code	ELECTIVE – I
CST355-1	Computer Graphics
CST355-2	Embedded Systems
CST355-3	Information Theory & Coding
CST355-4	Design Patterns

**Scheme of Teaching & Examination B. Tech. (Computer Science Engineering); Semester : VI**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
				L	T	P		Continuous evaluation	End Sem Exam	Total	
1	PCC	CST356	Artificial Intelligence	3	0	0	3	40	60	100	3 Hrs
2	PCC	CSP356	Artificial Intelligence Lab	0	0	2	1	25	25	50	-
3	PCC	CST357	Software Engineering	3	0	0	3	40	60	100	3 Hrs
4	PCC	CSP357	Software Engineering Lab	0	0	2	1	25	25	50	-
5	PCC	CST358	Compiler Design	3	0	0	3	40	60	100	3 Hrs
6	PCC	CSP358	Compiler Design Lab	0	0	4	2	25	25	50	-
7	PEC	CST359	Elective-II	3	0	0	3	40	60	100	3 Hrs
8	OEC	CST399	Open Elective-III	3	0	0	3	40	60	100	3 Hrs
9	PR	CSP360	Project-1	0	0	6	3	25	25	50	-
10	PCC	CSP361	Comprehensive Viva	0	0	2	1	25	25	50	-
				<b>15</b>	<b>0</b>	<b>16</b>	<b>23</b>	<b>325</b>	<b>425</b>	<b>750</b>	<b>-</b>

Course Code	ELECTIVE – II
CST359-1	Advanced Algorithms
CST359-2	Distributed Systems
CST359-3	Digital Signal Processing
CST359-4	Data Warehousing & Mining





## Under Graduate Ordinance / Regulations 2021-2022

### Department of Computer Science and Engineering

#### Scheme of Teaching & Examination B. Tech. (Computer Science Engineering); Semester : VII

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
				L	T	P		Continuous evaluation	End Sem Exam	Total	
1	PCC	CST451	Elective-III	3	0	0	3	40	60	100	3 Hrs
2	PCC	CSP451	Elective-III Lab	0	0	2	1	25	25	50	-
3	PCC	CST452	Elective-IV	3	0	0	3	40	60	100	3 Hrs
4	PCC	CSP452	Elective-IV Lab	0	0	2	1	25	25	50	-
5	OEC	CST498	Open Elective-IV	3	0	0	3	40	60	100	3 Hrs
6	BSC	IDT451	Bio-informatics	2	1	0	3	40	60	100	3 Hrs
7	PR	CSP454	Project-2	0	0	12	6	50	50	100	-
8	PR	CSP455	Industry Internship Evaluation	0	0	2	0	-	-	-	-
				<b>11</b>	<b>1</b>	<b>18</b>	<b>20</b>	<b>260</b>	<b>340</b>	<b>600</b>	<b>-</b>

Course Code	ELECTIVE - III	Course Code	ELECTIVE - IV
CST451-1	Machine Learning	CST452-1	Digital Image & Video Processing
CST451-2	Web Intelligence and Big Data	CST452-2	Distributed and Parallel Database
CST451-3	Data Visualization & Analytics	CST452-3	Game Theory
CST451-4	Fundamentals of Augmented Reality	CST452-4	Cloud Computing

#### Scheme of Teaching & Examination B. Tech. (Computer Science Engineering); Semester : VIII

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE duration (Hrs)
				L	T	P		Continuous evaluation	End Sem Exam	Total	
1	PEC	CST456	Elective-V	3	0	0	3	40	60	100	3 Hrs
2	PEC	CST457	Elective-VI	3	0	0	3	40	60	100	3 Hrs
3	PR	CSP458	Project-3/Industry Internship	0	0	12	6	50	50	100	-
				<b>6</b>	<b>0</b>	<b>12</b>	<b>12</b>	<b>130</b>	<b>170</b>	<b>300</b>	<b>-</b>

Course Code	ELECTIVE - V	Course Code	ELECTIVE - VI
CST456-1	Neural Network & Deep Learning	CST457-1	Information Retrieval
CST456-2	Robotics: Perception & Estimation	CST457-2	Natural Language Processing
CST456-3	Multi Agent Intelligent Systems	CST457-3	Data Warehousing for Business Intelligence
CST456-4	Cryptography & Network Security	CST457-4	Internet of Things

Course Code	Open Elective	Course Name
CST299-1	Open Elective - I	Java Programming and UI Design Concepts
CST299-2	Open Elective - I	Design Thinking for Innovation
CST398-1	Open Elective - II	Python and Data Analysis
CST399-1	Open Elective - III	Recent Trends in Computing
CST498-1	Open Elective - IV	Data Analytics for Business Applications

**Total Credits (III to VIII Semester): 122**



### Scheme of Teaching & Examination

#### B. Tech. Department of Computer Science and Engineering

#### Honors Scheme

#### Honors & Minor Curriculum Design

Sr. No.	Semester	Course code	Course Name	Hours per Week	Credits	Maximum marks			ESE Duration in (Hrs)
						Continuous Evaluation	End Sem Exam	Total	
1	IV	CSTH41	Programming for Advanced Computing	4	4	40	60	100	3
2	V	CSTH51	Fundamentals of AWS Cloud / MOOC	4	4	40	60	100	3
3	VI	CSTH61	MERN Stack / MOOC	4	4	40	60	100	3
4	VII	CSTH71	MERN Stack - 1 / MOOC	4	4	40	60	100	3
5	VIII	CSTH81	Big Data Analysis / MOOC	4	4	40	60	100	3

#### Note

1. Student can opt for MOOC courses as per list provided by the Department at the start of session.
2. Selection, Completion, Examination process of MOOC course to be done during VIII sem duration only.

#### Minor Scheme

Sr. No.	Semester	Course code	Course Name	Hours per Week	Credits	Maximum marks			ESE Duration in (Hrs)
						Continuous Evaluation	End Sem Exam	Total	
1	IV	CSTM41	Data Structures & Algorithms	4	4	40	60	100	3
2	V	CSTM51	Software Engineering & Project Management	4	4	40	60	100	3
3	VI	CSTM61	AI and Machine Learning	4	4	40	60	100	3
4	VII	CSTM71	Mobile Application Programming	4	4	40	60	100	3
5	VIII	CSTM81	Database Management System	4	4	40	60	100	3

#### Note

1. If any of the subjects is offered by the parent department, then with the prior permission of HOD, CSE the student can opt for
  - a. ONE/TWO Program Electives (for same/more credits) offered by CSE OR
  - b. MOOC courses (for same/more credits)
2. Students cannot opt for an open elective course of any departments which are aligned with the courses offered in Minors.
3. Examination of Honors and Minor shall be conducted separately.



**Scheme of Teaching & Examination  
B. Tech. (Artificial Intelligence and Machine Learning) Semester - III**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	CAT201	Data Structures	3	1	0	4	40	60	100	03
2.	CAP201	Data Structures Lab	0	0	2	1	25	25	50	-
3.	CAT202	Computer Architecture	3	0	0	3	40	60	100	03
4.	MAT271	Mathematics for Machine Learning	3	0	0	3	40	60	100	03
5.	CAT203	Operating System	3	0	0	3	40	60	100	03
6.	CAP203	Operating System Lab	0	0	2	1	25	25	50	-
7.	HUT253	Business Communication	3	0	0	3	40	60	100	03
8.	HUT257	Cyber Laws & Ethics in IT	2	0	0	2	40	60	100	03
9.	CAP204	Python Programming Lab	0	0	4	2	25	25	50	-
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>22</b>			<b>750</b>	

**Scheme of Teaching & Examination  
B. Tech. (Artificial Intelligence and Machine Learning) Semester - IV**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	CAT205	Computer Networks	3	1	0	4	40	60	100	03
2.	CAP205	Computer Networks Lab	0	0	2	1	25	25	50	-
3.	CAT206	Artificial Intelligence: Principles and Techniques	3	1	0	4	40	60	100	03
4.	CAP206	Artificial Intelligence Lab	0	0	2	1	25	25	50	-
5.	CAT207	Theory of Computation	3	1	0	4	40	60	100	03
6.	CAT208	Design and Analysis of Algorithms	3	1	0	4	40	60	100	03
7.		Open Elective-I / MOOC (Related to AI- ML)	3	0	0	3	40	60	100	03
8.	CAP209	Software Lab-1	0	0	2	1	25	25	50	-
9.	CHT252	Environment Sciences	2	0	0	0	-	-	-	-
<b>TOTAL</b>			<b>17</b>	<b>4</b>	<b>6</b>	<b>22</b>			<b>650</b>	

Recommended course from MOOC	
1	Computer Graphics
2	Software Engineering



**Scheme of Teaching & Examination**  
**B. Tech. (Artificial Intelligence and Machine Learning) Semester - V**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	CAT301	Database Management Systems	3	0	0	3	40	60	100	03
2.	CAP301	Database Management Systems Lab	0	0	2	1	25	25	50	-
3.	CAT302	Machine Learning	3	0	0	3	40	60	100	03
4.	CAP302	Machine Learning Lab	0	0	2	1	25	25	50	-
5.	CAT303	Microcontroller Design	3	0	0	3	40	60	100	03
6.	CAP303	Microcontroller Design Lab	0	0	2	1	25	25	50	-
7.	CAT304	Compiler Design	3	0	0	3	40	60	100	03
8.	CAP304	Compiler Design Lab	0	0	2	1	25	25	50	-
9.		Open Elective-II / MOOC (Related to AI-ML)	3	0	0	3	40	60	100	03
10.	CAP305	Mini Project-1	0	0	4	2	25	25	50	-
11.	HUT353	Indian Traditional Knowledge	2	0	0	0	-	-	-	-
<b>TOTAL</b>			17	0	12	21			750	

Recommended course from MOOC	
1	Design Pattern

**Semester - VI**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	CAT306	Deep Learning	3	0	0	3	40	60	100	03
2.	CAP306	Deep Learning Lab	0	0	2	1	25	25	50	-
3.	CAT307	Data mining and Warehousing	3	0	0	3	40	60	100	03
4.	CAP307	Data mining and Warehousing Lab	0	0	2	1	25	25	50	-
5.	CAT308	Natural Language Processing	3	0	0	3	40	60	100	03
6.	CAP308	Natural Language Processing Lab	0	0	2	1	25	25	50	-
7.	CAT309	Fundamentals of Digital Image and Video Processing	3	0	0	3	40	60	100	03
8.	CAP309	Fundamentals of Digital Image and Video Processing Lab	0	0	2	1	25	25	50	-
9.		Open Elective-III/MOOC	3	0	0	3	40	60	100	03
10.	CAP310	Mini Project-2	0	0	4	2	25	25	50	-
11.	CAP311	Comprehensive Viva	0	0	2	1	25	25	50	-
<b>TOTAL</b>			15	0	14	22			800	

Recommended course from MOOC	
1	Mobile Programming



## Under Graduate Ordinance / Regulations 2021-2022

### (Artificial Intelligence and Machine Learning) Semester - VII

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	CAT401	Data Analytics and Visualization	3	0	0	3	40	60	100	03
2.	CAP401	Data Analytics and Visualization Lab	0	0	2	1	25	25	50	-
3.	IDT453	Bio-Informatics	2	0	0	2	20	30	50	1.5
4.		Open Elective IV/MOOC	3	0	0	3	40	60	100	03
5.	CAT402	Program Elective-I	3	0	0	3	40	60	100	03
6.	CAP402	Program Elective-I Lab	0	0	2	1	25	25	50	-
7.	CAT403	Program Elective-II	3	0	0	3	40	60	100	03
8.	CAP403	Program Elective-II Lab	0	0	2	1	25	25	50	-
9.	CAP404	Project phase I	0	0	12	6	50	50	100	-
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>18</b>	<b>23</b>			<b>700</b>	

Course Code	Program Elective-I	Course Code	Program Elective-II
CAT402-1	Distributed Systems	CAT403-1	Information Security
CAT402-2	Introduction to IOT	CAT403-2	Embedded Systems
CAT402-3	Computer Vision	CAT403-3	Biomedical Image Processing
CAT402-4	Information Retrieval	CAT403-4	Social Network analysis
CAT402-5	Managerial Economics		

### (Artificial Intelligence and Machine Learning) Semester - VIII

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	CAT405	Program Elective-III	3	0	0	3	40	60	100	03
2.	CAT406	Program Elective-IV	3	0	0	3	40	60	100	03
3.	CAP407	Project Phase II	0	0	12	6	50	50	100	-
<b>OR</b>										
1	CAP408	Industry Internship (One semester)	-	-	-	12	150	150	300	-
<b>TOTAL</b>			<b>6</b>	<b>0</b>		<b>12</b>			<b>300</b>	

Course Code	Program Elective-III	Course Code	Program Elective-IV
CAT405-1	Introduction to GAN [Generative Adversarial Networks]	CAT406-1	Cloud Computing
CAT405-2	Cyber Security Intelligence	CAT406-2	Robotics
CAT405-3	Soft Computing Techniques	CAT406-3	Reinforcement learning
CAT405-4	Time-Series Analysis	CAT406-4	Human Computer Interaction
CAT405-5	Cognitive systems	CAT406-5	Big Data Analytics using Hadoop
CAT405-6	Web Technologies	CAT406-6	Game Theory



**Scheme of Teaching & Examination  
B. Tech. Computer Science and Engineering (Cyber Security)  
Semester-III**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CCT201	Computer Architecture & Organization	4	0	0	4	40	60	100	3 Hrs
2.	PCC	CCP202	Python Programming lab	0	0	4	2	25	25	50	-
3.	PCC	CCT203	Data Structure & Algorithms	3	1	0	4	40	60	100	3 Hrs
4.	PCC	CCP203	Data Structure & Algorithms Lab	0	0	2	1	25	25	50	-
5.	PCC	CCT204	Computer Networks	3	1	0	4	40	60	100	3 Hrs
6.	PCC	CCP204	Computer Networks Lab	0	0	2	1	25	25	50	-
7.	BSC	MAT273	Mathematics for Cyber Security	2	1	0	3	40	60	100	3 Hrs
8.	HSSM	HUT253	Business Communication	3	0	0	3	40	60	100	3 Hrs
<b>TOTAL</b>				<b>15</b>	<b>3</b>	<b>8</b>	<b>22</b>	<b>275</b>	<b>375</b>	<b>650</b>	

**Scheme of Teaching & Examination  
B. Tech. Computer Science and Engineering (Cyber Security)  
Semester-IV**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BSC	MAT262	Probability and Queuing Theory	3	1	0	4	40	60	100	3 Hrs
2.	PCC	CCT205	Operating Systems	3	0	0	3	40	60	100	3 Hrs
3.	PCC	CCP205	Operating Systems Lab	0	0	2	1	25	25	50	-
4.	PCC	CCT206	Design & Analysis of Algorithms	3	0	0	3	40	60	100	3Hrs
5.	PCC	CCP206	Design & Analysis of Algorithms Lab	0	0	2	1	25	25	50	-
6.	PCC	CCT207	Theory of Computation	3	0	0	3	40	60	100	3 Hrs
7.	PCC	CCT208	Cryptography	3	0	0	3	40	60	100	3 Hrs
8.	PCC	CCP208	Cryptography Lab	0	0	2	1	25	25	50	-
9.	OEC		Open Elective-I/MOOC	3	0	0	3	40	60	100	3 Hrs
10.	BSC	CHT252	Environmental Sciences	2	-	-	0	-	-	-	-
<b>TOTAL</b>				<b>20</b>	<b>1</b>	<b>6</b>	<b>22</b>	<b>315</b>	<b>435</b>	<b>750</b>	



## Under Graduate Ordinance / Regulations 2021-2022

### Scheme of Teaching & Examination B. Tech. (Cyber Security) Semester-V

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CCT301	Software Engineering and Project Management	3	0	0	3	40	60	100	3 Hrs
2.	PCC	CCP301	Software Engineering and Project Management Lab	0	0	2	1	25	25	50	-
3.	PCC	CCT302	Computer Security	3	1	0	4	40	60	100	3 Hrs
4.	PCC	CCP302	Computer Security Lab	0	0	2	1	25	25	50	-
5.	PCC	CCT303	Artificial Intelligence and Cyber Security	3	0	0	3	40	60	100	3 Hrs
6.	PEC	CCT304	Elective - I	3	0	0	3	40	60	100	3 Hrs
7.	OEC		<b>Open Elective - II</b>	3	0	0	3	40	60	100	3 Hrs
8.	PCC	CCP303	Artificial Intelligence and Cyber Security Lab	0	0	2	1	25	25	50	3 Hrs
9.	MC	HUT353	Indian Traditional Knowledge	2	-	-	0	-	-	-	-
10.	PR	CCP305	Mini Project - 1	-	-	4	2	25	25	50	-
<b>TOTAL</b>				<b>17</b>	<b>1</b>	<b>10</b>	<b>21</b>	<b>275</b>	<b>375</b>	<b>650</b>	

Course Code	ELECTIVE – I
CCT304-1	Basics of Ethical Hacking
CCT304-2	Network & Web Security, Firewalls and VPNs
CCT304-3	Security Policies and implementation

### Scheme of Teaching & Examination B. Tech. (Cyber Security) Semester-VI

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CCT306	Introduction to Cloud Security	3	0	0	3	40	60	100	3 Hrs
2.	PCC	CCP306	Introduction to Cloud Security Lab	0	0	2	1	25	25	50	-
3.	PCC	CCT307	Database Management System	3	0	0	3	40	60	100	3 Hrs
4.	PCC	CCP307	Database Management System Lab	0	0	2	1	25	25	50	-
5.	PCC	CCT308	Complier Design	3	0	0	3	40	60	100	3 Hrs
6.	PCC	CCP308	Complier Design Lab	0	0	2	1	25	25	50	-
7.	PEC	CCT309	Elective-II	3	0	0	3	40	60	100	3 Hrs
8.	PEC	CCT310	Elective-III	3	0	0	3	40	60	100	3 Hrs
9.	OEC		Open Elective-III	3	0	0	3	40	60	100	3 Hrs
10.	PR	CCP311	Mini Project-2	0	0	4	2	25	25	50	-
<b>TOTAL</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>23</b>	<b>340</b>	<b>460</b>	<b>800</b>	

Course Code	ELECTIVE – II	Course Code	ELECTIVE – III
CCT309-1	Wireless & Mobile Device Security	CCT310-1	Managing Risk in Information Systems
CCT309-2	Incident Handling and Response	CCT310-2	IoT Security
CCT309-3	Security Strategies in Windows and Linux	CCT310-3	Application Security
CCT309-4	Security in Distributed Computing	CCT310-4	Threat and Malware Analysis





**Scheme of Teaching & Examination B. Tech. (Cyber Security) Semester-VII**

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PEC	CCT401	Elective-IV	3	0	0	3	40	60	100	3 Hrs
2.	PEC	CCP401	Elective-IV Lab	0	0	2	1	25	25	50	-
3.	PEC	CCT402	Elective-V	3	0	0	3	40	60	100	3 Hrs
4.	PEC	CCP402	Elective-V Lab	0	0	2	1	25	25	50	-
5.	OEC		Open Elective-IV	3	0	0	3	40	60	100	3 Hrs
6.	BSC	IDT451	Bio-informatics	2	0	0	2	20	30	50	1.5hr
7.	PCC	CCT403	Secure Coding	2	1	0	3	40	60	100	3 Hrs
8.	PR	CCP404	Project Phase – I	0	0	12	6	50	50	100	-
<b>TOTAL</b>				<b>13</b>	<b>1</b>	<b>16</b>	<b>22</b>	<b>280</b>	<b>370</b>	<b>650</b>	

Course Code	ELECTIVE – IV	Course Code	ELECTIVE – V
CCT401-1	Database and Email Forensics	CCT402-1	Intrusion Detection and Prevention System
CCT401-2	Auditing IT Infrastructure for Compliance	CCT402-2	Cyber Law and Legal Issues in Cyber Security
CCT401-3	Blockchain Security	CCT402-3	Privacy Engineering

**Scheme of Teaching & Examination B. Tech. (Cyber Security) Semester-VIII**

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PEC	CCT405	Elective VI	3	0	0	3	40	60	100	3 Hrs
2.	PEC	CCT406	Elective VII	3	0	0	3	40	60	100	3 Hrs
3.	PR	CCP407	Project Phase – 2	0	0	12	6	50	50	100	-
<b>TOTAL</b>				<b>6</b>	<b>0</b>	<b>12</b>		<b>130</b>	<b>170</b>	<b>300</b>	

**OR**

1.	PR	CCP408	Industry Internship (one Semester)	0	0	12	12	150	150	300	-
<b>TOTAL</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>150</b>	<b>150</b>	<b>300</b>	

Course Code	ELECTIVE – VI	Course Code	ELECTIVE – VII
CCT405-1	Vulnerability Assessment and Penetration Testing	CCT406-1	Advanced Mobile Forensics and Security
CCT405-2	Database Security	CCT406-2	Executive Governance and Management in IT Security
CCT405-3	Disaster Recovery and Business continuity Management	CCT406-3	Security in Social Networks
CCT405-4	Testing Cyber Crime Investigation and Digital Forensics	CCT406-4	Security of Embedded Systems

Open Elective - I	Professional Ethics
Open Elective - II	Mobile application Development
Open Elective - III	IT Infrastructure Management
Open Elective - IV	Security basics and Cyber Security

**Total Credits (I Sem to VIII Sem): 160**



**Scheme of Teaching & Examination  
B. Tech. Computer Science and Engineering (Data Science)  
Semester-III**

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	BSC	MAT272	Mathematics for Data Science	3	0	0	3	40	60	100	03 Hrs
2.	PCC	CDT201	Data Structure and Algorithms	3	0	0	3	40	60	100	03 Hrs
3.	PCC	CDP201	Data Structure and Algorithms Lab	0	0	4	2	25	25	50	-
4.	PCC	CDT202	Computer Organization and Architecture	3	0	0	3	40	60	100	03 Hrs
5.	PCC	CDP203	Advanced Object Oriented Programming Lab	0	0	4	2	25	25	50	-
6.	PCC	CDP204	Technical Skill Enhancement Lab	0	0	2	1	25	25	50	-
7.	PCC	CDP205	Statistical Programming Lab	0	0	2	1	25	25	50	-
8.	HSMC	HUT256	Indian Traditional Knowledge	2	0	0	0	-	-	-	-
9.	HSMC	HUT253	Business Communications	3	0	0	3	40	60	100	03 Hrs
10.	HSMC	HUT257	Cyber Laws & Ethics in IT	2	0	0	2	40	60	100	03 Hrs
<b>TOTAL</b>				<b>15</b>	<b>1</b>	<b>12</b>	<b>20</b>			<b>700</b>	<b>-</b>

**Scheme of Teaching & Examination  
B. Tech. Computer Science and Engineering (Data Science)  
Semester-IV**

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CDT206	Artificial Intelligence	3	0	0	3	40	60	100	03 Hrs
2.	PCC	CDT207	Operating Systems	3	0	0	3	40	60	100	03 Hrs
3.	PCC	CDP207	Operating Systems Lab	0	0	4	2	25	25	50	-
4.	PCC	CDT208	Database Management Systems	3	0	0	3	40	60	100	03 Hrs
5.	PCC	CDP208	Database Management Systems Lab	0	0	4	2	25	25	50	-
6.	PCC	CDT209	Theory of Computation	3	0	0	3	40	60	100	03 Hrs
7.	PCC	CDT210	Computer Network	3	0	0	3	40	60	100	03 Hrs
8.	PCC	CDP211	Data Handling and Visualization Lab	0	0	4	2	25	25	50	-
9.	OEC		Open Elective - 1	3	0	0	3	40	60	100	03 Hrs
10.	MC	CHT252	Environmental Sciences	2	0	0	0	-	-	-	-
<b>TOTAL</b>				<b>20</b>	<b>0</b>	<b>12</b>	<b>24</b>			<b>750</b>	<b>-</b>

<b>Recommended Course from MOOC</b>	
1	Model Thinking



**Scheme of Teaching & Examination B. Tech. (Data Science) Semester-V**

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CDT301	Machine Learning	3	0	0	3	40	60	100	03 Hrs
2.	PCC	CDP301	Machine Learning Lab	0	0	2	1	25	25	50	-
3.	PCC	CDT302	Information Security and Privacy	3	0	0	3	40	60	100	3Hrs
4.	PCC	CDP303	Programming Languages Lab	0	0	4	2	25	25	50	-
5.	PCC	CDT304	Compiler Design	3	0	0	3	40	60	100	03 Hrs
6.	PEC	CDT305	Program Elective - I	3	0	0	3	40	60	100	03 Hrs
7.	PEC	CDP305	Program Elective – I Lab	0	0	2	1	25	25	50	-
8.	PR	CDP306	Project Based Learning - I	0	0	6	3	25	25	50	-
9.	OEC		Open Elective-II / MOOC	3	0	0	3	40	60	100	03 Hrs
<b>TOTAL</b>				<b>15</b>	<b>0</b>	<b>14</b>	<b>22</b>			<b>700</b>	<b>-</b>

Course Code	Program Elective – I	Course Code	Program Elective – I Lab
CDT305-1	Digital Image Processing	CDP305-1	Digital Image Processing Lab
CDT305-2	Language Processor	CDP305-2	Language Processor Lab
CDT305-3	Design Patterns	CDP305-3	Design Patterns Lab
CDT305-4	Health Informatics	CDP305-4	Health Informatics Lab

Recommended course from MOOC	
1	Android Programming

**Scheme of Teaching & Examination B. Tech. (Data Science) Semester-VI**

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CDT307	Design and Analysis of Algorithm	3	0	0	3	40	60	100	3Hrs
2.	PCC	CDT308	Deep Learning - I	3	0	0	3	40	60	100	3Hrs
3.	PCC	CDP308	Deep Learning – I Lab	0	0	4	2	25	25	50	-
4.	PEC	CDT309	Program Elective - II	3	0	0	3	40	60	100	3Hrs
5.	PEC	CDP309	Program Elective – II Lab	0	0	2	1	25	25	50	-
6.	PCC	CDT310	Software Engineering and Testing Methodologies	3	0	0	3	40	60	100	3Hrs
7.	PCC	CDP310	Software Engineering and Testing Methodologies Lab	0	0	2	1	25	25	50	-
8.	PR	CDP311	Project Based Learning - II	0	0	6	3	25	25	50	-
9.	OEC		Open Elective-III / MOOC	3	0	0	3	40	60	100	3Hrs
<b>TOTAL</b>				<b>15</b>	<b>0</b>	<b>14</b>	<b>22</b>			<b>700</b>	<b>-</b>

Course Code	Program Elective – II	Course Code	Program Elective – II Lab
CDT309-1	Computer Vision	CDP309-1	Computer Vision Lab
CDT309-2	Natural Language Processing	CDP309-2	Natural Language Processing Lab
CDT309-3	IOT systems and cloud	CDP309-3	IOT systems and cloud Lab
CDT309-4	Data Science for Healthcare	CDP309-4	Data Science for Healthcare Lab

Recommended course from MOOC	
1	Business Analytics



## Under Graduate Ordinance / Regulations 2021-2022

### Scheme of Teaching & Examination B. Tech. (Data Science) Semester-VII

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	CDT401	Deep Learning - II	3	0	0	3	40	60	100	3Hrs
2.	PCC	CDP401	Deep Learning – II Lab	0	0	4	2	25	25	50	--
3.	PCC	CDT402	Large Scale Data Analytics	3	0	0	3	40	60	100	3Hrs
4.	PEC	CDT403	Program Elective-III	3	0	0	3	40	60	100	3Hrs
5.	PEC	CDP403	Program Elective-III Lab	0	0	2	1	25	25	50	--
6.	PEC	CDT404	Program Elective-IV	3	0	0	3	40	60	100	3Hrs
7.	PEC	CDP404	Program Elective-IV Lab	0	0	2	1	25	25	50	--
8.	OEC		Open Elective-IV / MOOC	3	0	0	3	40	60	100	3Hrs
9.	PR	CDP405	Project Based Learning – III	0	0	6	3	40	60	100	3Hrs
<b>TOTAL</b>				<b>15</b>	<b>0</b>	<b>14</b>	<b>22</b>			<b>750</b>	<b>-</b>

Course Code	Program Elective – III	Course Code	Program Elective – IV
CDT403-1	Convolutional Neural Networks for Visual Recognition	CDT404-1	Graph Mining
CDT403-2	Recurrent Neural Networks for NLP	CDT404-2	Data Science for NLP
CDT403-3	Dockers and Kubernetes	CDT404-3	High Performance Computing

Course Code	Program Elective – III Lab	Course Code	Program Elective – IV Lab
CDP403-1	Convolutional Neural Networks for Visual Recognition Lab	CDP404-1	Graph Mining Lab
CDP403-2	Recurrent Neural Networks for NLP Lab	CDP404-2	Data Science for NLP Lab
CDP403-3	Dockers and Kubernetes Lab	CDP404-3	High Performance Computing Lab

Recommended course from MOOC	
1	Human Computer Interaction
2	Robotics

### (Data Science) Semester-VIII

Sr. No.	Category	Course Code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PEC	CDT406	Program Elective-V	3	0	0	3	40	60	100	3Hrs
2.	PEC	CDT407	Program Elective-VI	3	0	0	3	40	60	100	3Hrs
3.	PR	CDP408	Project Based Learning - IV	0	0	12	6	50	50	100	-
<b>OR</b>											
4.	PR	CDP409	Industry Internship	-	-	-	12	150	150	300	-
<b>TOTAL</b>				<b>6</b>	<b>0</b>	<b>12</b>	<b>12</b>				

Course Code	Program Elective – V	Course Code	Program Elective – VI
CDT406-1	Information Retrieval	CDT407-1	Time Series Analysis
CDT406-2	Advanced Multi-Core Systems	CDT407-2	Social and Information Network Analysis
CDT406-3	Mining Massive Data Sets	CDT407-3	Biomedical Image and Signal Processing

**Total Credits = 160**



**Scheme of Teaching & Examination  
B. Tech. (Electrical Engineering)  
Semester III**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MAT256	Electrical Engineering Mathematics	3	0	0	03	40	60	100	3
2.	CET271	Engineering Mechanics and Strength of Materials	3	0	0	03	40	60	100	3
3.	EET251	Network Analysis	3	1	0	04	40	60	100	3
4.	EEP251	Network Analysis Lab	0	0	2	01	25	25	50	3
5.	ENT259	Analog Electronic Circuits	3	0	0	03	40	60	100	3
6.	ENP259	Analog Electronic Circuits Lab	0	0	2	01	25	25	50	3
7.	EET252	Electrical Measurements and Instrumentation	2	1	0	03	40	60	100	3
8.	EEP252	Electrical Measurements and Instrumentation Lab	0	0	2	01	25	25	50	3
9.	HUT251	Principles of Economics and Management	3	0	0	03	40	60	100	3
10.	CHT251	Environmental Science	2	0	0	00	-	-	-	-
<b>TOTAL</b>			<b>19</b>	<b>02</b>	<b>06</b>	<b>22</b>				

**Scheme of Teaching & Examination B. Tech. (Electrical Engineering) Semester IV**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	EET271	Signals and Systems	2	1	0	03	40	60	100	3
2.	ENT260	Digital Circuits and Microprocessor	3	0	0	03	40	60	100	3
3.	ENP260	Digital Circuits and Microprocessor Lab	0	0	2	01	25	25	50	3
4.	EET272	Electrical Machines-I	3	1	0	04	40	60	100	3
5.	EEP272	Electrical Machines-I Lab	0	0	2	01	25	25	50	3
6.	EET273	Programming for EE Applications	3	0	0	03	40	60	100	3
7.	EEP273	Programming for EE Applications Lab	0	0	2	01	25	25	50	3
8.	EET299	Open Elective-I	3	0	0	03	40	60	100	3
9.	EET275	Electromagnetic Fields	3	0	0	03	40	60	100	3
10.	HUT252	Indian Traditional Knowledge	2	0	0	00	-	-	-	-
<b>TOTAL</b>			<b>19</b>	<b>02</b>	<b>06</b>	<b>22</b>				

Open Elective-I	
EET299-1	Consumer Electrical Appliances
EET299-2	Renewable Energy Systems



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### Scheme of Teaching & Examination of B. Tech. (Electrical Engineering) Semester V

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	EET351	Power System-I	3	0	0	03	40	60	100	3
2.	EET352	Electrical Machines-II	3	1	0	04	40	60	100	3
3.	EEP352	Electrical Machines-II Lab	0	0	2	01	25	25	50	3
4.	EET353	Microcontroller	3	0	0	03	40	60	100	3
5.	EEP353	Microcontroller Lab	0	0	2	01	25	25	50	3
6.	EET354	Program Elective-I	3	0	0	03	40	60	100	3
7.	EET355	Power Electronics	3	1	0	04	40	60	100	3
8.	EEP355	Power Electronics Lab	0	0	2	01	25	25	50	3
9.	EET398	Open Elective-II	3	0	0	03	40	60	100	3
10.	EEP357	Electrical Workshop and CAEED Lab	0	0	2	01	25	25	50	3
<b>TOTAL</b>			<b>18</b>	<b>02</b>	<b>08</b>	<b>24</b>				

Program Elective-I		Open Elective-II	
EET354-1	Electrical Machine Design	EET398-1	Energy Management and Audit
EET354-2	Non Conventional Energy Sources	EET398-2	Microcontroller Applications
EET354-3	Electrical Energy Conservation and Audit	EET398-3	Industrial Instrumentation
EET354-4	Industry Offered Elective-I		

### Scheme of Teaching & Examination B. Tech. (Electrical Engineering) Semester VI

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	EET371	Power System –II	3	0	0	03	40	60	100	3
2.	EEP371	Power System –II Lab	0	0	2	01	25	25	50	3
3.	EET372	Control Systems	3	1	0	04	40	60	100	3
4.	EEP372	Control Systems Lab	0	0	2	01	25	25	50	3
5.	EET373	Program Elective-II	3	0	0	03	40	60	100	3
6.	EET374	Program Elective-III	3	0	0	03	40	60	100	3
7.	EET399	Open Elective-III	3	0	0	03	40	60	100	3
8.	EEP376	E-Circuit Design and Testing Lab	0	0	2	01	25	25	50	3
9.	EEP377	Comprehensive Viva	0	0	2	01	25	25	50	3
<b>TOTAL</b>			<b>15</b>	<b>01</b>	<b>08</b>	<b>20</b>				





Program Elective-II		Program Elective-III		Open Elective-III	
EET373-1	PLC and SCADA	EET374-1	Electrical Drives and Control	EET399-1	Solar Photovoltaic Systems
EET373-2	Power Station Practice	EET374-2	HVDC Transmission Systems		
EET373-3	Utilization of Electrical Energy	EET374-3	Industry Offered Elective-III	EET399-2	Automation with PLC
EET373-4	Industry Offered Elective-II	IDT353	Biology for Engineers		
		EET374-5	Photovoltaic System Engineering		

**Scheme of Teaching & Examination B. Tech. (Electrical Engineering) Semester VII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	EET451	High Voltage Engineering	3	0	0	03	40	60	100	3
2.	EEP451	High Voltage Engineering Lab	0	0	2	01	25	25	50	3
3.	EET452	Program Elective-IV	3	0	0	03	40	60	100	3
4.	EET498	Open Elective-IV	3	0	0	03	40	60	100	3
5.	MBT451	Entrepreneurship Development	3	0	0	03	40	60	100	3
6.	EEP454	Industry Internship Evaluation	0	0	2	00	50	-	50	-
7.	EEP455	Project Phase-I	0	0	6	03	100	-	100	-
<b>TOTAL</b>			<b>12</b>	<b>00</b>	<b>10</b>	<b>16</b>				

Program Elective-IV		Open Elective-IV	
EET452-1	Advanced Electric Drives and Vehicles	EET498-1	Electric Vehicles
EET452-2	Computer Applications in Power System		
EET452-3	Advanced Control Systems	EET498-2	Industrial IOT Instrumentation and Connectivity
EET452-4	EHVAC Transmission Systems		
EET452-5	Industry Offered Elective-IV		
EET452-6	Electric Vehicles and Energy Storage System		

**Scheme of Teaching & Examination B. Tech. (Electrical Engineering) Semester VIII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	EET472	Program Elective - V	3	0	0	03	40	60	100	3
2.	EET473	Program Elective - VI	3	0	0	03	40	60	100	3
3.	EEP474	Project Phase - II	0	0	16	08	100	100	200	3
4.	EET475	Program Elective - VII	3	0	0	03	40	60	100	3
5.	EEP475	Program Elective - VIII	0	0	2	01	25	25	50	-
<b>TOTAL</b>			<b>09</b>	<b>00</b>	<b>18</b>	<b>18</b>			<b>550</b>	
<b>OR</b>										
	EEP476	Full Semester Internship (Industry/Research/TBI)			16	18	100	100	200	
					<b>16</b>	<b>18</b>	<b>100</b>	<b>100</b>	<b>200</b>	





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Program Elective - V		Program Elective - VI	
EET472-2	EHV Substation Design and Erection	EET473-1	Power Quality
EET472-3	Mechatronics	EET473-2	Industrial Electrical Systems
EET472-4	Industry Offered Elective - V	EET473-3	Fuzzy Logic and Neural Networks
EET472-5	FACTS	EET473-4	Industry Offered Elective - II

Program Elective - VII		Program Elective - VIII	
EET475-1	Power System Protection	EEP475-1	Power System Protection Lab
EET475-2	Digital Signal Processing	EEP475-2	Digital Signal Processing Lab
EET475-3	Industry Offered Elective - VII		

### Honors & Minor Scheme

#### List of the courses under Honor Specialization

Sr. No.	Semester	Course code	Course Name	Hours per week	Credits	Maximum marks			ESE Duration (Hrs)
						Continuous Evaluation	End Sem Exam	Total	
1.	IV	EETH41	DC Microgrid	4	4	40	60	100	3
2.	V	EETH51	Introduction to Smart Grid	4	4	40	60	100	3
3.	VI	EETH61	Advanced Power Electronics	4	4	40	60	100	3
4.	VII	EETH71	Mathematical Methods and Techniques in Signal Processing	4	4	40	60	100	3
5.	VIII (Any one out of 4)	EETH81-1	Advanced Linear Continuous Control Systems: Applications with MATLAB Programming and Simulink	4	4	40	60	100	3
6.		EETH81-2	Mapping Signal Processing Algorithms to DSP Architectures	4	4	40	60	100	3
7.		EETH81-3	Power System Analysis	4	4	40	60	100	3
8.		EETH81-4	Power System Dynamics, Control and Monitoring	4	4	40	60	100	3

#### List of the courses under Minor Specialization

Sr. No.	Semester	Course code	Course Name	Hours per week	Credits	Maximum marks			ESE Duration (Hrs)
						Continuous Evaluation	End Sem Exam	Total	
1.	IV	EETM41	Electrical Machines	4	4	40	60	100	3
2.	V	EETM51	Power Semiconductor Based Drives	4	4	40	60	100	3
3.	VI	EETM61	Renewable Energy Sources	4	4	40	60	100	3
4.	VII	EETM71	Power System	4	4	40	60	100	3
5.	VIII	EETM81	Power System Protection	4	4	40	60	100	3



**Scheme of Teaching & Examination  
B. Tech. (Electronics & Communication Engineering)  
Semester III**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECT251	Electronic Devices	3	1	0	4	40	60	100	3
2.	PCC	ECP251	Electronic Devices Lab	0	0	2	1	25	25	50	3
3.	PCC	ECT252	Digital System Design	3	0	0	3	40	60	100	3
4.	PCC	ECP252	Digital System Design Lab	0	0	2	1	25	25	50	3
5.	PCC	ECT253	Signals and Systems	3	1	0	4	40	60	100	3
6.	PCC	ECT254	Network Theory	3	0	0	3	40	60	100	3
7.	PCC	ECP255	Electronic Measurement Lab	0	0	2	1	25	25	50	3
8.	BSC	MAT255	Engineering Mathematics	3	0	0	3	40	60	100	3
9.	MC	HUT256	Indian Traditional Knowledge	2	0	0	0	--	--	--	--
<b>TOTAL</b>				<b>17</b>	<b>2</b>	<b>6</b>	<b>20</b>				

**Scheme of Teaching & Examination  
B. Tech. (Electronics & Communication Engineering)  
Semester IV**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECT256	Analog and Digital Communication	3	0	0	3	40	60	100	3
2.	PCC	ECP256	Analog and Digital Communication Lab	0	0	2	1	25	25	50	3
3.	PCC	ECT257	Analog Circuits	3	0	0	3	40	60	100	3
4.	PCC	ECP257	Analog Circuits Lab	0	0	2	1	25	25	50	3
5.	PCC	ECT258	Microprocessors	3	0	0	3	40	60	100	3
6.	PCC	ECP258	Microprocessors Lab	0	0	2	1	25	25	50	3
7.	PCC	ECT259	Probability Theory And Stochastic Processes	3	1	0	4	40	60	100	3
8.	BSC	PHT251	Introduction to Electromagnetic Theory	3	0	0	3	40	60	100	3
9.	OEC	ECT299	Open Elective – I	3	0	0	3	40	60	100	3
10.	MC	CHT252	Environmental Science	2	0	0	0	--	--	--	--
<b>TOTAL</b>				<b>20</b>	<b>1</b>	<b>6</b>	<b>22</b>				



**Scheme of Teaching & Examination  
B. Tech. (Electronics & Communication Engineering)  
Semester V**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECT351	Electromagnetic Waves	3	0	0	3	40	60	100	3
2.	PCC	ECP351	Electromagnetic Waves Lab	0	0	2	1	25	25	50	3
3.	PCC	ECT352	Control Systems	3	0	0	3	40	60	100	3
4.	PCC	ECT353	Microcontrollers and Interfacing	3	0	0	3	40	60	100	3
5.	PCC	ECP353	Microcontrollers and Interfacing Lab	0	0	2	1	25	25	50	3
6.	PCC	ECT354	Digital Signal Processing	3	1	0	4	40	60	100	3
7.	PCC	ECP354	Digital Signal Processing Lab	0	0	2	1	25	25	50	3
8.	PEC	ECT355	Program Elective – 1	3	0	0	3	40	60	100	3
9.	OEC	ECT398	Open Elective – 2	3	0	0	3	40	60	100	3
10.	HSSM	HUP357	Personality Development	0	0	2	1	25	25	50	3
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>8</b>	<b>23</b>				

**Scheme of Teaching & Examination  
B. Tech. (Electronics & Communication Engineering)  
Semester VI**

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PCC	ECT356	Computer Architecture	3	0	0	3	40	60	100	3
2.	PCC	ECT357	Computer Network	3	0	0	3	40	60	100	3
3.	PCC	ECP357	Computer Networks Lab	0	0	2	1	25	25	50	3
4.	ESC	CST364	Object Oriented Data Structure	2	0	0	2	40	60	100	3
5.	ESC	CSP364	Object Oriented Data Structure Lab	0	0	2	1	25	25	50	3
6.	ESC	ECP358	Mini Project/Electronic Design workshop	0	0	4	2	25	25	50	3
7.	PEC	ECT359	Program Elective – 2	3	0	0	3	40	60	100	3
8.	OEC	ECT399	Open Elective – 3	3	0	0	3	40	60	100	3
9.	BSC	IDT353	Biology for Engineers	3	0	0	3	40	60	100	3
10.	PCC	ECP360	Comprehensive Viva	0	0	2	1	25	25	50	3
<b>TOTAL</b>				<b>17</b>	<b>0</b>	<b>10</b>	<b>22</b>				



List of Program Elective Courses (PEC) for V and VI Semesters

Sr.	Course Code	Course Title	Semester
1.	ECT355 – 1	Information Theory and Coding	V
2.	ECT355 – 2	CMOS Design	V
3.	ECT355 – 3	Wireless Communication	V
4.	ECT355 – 4	Smart Sensors	V
1.	ECT359 – 1	Speech and Audio Processing	VI
2.	ECT359 – 2	Introduction to MEMS	VI
3.	ECT359 – 3	Biomedical Electronics	VI
4.	ECT359 – 4	Introduction to IoT	VI

Scheme of Teaching & Examination

B. Tech. (Electronics & Communication Engineering)

Semester VII

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PEC	ECT451	Program Elective -3	3	0	0	3	40	60	100	3
2.	PEC	ECT452	Program Elective -4	3	0	0	3	40	60	100	3
3.	PEC	ECT453	Program Elective -5	3	0	0	3	40	60	100	3
4.	OEC/ HSSM	HUT498-1	Open Elective – 4 (Technical Communication)	3	0	0	3	40	60	100	3
5.	HSSM	HUT452	Engineering Economics	3	0	0	3	40	60	100	3
6.	ESC	ECP454	Industry Internship Evaluation (6–8 weeks)	0	0	2	0	--	--	--	--
7.	PR	ECP455	Project Stage-I	0	0	10	5	50	50	100	3
<b>TOTAL</b>				<b>15</b>	<b>0</b>	<b>12</b>	<b>20</b>				

Scheme of Teaching & Examination

B. Tech. (Electronics & Communication Engineering)

Semester VIII

Sr. No.	Category	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	PEC	ECT456	Program Elective -6	3	0	0	3	40	60	100	3
2.	PEC	ECT457	Program Elective -7	3	0	0	3	40	60	100	3
3.	PR	ECP458	Project Stage-II/ 1 Semester Industry Internship	0	0	18	9	50	50	100	3
<b>TOTAL</b>				<b>6</b>	<b>0</b>	<b>18</b>	<b>15</b>				
<b>OR</b>											
4.	PR	ECP459	Full Semester Internship	-	-	-	15	100	100	200	-



**Department of Electronics & Communication Engineering**  
**List of Program Electives Courses (PEC) for VII and VIII Semesters**

Sr.	Course Code	Course Title	Semester
1.	ECT451 – 1	Embedded Systems	VII
2.	ECT451 – 2	Microwave Theory and Techniques	VII
3.	ECT451 – 3	Digital Image and Video Processing	VII
4.	ECT452 – 1	Optical Fiber Communication	VII
5.	ECT452 – 2	Broadband Communication	VII
6.	ECT452 – 3	Wireless Sensor Networks	VII
7.	ECT453 – 1	Error Correcting Codes	VII
8.	ECT453 – 2	Long-Term Evolution Technologies	VII
9.	ECT453 – 3	Machine Learning	VII
1.	ECT456 – 1	Robotics	VIII
2.	ECT456 – 2	Computer Vision	VIII
3.	ECT456 – 3	Antenna Theory	VIII
4.	ECT457 – 1	Real Time Operating Systems and Kernels	VIII
5.	ECT457 – 2	Adaptive Signal Processing	VIII
6.	ECT457 – 3	Artificial Intelligence	VIII

**List of Open Electives**

Sr. No.	Semester	Course Code	Courses
1	IV	ECT299	ECT299 – 1: Renewable Energy
			ECT299 – 2: Evolution in Communication Technologies
2	V	ECT398	ECT398 – 1: Electronics in Agriculture
			ECT398 – 2: Sensors and Transducers
3	VI	ECT399	ECT399 – 1: Multimedia Communications
			ECT399 – 2: Information and Communication Technologies in Rural Sector
4	VII	HUT498– 1	HUT498 – 1: Technical Communication



### Honors Scheme

Sr. No.	Semester	Course code	Course Title	Hours per Week	Credits	Maximum marks			ESE Duration (Hrs)
						Continuous Evaluation	End Sem Exam	Total	
1.	IV	ECTH41	Communication System Analysis	4	4	40	60	100	3
2.	V	ECTH51	Radio Frequency Circuit Design	4	4	40	60	100	3
3.	VI	ECTH61	Multimedia Networks	4	4	40	60	100	3
4.	VII	ECTH71	Cryptography and Information Security	4	4	40	60	100	3
5.	VIII	ECTH81	Evolution of Air Interface towards 5G	4	4	40	60	100	3

### Minor Scheme

Sr. No.	Semester	Course code	Course Title	Hours per Week	Credits	Maximum marks			ESE Duration (Hrs)
						Continuous Evaluation	End Sem Exam	Total	
1.	IV	ECTM41	Communication Engineering	4	4	40	60	100	3
2.	V	ECTM51	Sensors for Smart City	4	4	40	60	100	3
3.	VI	ECTM61	IoT for Industrial Application	4	4	40	60	100	3
4.	VII	ECTM71	Mobile Communication	4	4	40	60	100	3
5.	VIII	ECTM81	Future Generation Networks	4	4	40	60	100	3



**Scheme of Teaching & Examination  
B. Tech. (Electronics Engineering)  
Semester III**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MAT254	Complex Variables and Partial Differential Equation	2	0	0	2	40	60	100	3hrs
2.	EET261	Network Theory	3	0	0	3	40	60	100	3Hrs
3.	ENT251	Electronic Devices and Circuits	3	1	0	4	40	60	100	3Hrs
4.	ENP251	Electronic Devices and Circuits Lab	0	0	2	1	25	25	50	
5.	ENT252	Digital Circuit Design	3	0	0	3	40	60	100	3Hrs
6.	ENP252	Digital Circuit Design Lab	0	0	2	1	25	25	50	
7.	ENT253	Signals and Systems	3	1	0	4	40	60	100	3Hrs
8.	CST261	Data Structures and Algorithms	2	0	0	2	40	60	100	3Hrs
9.	CSP261	Data Structures and Algorithms Lab	0	0	2	1	25	25	50	
10.	CHT251	Environmental Studies	2	0	0	0	–	–	–	
<b>TOTAL</b>			<b>18</b>	<b>2</b>	<b>6</b>	<b>21</b>				

**Scheme of Teaching & Examination  
B. Tech. (Electronics Engineering)**

**Semester IV**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ENT254	Digital Signal Processing	3	0	0	3	40	60	100	3Hrs
2.	ENP254	Digital Signal Processing Lab	0	0	2	1	25	25	50	
3.	ENT255	Analog Circuits	3	1	0	4	40	60	100	3Hrs
4.	ENP255	Analog Circuits Lab	0	0	2	1	25	25	50	
5.	ENT256	Microprocessor and Microcontroller	3	0	0	3	40	60	100	3Hrs
6.	ENP256	Microprocessor and Microcontroller Lab	0	0	2	1	25	25	50	
7.	ENT257	Electromagnetic Fields	3	0	0	3	40	60	100	3Hrs
8.		Open Elective 1 / MOOC	3	0	0	3	40	60	100	3Hrs
9.	IDT254	Biological Science	3	0	0	3	40	60	100	3Hrs
<b>TOTAL</b>			<b>18</b>	<b>1</b>	<b>6</b>	<b>22</b>				





**B. Tech (Electronics Engineering)  
Semester V**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	EET361	Control Systems	3	0	0	3	40	60	100	3Hrs
2.	ENT351	Electromagnetic Waves	3	0	0	3	40	60	100	3Hrs
3.	ENT352	CMOS Digital Circuit Design	3	1	0	4	40	60	100	3Hrs
4.	ENP352	CMOS Digital Circuit Design Lab	0	0	2	1	25	25	50	
5.	ENT353	Electronic Instrumentation	3	0	0	3	40	60	100	3Hrs
6.	ENP354	Instrumentation and control Lab	0	0	2	1	25	25	50	
7.	ENT355	Program Elective – 1	3	0	0	3	40	60	100	3Hrs
8.	ENP355	Program Elective – 1 Lab	0	0	2	1	25	25	50	
9.		Open Elective 2 / MOOC	3	0	0	3	40	60	100	3Hrs
10.	HUT351	Professional Skill Development	2	0	0	0	–	–	–	–
<b>TOTAL</b>			<b>20</b>	<b>1</b>	<b>6</b>	<b>22</b>				

Program Elective - I (V Semester)	
ENT 355-1 / ENP 355-1	Embedded System Design and RTOS
ENT 355-2 / ENP 355-2	Mechatronics
ENT 355-3 / ENP 355-3	Digital Image Processing
ENT 355-4 / ENP 355-4	Object Oriented Programming using Python

**Semester VI**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MBT351	Business Management and Entrepreneurship	3	0	0	3	40	60	100	3Hrs
2.	ENT357	Analog and Digital Communication	3	1	0	4	40	60	100	3Hrs
3.	ENP357	Analog and Digital Communication Lab	0	0	2	1	25	25	50	
4.	ENT358	Probability Theory and Stochastic Processes	3	0	0	3	40	60	100	3Hrs
5.	ENP359	Electronic Design Workshop	0	0	2	1	25	25	50	
6.	ENT360	Computer Architecture and Organization	3	0	0	3	40	60	100	3Hrs
7.	ENP360	Computer Architecture and Organization Lab	0	0	2	1	25	25	50	
8.	ENT361	Program Elective – 2	3	0	0	3	40	60	100	3Hrs
9.	ENP361	Program Elective – 2 Lab	0	0	2	1	25	25	50	
10.		Open Elective 3 / MOOC	3	0	0	3	40	60	100	3Hrs
11.	ENP363	Comprehensive Viva	0	0	2	1	25	25	50	
<b>TOTAL</b>			<b>18</b>	<b>1</b>	<b>10</b>	<b>24</b>				



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Program Elective - 2 (VI Semester)	
ENT 361-1 / ENP 361-1	Designing the IoT
ENT 361-2 / ENP 361-2	Microwave Theory and Techniques
ENT 361-3 / ENP 361-3	Machine Learning
ENT 361-4 / ENP 361-4	Database Management System

### B. Tech. (Electronics Engineering) Semester VII

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ENT451	Computer Networks	3	0	0	3	40	60	100	3Hrs
2.	ENP451	Computer Networks Lab	0	0	2	1	25	25	50	
3.	ENT452	Program Elective -3	3	0	0	3	40	60	100	3Hrs
4.	ENT453	Program Elective -4	3	0	0	3	40	60	100	3Hrs
5.		Open Elective 4 / MOOC	3	0	0	3	40	60	100	3Hrs
6.	ENP455	Project Stage-I	0	0	10	5	100		100	
7.	ENP456	Industry internship evaluation(6-8 weeks)	0	0	2	0	50		50	
<b>TOTAL</b>			<b>12</b>	<b>0</b>	<b>14</b>	<b>18</b>				

Program Elective - 3 (VII Semester)		Program Elective - 4 (VII Semester)	
ENT 452-1	Digital System Design	ENT 453-1	Testing and Verification of Digital Systems
ENT 452-2	Wireless Communication	ENT 453-2	Fiber Optics Communication
ENT 452-3	Analog IC Design	ENT 453-3	Micro-Electro Mechanical System

### B. Tech. (Electronics Engineering) Semester VIII

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ENT457	Program Elective - 5	3	0	0	3	40	60	100	3Hrs
2.	ENT458	Program Elective - 6	3	0	0	3	40	60	100	3Hrs
3.	ENP459	Project Stage - II	0	0	18	9	50	50	100	
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>18</b>	<b>15</b>				
<b>OR</b>										
4.	ENP460	Internship / Incubation (Six months)				<b>15</b>	<b>100</b>	<b>100</b>	<b>200</b>	

Program Elective - 5 (VIII Semester)		Program Elective - 6 (VIII Semester)	
ENT457-1	CMOS Subsystem Design	ENT458-1	Nano Electronics
ENT457-2	Information Theory and Coding	ENT458-2	SoC Design
ENT457-3	Biomedical Signal Processing	ENT458-3	Power Electronics

Open Elective Pool - 1 (V/VIII Semester)		Open Elective Pool - 2 (V/VI Semester)	
ENT398-1/ENT498-1	Smart Agriculture	ENT299-1/ENT399-1	Industrial Automation
ENT398-2/ENT498-2	Arduino Playground	ENT299-2/ENT399-2	Micro Nano system
ENT398-3/ENT498-3	Consumer Electronics	ENT299-3/ENT399-3	Designing with Raspberry Pi
ENT398-4/ENT498-4	Drone Technology		



Scheme of Teaching & Examination of Honors/ Minor Specialization in Electronics Engineering  
Honors in AI for Edge Computing/ IoT

Sr. No.	Semester	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	IV	ENTH42	*Introduction to Artificial Intelligence and Machine Learning	4	0	0	4	40	60	100	3Hrs
		ENTH43	# Introduction to IoT								
2.	V	ENTH52	*Deep Learning for Visual Recognition	4	0	0	4	40	60	100	3Hrs
		ENTH53	# Sensor Interfacing with Arduino and ESP8266								
3.	VI	ENTH62	*Edge for AI Fundamentals	4	0	0	4	40	60	100	3Hrs
		ENTH63	# Cloud Computing using Raspberry pi								
4.	VII	ENTH72	*Hardware Designing for AI/ML Applications	4	0	0	4	40	60	100	3Hrs
		ENTH73	# Data Management and Analytics for IoT								
5.	VIII	ENTH81	Project	0	0	4	4	50	50	100	3Hrs
							<b>20</b>				

\* If students want to pursue Honors in Electronics with specialization AI for edge computing # If students want to pursue Honors in Electronics with specialization in IoT

**Note :** Credit transfer against above courses may be allowed if an appropriate MOOC course is completed by student after prior permission from HOD

Minor in Industry 4.0

Sr. No.	Semester	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
				L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	IV	ENTM42	Sensors and Actuators for CPS	4	0	0	4	40	60	100	3Hrs
2.	V	ENTM52	Factory Automation	4	0	0	4	40	60	100	3Hrs
3.	VI	ENTM62	Industrial IoT network	4	0	0	4	40	60	100	3Hrs
4.	VII	ENTM72	Technologies of Smart Factory	4	0	0	4	40	60	100	3Hrs
5.	VIII	ENTM82	Mini Project	0	0	4	4	50	50	100	3Hrs
<b>TOTAL</b>							<b>20</b>				

**Note :** If any of the above course is accessible to a student in his/her parent branch or Open electives then Credit transfer against above courses may be allowed if an appropriate MOOC course is completed by student after prior permission from HOD.



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### Scheme of Teaching & Examination B. Tech. Engineering (Industrial Engineering) Semester III

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continous Evaluation	End Sem Exam	Total	
1.	MAT258	Introduction to Statistics & Probability - I	3	0	0	3	40	60	100	3
2.	INT251	Principles of Mechanical Engineering - I	3	0	0	3	20	30	50	2
3.	INP251	Principles of Mechanical Engineering -I lab	0	0	2	1	25	25	50	-
4.	INT252	Manufacturing Engineering - I	3	0	0	3	40	60	100	3
5.	INP252	Manufacturing Engineering - I Lab	0	0	2	1	25	25	50	-
6.	INP253	Machine Drawing Laboratory	0	0	2	1	25	25	50	-
7.	INT254	Facilities Planning	3	0	0	3	40	60	100	3
8.	INT255	Object Oriented Programming Methods	2	0	0	2	40	60	100	3
9.	INP255	Object Oriented Programming Methods Lab	0	0	2	1	25	25	50	-
10.	IDT252	Biology	2	0	0	2	25	25	50	2
11.	INP256	Industrial Visit	0	0	2	0	SF/USF Grade			-
12.	HUP258	Personality Development Lab	0	0	2	1	25	25	50	-
<b>Total</b>			<b>16</b>	<b>0</b>	<b>12</b>	<b>21</b>	<b>330</b>	<b>420</b>	<b>750</b>	<b>16</b>

### Semester IV

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continous Evaluation	End Sem Exam	Total	
1.	MAT261	Introduction to Statistics & Probability - II	3	0	0	3	40	60	100	3
2.	INT261	Principles of Mechanical Engineering - II	2	0	0	2	20	30	50	3
3.	INP261	Principles of Mechanical Engineering - II Lab	0	0	2	1	25	25	50	-
4.	INT262	Manufacturing Engineering - II	3	0	0	3	40	60	100	3
5.	INP262	Manufacturing Engineering - II Lab	0	0	2	1	25	25	50	-
6.	INT263	Work System Design	3	0	0	3	40	60	100	3
7.	INP263	Work System Design Lab	0	0	2	1	25	25	50	1
8.	INT299-	Open Elective - I	3	0	0	3	40	60	100	3
9.	INT265	Instrumentation and Metrology	3	0	0	3	40	60	100	3
10.	INP265	Instrumentation and Metrology Lab	0	0	2	1	25	25	50	-
11.	HUT259	Leadership Skills	2	0	0	2	40	60	100	3
12.	CHT252	Environmental Science	2	0	0	0	SF/USF Grade			-
<b>Total</b>			<b>21</b>	<b>0</b>	<b>8</b>	<b>23</b>	<b>360</b>	<b>490</b>	<b>850</b>	<b>21</b>



Open Elective - I		
Sr. No	Course Code	Course Name
1	INT299-1	Organizational Behavior Development
2	INT299-2	Decision Modeling
3	INT299-3	Six Sigma

**Scheme of Teaching & Examination of B. Tech.  
(Industrial Engineering)**

**Semester V**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	INT351	Operations Research - I	3	0	0	3	40	60	100	3
2.	INP351	Operations Research - I Laboratory	0	0	2	1	25	25	50	-
3.	INT352	Production Planning and Control	3	0	0	3	40	60	100	3
4.	INT353	Work Measurement and Value Engineering	3	0	0	3	40	60	100	3
5.	INT354	Relational DBMS	3	0	0	3	40	60	100	3
6.	INP354	Relational DBMS Laboratory	0	0	2	1	25	25	50	-
7.	INT355	Modeling and Simulation	3	0	0	3	40	60	100	3
8.	INP355	Modeling and Simulation Laboratory	0	0	2	1	25	25	50	-
9.	INT398 - x	Open Elective - II	3	0	0	3	40	60	100	3
10.	HUT353	Indian Traditional Knowledge	2	0	0	0	SF/USF Grade			-
<b>Total</b>			<b>20</b>	<b>0</b>	<b>6</b>	<b>21</b>	<b>315</b>	<b>435</b>	<b>750</b>	<b>18</b>

Open Elective - II		
Sr. No	Course Code	Course Name
1	INT398-1	Data Science
2	INT398-2	Maintenance and Troubleshooting
3	INT398-3	Safety Engineering
4	INT398-4	Industrial Psychology
5	INT398-5	Theories of Engineering Experimentation
6	INT398-6	Organizational Productivity Improvement



**Scheme of Teaching & Examination of B. Tech.  
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**Semester VI**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	INT361	Operations Research - II	3	0	0	3	40	60	100	3
2.	INP361	Operations Research Lab	0	0	2	1	25	25	50	-
3.	INT362	Supply Chain Management	3	0	0	3	40	60	100	3
4.	INT363	Quality Engineering	3	0	0	3	40	60	100	3
5.	INP363	Quality Engineering Lab	0	0	2	1	25	25	50	-
6.	INT364	Elective - I	3	0	0	3	40	60	100	3
7.	INT365	Elective - II	3	0	0	3	40	60	100	3
8.	INT399	Open Elective - III	3	0	0	3	40	60	100	3
9.	INP367	Mini Project	0	0	4	2	25	25	50	-
10.	INP368	Comprehensive Viva	0	0	2	1	25	25	50	-
<b>Total</b>			<b>18</b>	<b>0</b>	<b>10</b>	<b>23</b>	<b>340</b>	<b>460</b>	<b>800</b>	<b>18</b>

<b>Elective - I</b>		
Sr. No	Course Code	Course Name
1	INT 364-1	Marketing Management
2	INT 364-2	Industrial Robotics
3	INT 364-3	Data Analytics and Machine Learning
4	INT 364-4	Sustainability and Green Manufacturing

<b>Elective - II</b>		
Sr. No	Course Code	Course Name
1	INT365-1	Entrepreneurship Development
2	INT365-2	Project Management
3	INT365-3	Industrial Drives and Design
4	INT365-4	Material Management and Inventory Control
5	INT365-5	Lean Production System

<b>Open Elective - III</b>		
Sr. No	Course Code	Course Name
1	INT 399-1	Supply Chain Analytics
2	INT 399-2	Research Methodology



**Scheme of Teaching & Examination of B. Tech.  
(Industrial Engineering)  
Semester VII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Contin-uous Evaluation	End Sem Exam	Total	
1.	INT451	Industrial Automation	3	0	0	3	40	60	100	3
2.	INP451	Industrial Automation Lab	0	0	2	1	25	25	50	-
3.	INT452	Engineering Economy and Cost Control	3	0	0	3	40	60	100	3
4.	INT453	Human Factors Engineering	3	0	0	3	40	60	100	3
5.	INP453	Human Factors Engineering Lab	0	0	2	1	25	25	50	-
6.	INT454	Elective - III	3	0	0	3	40	60	100	3
7.	INT455	Elective - IV	3	0	0	3	40	60	100	3
8.	INT498	Open Elective - IV	3	0	0	3	40	60	100	3
9.	INP457	Major Project Seminar	0	0	4	2	25	25	50	-
10.	INP458	Industry Internship (6-8 Weeks)	0	0	2	0	SF/ USF Grade			
<b>Total</b>			<b>18</b>	<b>0</b>	<b>10</b>	<b>22</b>	<b>315</b>	<b>435</b>	<b>750</b>	<b>18</b>

Elective - III		
Sr. No	Course Code	Course Name
1	INT454-1	Non-Linear Optimization Technique
2	INT454-2	Human Resource Management
3	INT454-3	Enterprise Resource Planning
4	INT454-4	Advanced Instrumentation and Measurement Techniques

Elective - IV		
Sr. No	Course Code	Course Name
1	INT455-1	Tool Design
2	INT455-2	Flexible Manufacturing Systems
3	INT455-3	Internet of Things

Open Elective - IV		
Sr. No	Course Code	Course Name
1	INT498-1	Computer Integrated Manufacturing
2	INT498-2	Project Planning and Management

**Semester VIII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Contin-uous Evaluation	End Sem Exam	Total	
1.	INT461	Elective - V	3	0	0	3	40	60	100	3
2.	INT462	Elective - VI	3	0	0	3	40	60	100	3
3.	INP463	Project	0	0	12	6	50	50	100	-
<b>OR</b>										
1.	INP464	Full Semester Internship	-	-	-	12	100	100	200	-
<b>Total</b>			<b>6</b>	<b>0</b>	<b>12</b>	<b>12</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>





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Open Elective - V		
Sr. No	Course Code	Course Name
1	INT461-1	Reliability Engineering
2	INT461-2	Industrial Energy, Management

Elective - VI		
Sr. No	Course Code	Course Name
1	INT462-1	Quality for Service
2	INT462-2	Additive Manufacturing Technique
3	INT462-3	Data Visualization Tools
4	INT462-4	Behavioral Science

### Honor Scheme

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	INTH41	Industry 4.0	4	0	0	4	40	60	100	3
2.	INTH51	Soft Computing Methods	4	0	0	4	40	60	100	3
3.	INTH61	Taguchi Methods for Experimentation	4	0	0	4	40	60	100	3
4.	INTH71	Supply Chain Optimization	4	0	0	4	40	60	100	3
5.	INTH81-1	Business Analysis	4	0	0	4	40	60	100	3
6.	INTH81-2	Strategic Information Management Systems	4	0	0	4	40	60	100	3
<b>Total</b>			<b>24</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>240</b>	<b>360</b>	<b>600</b>	<b>18</b>

### Minor Scheme

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	INTM41	Methods Engineering	4	0	0	4	40	60	100	3
2.	INTM51-1	Materials Management	4	0	0	4	40	60	100	3
3.	INTM51-2	Production Planning and Control	4	0	0	4	40	60	100	3
4.	INTM61	Operations Research	4	0	0	4	40	60	100	3
5.	INTM71	Quality Engineering and Management	4	0	0	4	40	60	100	3
6.	INTM81	Project Management and Engineering	4	0	0	4	40	60	100	3
<b>Total</b>			<b>24</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>240</b>	<b>360</b>	<b>600</b>	<b>18</b>



**Scheme of Teaching & Examination of B. Tech.  
(Information Technology)  
Semester III**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITT251	Object Oriented Programming	2	0	0	2	40	60	100	03
2.	ITP251	Object Oriented Programming Lab	0	0	4	2	25	25	50	--
3.	ITT252	Data Structures	3	0	0	3	40	60	100	03
4.	ITP252	Data Structures Lab	0	0	4	2	25	25	50	--
5.	ITT253	Digital Circuits & Fundamentals of Microprocessor	2	1	0	3	40	60	100	03
6.	ITP253	Digital Circuits & Fundamentals of Microprocessor Lab	0	0	4	2	25	25	50	--
7.	ITP254	IT Workshop Lab	0	0	4	2	25	25	50	--
8.	MAT252	Linear Algebra & Statistics	3	0	0	3	40	60	100	03
9.	HUT254	Technical Communication	3	0	0	3	40	60	100	03
10.	CHT251	Environmental Science	2	0	0	0	--	--	--	--
<b>Total</b>			<b>15</b>	<b>1</b>	<b>16</b>	<b>22</b>				

**Semester IV**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITT255	Discrete Mathematics	2	1	0	3	40	60	100	03
2.	ITT256	Computer Organization and Architecture	3	0	0	3	40	60	100	03
3.	ITP256	Computer Organization and Architecture Lab	0	0	2	1	25	25	50	--
4.	ITT257	Software Engineering	3	0	0	3	40	60	100	03
5.	ITP257	Software Engineering Lab	0	0	4	2	25	25	50	--
6.	ITT258	Design and Analysis of Algorithms	3	0	0	3	40	60	100	03
7.	ITP258	Design and Analysis of Algorithms Lab	0	0	4	2	25	25	50	--
8.	HUT255	Organizational Behavior	3	0	0	3	40	60	100	03
9.	ITT299	Open Elective - I	3	0	0	3	40	60	100	03
10.	HUT252	Indian Traditional Knowledge	2	0	0	0	--	--	--	--
<b>Total</b>			<b>19</b>	<b>1</b>	<b>10</b>	<b>23</b>				

Open Elective - I	
Code	Course Title
ITT299-01	Linux Fundamentals



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### Scheme of Teaching & Examination of B. Tech. (Information Technology) Semester V

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITT351	Operating Systems	3	0	0	3	40	60	100	03
2.	ITP351	Operating Systems Lab	0	0	4	2	25	25	50	–
3.	ITT352	Formal Languages and Automata Theory	2	1	0	3	40	60	100	03
4.	ITT353	Computer Networks	3	0	0	3	40	60	100	03
5.	ITP353	Computer Networks Lab	0	0	4	2	25	25	50	–
6.	HUT354	Managerial Economics	3	0	0	3	40	60	100	03
7.	ITT354	Elective-I	3	0	0	3	40	60	100	03
8.	ITT398	Open Elective-II	3	0	0	3	40	60	100	03
<b>Total</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>22</b>				

Elective - I		Open Elective - II	
Code	Course Title	Code	Course Title
ITT354 - 01	Advance Data Structures	ITT398 - 01	Python Programming
ITT354 - 02	Web Technologies	ITT398 - 02	Client Server Computing & Applications

### Scheme of Teaching & Examination of B. Tech. (Information Technology) Semester VI

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITT356	Information Security	3	0	0	3	40	60	100	03
2.	ITT357	Compiler Design	3	0	0	3	40	60	100	03
3.	ITP357	Compiler Design Lab	0	0	4	2	25	25	50	–
4.	ITT358	Database Management System	2	1	0	3	40	60	100	03
5.	ITP358	Database Management System Lab	0	0	4	2	25	25	50	–
6.	ITT359	Elective - II	3	0	0	3	40	60	100	03
7.	ITT399	Open Elective-III	3	0	0	3	40	60	100	03
8.	ITP361	Project-I	0	0	4	2	50	50	100	–
9.	ITP362	Comprehensive Viva	0	0	2	1	25	25	50	–
<b>Total</b>			<b>14</b>	<b>1</b>	<b>14</b>	<b>22</b>				

Elective - II		Open Elective - III	
Code	Course Title	Code	Course Title
ITT359 - 01	IT Infrastructure Services	ITT399 - 01 (self study)	Cyber Security and laws
ITT359 - 02	Mobile Application Development		



**Scheme of Teaching & Examination of B. Tech.  
(Information Technology)  
Semester VII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITT451	Artificial Intelligence	2	0	0	2	40	60	100	03
2.	ITP451	Artificial Intelligence Lab	0	0	2	1	25	25	50	-
3.	ITT452	Cloud Computing	2	0	0	2	40	60	100	03
4.	ITP452	Cloud Computing Lab	0	0	2	1	25	25	50	-
5.	ITT453	Elective-III	3	0	0	3	40	60	100	03
6.	ITT454	Elective-IV	3	0	0	3	40	60	100	03
7.	ITT498	Open Elective-IV	3	0	0	3	40	60	100	03
8.	ITP455	Industry Internship Evaluation*	0	0	2	0	-	-	-	-
9.	ITP456	Project-II	0	0	12	6	75	75	150	-
<b>Total</b>			<b>13</b>	<b>0</b>	<b>18</b>	<b>21</b>				

\*Industry Internship evaluation (6 - 8 weeks, undergone during 3<sup>rd</sup> to 6<sup>th</sup> semester)

Elective - III		Elective - IV		Open Elective - IV		
Code	Course Title	Code	Course Title	Sr	Course Code	Course Name
ITT453-01	Image Processing	ITT454-01	Introduction to Machine Learning	1	ITT 498-01	Internet Technologies
ITT453-02	Wireless Communication	ITT454-02	Internet of Things	2	ITT 498-02	E-Commerce

**Semester VIII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITT457/IDT457	Elective - V	3	0	0	3	40	60	100	03
2.	ITT458	Elective-VI	3	0	0	3	40	60	100	03
3.	ITP459	Project-III	0	0	12	6	75	75	150	-
<b>Total</b>			<b>6</b>	<b>0</b>	<b>12</b>	<b>12</b>				

Elective - V		Elective - VI	
Code	Course Title	Code	Course Title
ITT457 - 01	Data Warehousing & Business Intelligence	ITT458-01	Information Retrieval
IDT457	Computational Biology	ITT458-02	Distributed Systems

OR

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1	ITP460	Full Semester Internship	-	-	-	12	100	100	200	-



**Scheme of Teaching & Examination of B. Tech.  
Honors Specialization in Information Technology**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITTH41	Python Programming	-	-	-	04				
2.	ITTH51	Competitive Programming	-	-	-	04				
3.	ITTH61-01	Software Testing	-	-	-	04				
	ITTH61-02	Computer Vision	-	-	-	04				
4.	ITTH71-01	Social Networks	-	-	-	04				
	ITTH71-02	Real - Time Systems	-	-	-	04				
5.	ITTH81-01	Deep Learning	-	-	-	04				
	ITTH81-02	Industrial IoT	-	-	-	04				

**Note:**

1. The above courses are to be opted as NPTEL courses with prior permission and consultation with Head Information Technology Department
2. If the above listed courses are not available at the time of registration, alternate courses will be offered by the department.

**Scheme of Teaching & Examination of B. Tech.  
Minors Specialization in Information Technology**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	ITTM41	Python Programming	3	1	-	04	40	60	100	03
2.	ITTM51	Object Oriented Programming	3	1	-	04	40	60	100	03
3.	ITTM61	Web Design	3	1	-	04	40	60	100	03
4.	ITTM71-01	Introducing to Machine Learning	3	1	-	04	40	60	100	03
	ITTM71-02	Computer Networking	3	1	-	04	40	60	100	03
5.	ITTM81	Introduction to Emerging Technologies	3	1	-	04	40	60	100	03

Note: If any of the above course is accessible to a student in his/her parent branch or open elective then the credit transfer against the course will be allowed subject to completion of a MOOC course with prior permission and consultation with Head Information Technology Department



Scheme of Teaching & Examination of B. Tech.  
(Mechanical Engineering)

Semester III

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MET251	Materials Engineering	3	0	0	3.00	40	60	100	3 Hrs.
2.	MEP251	Materials Engineering	0	0	1	0.50	25	25	50	-
3.	MEP252	M/C Drawing & Solid Modeling	0	0	2	1.00	50	50	100	-
4.	MET253	Engineering Mechanics	3	0	0	3.00	40	60	100	3 Hrs.
5.	MET254	Manufacturing Processes	3	0	0	3.00	40	60	100	3 Hrs.
6.	MEP254	Manufacturing Processes	0	0	2	1.00	25	25	50	-
7.	MAT257	Engineering Mathematics	3	1	0	4.00	40	60	100	3 Hrs.
8.	IDT251	Biology	2	0	0	2.00	40	60	100	3 Hrs.
9.	MEP260	Industry Visit	0	0	2	0.00	-	-	-	-
<b>Total</b>			<b>14</b>	<b>1</b>	<b>7</b>	<b>17.5</b>			<b>700</b>	

Semester IV

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MET261	Kinematics & Dynamics of Machinery	3	1	0	4	40	60	100	3 Hrs.
2.	MEP261	Kinematics & Dynamics of Machinery Lab	0	0	2	1	25	25	50	-
3.	MET262	Thermodynamics	3	1	0	4	40	60	100	3 Hrs.
4.	MET263	Strength of Materials	3	1	0	4	40	60	100	3 Hrs.
5.	MET264	Fluid Mechanics & Hydraulic Machines	3	1	0	4	40	60	100	3 Hrs.
6.	MEP264	Fluid Mechanics & Hydraulic Machines Lab	0	0	2	1	25	25	50	-
7.	MEP265	Mechanical Engineering Software Lab	0	0	2	1	25	25	50	-
8.	MET299	Open Elective - I	3	0	0	3	40	60	100	3 Hrs.
9.	CHT252	Environmental Science	2	0	0	0	-	-	-	-
10.	MEP270	Mini Project	0	0	2	0	-	-	-	-
<b>Total</b>			<b>17</b>	<b>4</b>	<b>8</b>	<b>22</b>			<b>650</b>	

Open Elective - I	
Course Code	Course Name
MET299-1	Basic Mechanical Engineering
MET299-2	Non Conventional Energy Sources



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### Scheme of Teaching & Examination of B. Tech. (Mechanical Engineering) Semester V

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MET351	Applied Thermodynamics-I	3	1	0	4	40	60	100	3 Hrs.
2.	MET352	Heat Transfer	3	0	0	3	40	60	100	3 Hrs.
3.	MEP352	Heat Transfer	0	0	2	1	25	25	50	-
4.	MET353	Design of Machine Elements-I	3	1	0	4	40	60	100	3 Hrs.
5.	MET354	Manufacturing Technology	3	0	0	3	40	60	100	3 Hrs.
6.	MEP354	Manufacturing Technology	0	0	2	1	25	25	50	-
7.	MET355	Operations Research	3	0	0	3	40	60	100	3 Hrs.
8.	MET398	Open Elective - II	3	0	0	3	40	60	100	3 Hrs.
9.	HUT353	Indian Traditional Knowledge	2	0	0	0	-	-	SF/USF	-
10.	MEP360	Project-I	0	0	2	1	50	-	50	-
<b>Total</b>			<b>20</b>	<b>2</b>	<b>6</b>	<b>23</b>			<b>750</b>	

Open Elective - II	
Course Code	Course Name
MET398-1	Project Management
MET398-2	Automobile Engineering

### Semester VI

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MET361	Applied Thermodynamics-II	3	0	0	3.00	40	60	100	3 Hrs.
2.	MEP361	Applied Thermodynamics-II	0	0	2	1.00	25	25	50	-
3.	MET362	Instrumentation & Control	3	0	0	3.00	40	60	100	3 Hrs.
4.	MEP362	Instrumentation & Control	0	0	1	0.50	25	25	50	-
5.	MET363	Finite Element Analysis	2	0	0	2.00	40	60	100	3 Hrs.
6.	MEP363	Finite Element Analysis	0	0	2	1.00	25	25	50	-
7.	MEP364	Design of Machine Elements-II	0	0	2	1.00	25	25	50	-
8.	MET365	Elective-I	3	0	0	3.00	40	60	100	3 Hrs.
9.	MEP365	Elective-I Lab	0	0	1	0.50	25	25	50	-
10.	MET366	Elective-II	3	0	0	3.00	40	60	100	3 Hrs.
11.	MET399	Open Elective – III	3	0	0	3.00	40	60	100	3 Hrs.
12.	MEP368	Comprehensive Viva Voce	0	0	2	1.00	25	25	50	-
13.	MEP370	Project-II	0	0	2	1.00	50	-	50	-
<b>Total</b>			<b>17</b>	<b>0</b>	<b>12</b>	<b>23.00</b>			<b>950</b>	





<b>Elective - I</b>			
<b>Code Code</b>	<b>Course Name</b>	<b>Code Code</b>	<b>Course Name</b>
MET365-1	Introduction to Computational Fluid Dynamics	MEP365-1	Introduction to Computational Fluid Dynamics
MET365-2	Internal Combustion Engines	MEP365-2	Internal Combustion Engines
MET365-3	Computer Graphics	MEP365-3	Computer Graphics
MET365-4	Synthesis of Mechanisms	MEP365-4	Synthesis of Mechanisms
MET365-5	Soft Computing Techniques in Mechanical Engineering	MEP365-5	Soft Computing Techniques in Mechanical Engineering
MET365-6	Additive Manufacturing	MEP365-6	Additive Manufacturing
MET365-7	Mechatronic Systems	MEP365-7	Mechatronic Systems

<b>Elective - II</b>			
<b>Code Code</b>	<b>Course Name</b>	<b>Code Code</b>	<b>Course Name</b>
MET366-1	Advanced Manufacturing Techniques	MET366-2	Industrial Fluid Power
MET366-3	Automobile Engineering	MET366-4	Dynamics of Machinery
MET366-5	Numerical Methods for Mechanical Engineering		

<b>Open Elective - III</b>	
<b>Code Code</b>	<b>Course Name</b>
MET399-1	World Class Manufacturing
MET399-2	Safety and Hazard Analysis
MET399-3	Energy Auditing

**Scheme of Teaching & Examination of B. Tech.  
(Mechanical Engineering)  
Semester VII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MET451	Elective-III	3	0	0	3.00	40	60	100	3 Hrs.
2.	MEP451	Elective-III Lab	0	0	1	0.50	25	25	50	-
3.	MET452	Elective-IV	3	0	0	3.00	40	60	100	3 Hrs.
4.	MET453	Elective-V	3	0	0	3.00	40	60	100	3 Hrs.
5.	MET454	Elective-VI	3	0	0	3.00	40	60	100	3 Hrs.
6.	MET498	Open Elective – IV	3	0	0	3.00	40	60	100	3 Hrs.
7.	MEP455	Internship Evaluation (6 to 8 Week)	0	0	2	0.00	-	-	-	-
8.	MEP460	Project-III	0	0	10	5.00	100	100	200	-
<b>Total</b>			<b>15</b>	<b>0</b>	<b>13</b>	<b>20.5</b>			<b>750</b>	



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Elective - III			
Code Code	Course Name	Code Code	Course Name
MET451-1	Stress Analysis	MEP451-1	Stress Analysis Lab
MET451-2	Advanced Finite Element Methods	MEP451-2	Advanced Finite Element Methods Lab
MET451-3	Industrial Robotics	MEP451-3	Industrial Robotics Lab
MET451-4	Refrigeration and Air-conditioning	MEP451-4	Refrigeration and Air-conditioning Lab
MET451-5	Renewable Energy Systems	MEP451-5	Renewable Energy Systems Lab
MET451-6	IoT and Industry 4.0	MEP451-6	IoT and Industry 4.0 Lab

Elective - IV			
Code Code	Course Name	Code Code	Course Name
MET452-1	Mechanical Vibrations	MET452-2	Power Plant Engineering
MET452-3	Vehicle Dynamics	MET452-4	Supply Chain Management
MET452-5	Energy Conservation and Management	MET452-6	Micro machining

Elective - V			
Code Code	Course Name	Code Code	Course Name
MET453-1	Control Systems	MET453-2	Principles of Management
MET453-3	Electric Vehicle Technology	MET453-4	Composite Materials
MET453-5	Advanced Heat Transfer	MET453-6	Mobile Robotics

Elective - VI			
Code Code	Course Name	Code Code	Course Name
MET454-1	Design of Mechanical Systems	MET454-2	MEMS
MET454-3	Engineering Economics and Cost Estimation	MET454-4	Material Handling Systems
MET454-5	Project Management	MET454-6	Artificial Intelligence and Expert System

Open Elective - IV	
Code Code	Course Name
MET498-1	Mechatronics
MET498-2	Industrial Robotics
MET498-3	Functional Safety
MET498-4	Condition Monitoring
MET498-5	Steam and Hydro Turbines



**Scheme of Teaching & Examination of B. Tech.  
(Mechanical Engineering)  
Semester VIII**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	MET461	Elective-VII	3	0	0	3.00	40	60	100	3 Hrs.
2.	MET462	Elective-VIII	3	0	0	3.00	40	60	100	3 Hrs.
3.	MET463	Elective-IX	3	0	0	3.00	40	60	100	3 Hrs.
4.	MEP463	Elective-IX Lab	0	0	2	1.00	25	25	50	-
5.	MEP470	Project –IV/ Industry Project	0	0	12	6.00	150	150	300	-
<b>Total</b>			<b>9</b>	<b>0</b>	<b>14</b>	<b>16.00</b>			650	
<b>OR</b>										
6.	MEP471	Full Semester Internship (Research/Industry/TBI)	-	-	-	16.00	100	100	200	-

**Elective - VII**

Course Code	Course Name
MET461-1	Industrial Management and Entrepreneurship Development
MET461-2	Lean Production System
MET461-3	Reliability Engineering

**Elective - VIII**

Course Code	Course Name
MET462-1	Productivity Improvement Techniques
MET462-2	Field and Service Robots
MET462-3	Marketing Management

**Elective - IX**

Course Code	Course Name	Course Code	Course Name
MET463-1	Automation in Manufacturing	MEP463-1	Automation in Manufacturing Lab
MET463-2	Product Lifecycle Management	MEP463-2	Product Lifecycle Management Lab
MET463-3	Human Factors in Engineering	MEP463-3	Human Factors in Engineering Lab



**Scheme of Teaching & Examination of B. Tech.  
Honors Specialization (Mechanical Engineering)**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	METH41	Digital Manufacturing	4	0	0	4.00	40	60	100	3 Hrs.
2.	METH51	Tool Design	4	0	0	4.00	40	60	100	3 Hrs.
3.	METH61	Turbo Machinery	4	0	0	4.00	40	60	100	3 Hrs.
4.	METH71	Design of Heat Exchangers	4	0	0	4.00	40	60	100	3 Hrs.
5.	METH81-1	Tribology	4	0	0	4.00	40	60	100	3 Hrs.
6.	METH81-2	Robotics	4	0	0	4.00	40	60	100	3 Hrs.

**Scheme of Teaching & Examination of B. Tech.  
Minors Specialization (Mechanical Engineering)**

Sr. No.	Course code	Course Name	Hours/week			Credits	Maximum marks			ESE Duration (Hrs)
			L	T	P		Continuous Evaluation	End Sem Exam	Total	
1.	METM41	Automotive Engineering	4	0	0	4.00	40	60	100	3 Hrs.
2.	METM51	Computer Aided Design	4	0	0	4.00	40	60	100	3 Hrs.
3.	METM61	Automation and Robotics	4	0	0	4.00	40	60	100	3 Hrs.
4.	METM71	Solar Energy Technology	4	0	0	4.00	40	60	100	3 Hrs.
5.	METM81-1	Manufacturing Engineering	4	0	0	4.00	40	60	100	3 Hrs.
6.	METM81-2	Mechanical Engineering Design	4	0	0	4.00	40	60	100	3 Hrs.



**List of Open Elective (UG)**

<b>Sr.</b>	<b>Department</b>	<b>Semester</b>	<b>Open Elective</b>
1	Computer Science & Engineering	4th Sem	CST299-1: Java Programming and UI design concepts. CST299-2: Design Thinking for innovation
		5th Sem	CST398-1: Python and Data Analysis
		6th Sem	CST399-1: Recent trends in Computing
			CST322-2: Foundation of Business Intelligence
			CST322-5: Mobile Technology
			CST 322-8: Fundamentals of Database and Java Programming
		7th Sem	CST322-9: Object Oriented Programming using Python CST499-1: Data Analytics for Business Applications
2	Electrical Engineering	4th Sem	EET299-1 : Consumer Electrical Appliances EET299-2 : Renewable Energy Systems
		5th Sem	EET398-1 : Energy Management & Audit
			EET398-2 : Microcontroller Applications
			EET398-3 : Industrial Instrumentation
		6th Sem	EET399-1 : Solar photovoltaic Systems
			EET399-2 : Automation with PLC
			EET313-2: Industrial Drives
			EET313-3: Energy Management and Audit
		7th Sem	EET498-1 : Electrical Vehicles EET498-2 :Industrial IOT Instrumentation &Connectivity
		3	Electronics &Communication
5th Sem	ECT398- 1: Electronics in Agriculture		
	ECT398- 2: Sensors and Transducers		
6th Sem	ECT399- 1 : Python Programming for Machine Learning		
	ECT399-2 : Information And Communication Technologies in Rural Sector		
	ECT399- 1 : Rural Technology		
	ECT309-1: Telecommunication Engineering		
ECT309-2: Introduction to Instrumentation System and Transducers			
4	Electronics Design Technology	5th Sem	EDT398-1: PCB Design
		6th Sem	EDT399-1: Microcontroller based Design EDT311-1: Industrial Electronics System Design
5	Electronics Engineering	(V/VII) Sem	ENT 298-1/ ENT 398-1 Smart Agriculture
			ENT 298-1/ ENT 398-2 Arduino Playground
			ENT 298-1/ ENT 398-3 Consumer Electronics
		(IV/VI) Sem	ENT 299-1/ ENT 399-1 Industrial automation
			ENT 299-2/ ENT 399-2 Micro Nano system
ENT 299-3/ ENT 399-3 Designing with Raspberry pi			
6	Industrial Engineering	4th Sem	INT299-1: Organizational Behaviour Development
			INT299-2: Decision Modeling
			INT299-3: Six Sigma
		5th Sem	INT398-1: Data Science
			INT398-4: Industrial Psychology
			INT398-6: Organizational Productivity Improvement
		6th Sem	INT366-2: Industrial Engineering for IT
			INT311-1: Six Sigma
			INT399-1: Supply Chain Analytics
		7th Sem	INT456-1: Total Quality Management
INT456-1: Maintenance Engineering			
INT456-1: Design of Experiments			
7	Information Technology	4th Sem	ITT299-1: Linux Fundamental
		5th Sem	ITT355-1: Python Programming
			ITT398-2: Client Server Computing and Applications
		6th Sem	ITT399-1: Cyber security and laws
			ITT309-2: Information Systems
		7th Sem	ITT309-1: Internet Technologies ITT454-2: E-Commerce



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8	Mechanical Engineering	4th Sem	MET299-1: Basic Mechanical Engineering	
			MET299-2: Non-Conventional Energy Sources	
		5th Sem	MET356-1: Project Management	
			MET398-2: Automobile Engineering	
		6th Sem	MET399-1: World Class Manufacturing	
			MET399-2: Safety and Hazard Analysis	
			MET399-3: Energy Auditing	
		7th Sem	MET309-2: Robotics	
			MET455-1: Mechatronics	
			MET455-2: Industrial Robotics	
MET455-3: Functional Safety				
MET455-4: Condition Monitoring				
9	Civil Engineering	4th Sem	CET299-1: Basic Building Components	
			CET299-2: Basics of Environmental Pollution	
6th Sem	CET399-1: Metro System & Engineering			
	7th Sem	CET498-1: Green Building & Vastu Concepts		
10	Humanities	---	HUT299-1: Human Relationship Dynamics	
			HUT250-2: Applied Psychology	
			HUT299-3: Basic Ornithology for Engineers	
			HUT398-1: Education Technology and Society	
			Employability Skills for Engineers	
			Challenges of human resource development	
			Psychology for professional Growth	
			HUT399-3: Orientation in German Language	
			HUT399-5: Communicative English	
			HUT300-5: Sanskrit Pravesh	
11	Physics	---	HUT498-1: Technical Communication	
			PHT299-1: Introduction to Quantum Computing	
			PHT299-2: Essentials of Classical Mechanics	
			PHT299-3: Principles of Electronic Materials	
			PHT299-4 Nanomaterials: Physics, Properties & Applications	
			PHT398-1: Introduction to Quantum Mechanics	
			PHT301: Quantum Mechanics for Engineers	
			PHT399-2: Computational Physics	
			PHT399-3: Computational Electromagnetics	
			PHT302: Nano Technology	
PHT303: Solid State Lighting				
12	Chemistry	4th Sem	PHT304: Solar Cells: Principles and Materials	
			5th Sem	CHT299-1: Introduction to Nano Material Science and Engineering
				Modern Waste Management Techniques
6th Sem	CHT 399-1: Pollution and Control techniques			
13	Mathematics	---	CHT399-2: Renewable Energy Sources and battery Technology	
			MAT399-1: Combinatorial Theories	
			MAT399-2: Numerical techniques	
14	Board of Interdisciplinary Studies	---	MAT399-3: Statistical Methods for Business and Management	
			Smart Agriculture	
15	Management Technology	---	MBT299-1: Innovations and Entrepreneurship	
			MBT399-1: Financial Management	
			MBT399-2: Entrepreneurship Development	
16	Computer Applications	---	MCT399-1: Introduction to Object Oriented Programming	

**Note :** The above list of Open Elective courses is subject to change depending upon the availability of resource person, technological developments and need of industry/society. Offering of open elective courses which are not segregated semester wise will be notified at the start of respective semester depending on the availability of resources.



Regulation No.	Description
<b>R 1. General</b>	
<b>R 1.1</b>	These regulations shall be called as the Regulations for the UG programmes of the Institute.
<b>R 1.2</b>	These regulations shall come into force with effect from the date of its approval by the Academic Council.
<b>R 2. Undergraduate Programmes</b>	
<b>R 2.1</b>	The Institute shall offer Undergraduate programmes as shown in Table 1.
<b>R 2.2</b>	The minimum duration of UG programmes leading to B. E. degree is eight semesters (spread over four years). The duration for the UG programme may be altered in accordance with the decision of the Competent Authority.
<b>R 2.3</b>	Reservation of seats for admission to UG programmes shall be as per the norms of the Government for Minority Institutions.
<b>R 2.4</b>	Direct second year UG admission (lateral entry) shall be made as per norms and procedures of Government for Minority Institutions.
<b>R 2.5</b>	The candidate shall be provisionally admitted to UG programme subject to fulfillment of eligibility criterion as prescribed by the Competent Authority.
<b>R 2.6</b>	In the matter of admissions to the UG programmes, the decision of the competent authority shall be final.
<b>R 2.7</b>	A student should have obtained the eligibility certificate from the University in the first semester at the time of admission.
<b>R 3. Semester System</b>	
<b>R 3.1</b>	The academic programmes in the Institute shall be based on semester system; two semesters (July - December and January - June) in a year with winter and summer vacations.
<b>R 3.2</b>	The curriculum shall consist of credit and audit (non-credit) courses.
<b>R 3.3</b>	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 lecture, tutorial, laboratory classes and field study if required.
<b>R 3.4</b>	The courses, practicals, seminars and projects offered in a semester shall be continuously assessed and evaluated to judge the performance of a student.
<b>R 4. Curriculum Structure</b>	
<b>R 4.1</b>	<p>The programmes will consist of:</p> <ul style="list-style-type: none"> <li>(a) Courses comprising of basic sciences, engineering sciences, humanities and management.</li> <li>(b) Engineering core courses introducing the student to the foundations of engineering in his /her branch.</li> <li>(c) Electives enabling the students to take up a group of courses of interest to him/her. <b>Note :</b> In general, SUBJECTS offered as open electives shall not be offered as departmental electives.</li> <li>(d) Minor and major projects, and seminar approved by the Department</li> <li>(e) Other technical industry oriented audit courses/ Environmental Engineering Courses / Industrial visits / Case study / Mini Projects / Site visits / Yoga / Professional skills.</li> </ul>





## Under Graduate Ordinance / Regulations 2021-2022

<b>R 4.2</b>	Each UG programme will have a curriculum and course contents (syllabi) for the courses designed by the BOS and approved by Academic Council.
<b>R 4.3</b>	The curriculum of any UG programme is designed to have credits of 160 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 122. (Modified in Academic Council Meeting dated 14/07/2018)
<b>R 4.4</b>	The total contact hours for UG programmes shall be as per norms prescribed by the Competent Authority.
<b>R 4.5</b>	The medium of instruction, examination and project reports will be English.
<b>R 4.6</b>	Every UG student will have to earn the credits by passing all the credit courses as specified in R 6 and will have to earn 'SF' grade in all the audit courses to become eligible for award of the Degree.
<b>R 5. Course and Department Codes</b>	
<b>R 5.1</b>	Each course offered shall have an alphanumeric course code consisting of a string of six characters. The first two characters in a course code shall be capital letters identifying the respective department / Board offering the course, Third letter will indicate nature of the course i.e. Theory (T) or Practical (P). & next digit will indicate the (year of the course) 1-4 for UG Programme. viz. : UG-CET4XX: CE- Civil Engineering, T-Theory, 4-Fourth Year and XX-Course Number. in case of Honors or Minor courses, fourth digit contains H/M in Honors and Minor courses respectively. Fifth letter indicates semester in which it is offered. Sixth letter indicates course number. viz. : CETH41 is offered by Civil dept. under Honors scheme in 4th Semester
<b>R 6. Course Credits</b>	
<b>R 6.1</b>	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 credits. (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. Special courses like minor and major projects, seminar, 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.
<b>R7. Incentive to the Students for Achievement/ Participation in R&amp;D, SRC, Sports, NSS, NCC, TBI, T&amp;P, Swachh Bharat Internship, Co-curricular/Extra-curricular Activities and GATE Examination</b>	
<b>R 7.1</b>	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 additional course and shall be awarded grade points as follows from the academic year 2018-19.



For award of incentive marks, student shall be required to submit an application with required proofs/certificates/endorsement received from 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. Summation of all incentive marks put together for different achievements/activities should not go above 100 marks in a semester. Students will not be eligible for incentive 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 160 credit schemes of UG programmes, all M.Tech , MCA, MBA & MBA (Integrated)		For 362 credit schemes of UG programmes,	
Grade Points	Range of Marks	Grade Points	Range of Marks
10	91-100	20	91-100
9	81-90	18	81-90
8	71-80	16	71-80
7	61-70	14	61-70
6	51-60	12	51-60
5	41-50	10	41-50
4	31-40	8	31-40
0	Less than 31	0	Less than 31

The guidelines for award of incentive marks for all above activities are detailed as under:



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

Sr. No.	*Particulars	Incentive Marks
<b>A</b>	<b>Co-curricular Learning :</b>	
**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 organizations / 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 organizations / Professional bodies (Course Passed / Course Attended)	60 / 40
<b>B</b>	<b>Research/Consultancy Projects:</b>	
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/Departments 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
<b>C</b>	<b>Research Publications:</b>	
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 Indexed journal other than SCI, SCOPUS, ESCI	80
3	Research Paper accepted and presented in 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 (For 362 Credit scheme and 160 credit scheme)



1	All office bearers of Departmental societies	40
2	Participation in Inter collegiate competitions (University)	60
3	Winners in Inter collegiate competitions (University)	80
4	SRC team	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 members	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 Swachha 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
<b>A</b>	Incubation Stages :	
	i) Idea Pre-incubation Stage	40
	ii) Incubation Stage	60
	iii) Start-up Phase	80
<b>B</b>	Participation in Inter collegiate BP Competitions organised 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
<b>C</b>	i) RCOEM TBI Foundation core Committee	60
	ii) RCOEM TBI Foundation President/Vice President / Secretary/ Jt. Secretary	80
<b>D</b>	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
<b>E</b>	Selection for Incubation/acceleration phase at IIM/IITs/ Nationally Renowned TBI / acquisition by VC	100



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**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.

(Academic Council Meeting dt. 14th July 2018)

<b>R 7.2</b>	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.												
<b>R 7.3</b>	<p><b>" Incentive Scheme for Performance in GATE"</b></p> <ul style="list-style-type: none"> <li>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 2019-20.</li> <li>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 R7.1 (for achievements/ participation in R &amp; D, SRC, Sports, NSS, NCC, TBI, T &amp; P, Swachcha Bharat Internship, Co-curricular/ extra-curricular activities).</li> <li>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. It will be different for the existing and revised schemes of 362 and 160 credits as under :</li> </ul> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="width: 5%;">Sr. No</th> <th style="width: 55%;">Teaching Scheme</th> <th style="width: 20%;">GATE incentive-grade points (IP<sub>G</sub>)</th> <th style="width: 20%;">Rise in CGPA<sub>VIII</sub> due to (IP<sub>G</sub>)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Existing UG schemes of 362 credits</td> <td style="text-align: center;">36.2</td> <td style="text-align: center;">0.1</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Revised UG schemes of 160 credits (implemented progressively from 2018-19)</td> <td style="text-align: center;">16</td> <td style="text-align: center;">0.1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>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 :</li> </ul> $CGPA_{VIII} = \frac{\sum_{j=1}^m C_j P_j + \sum_{l=0}^k C_{al} P_{al} + IP_G}{\sum_{j=1}^m C_j}$ <p>Where.</p> <p><math>C_j</math> = Number of credits offered in the jth course up to the semester for which CGPA is to be calculated</p> <p><math>P_j</math> = Grade points earned in the jth course</p> <p><math>j = 1, 2, \dots, m</math> , m represent the number of courses in which a student is registered upto the semester for which the CGPA is to be calculated.</p> <p><math>C_{al}</math> = Incentive credit in a semester as per UG Regulation R28</p> <p><math>P_{al}</math> = Grade points for involvement in various activities in a semester as per UG Regulation R7.1</p> <p><math>l = 0, 1, \dots, K</math> represent number of semester of participation.</p>	Sr. No	Teaching Scheme	GATE incentive-grade points (IP <sub>G</sub> )	Rise in CGPA <sub>VIII</sub> due to (IP <sub>G</sub> )	1.	Existing UG schemes of 362 credits	36.2	0.1	2.	Revised UG schemes of 160 credits (implemented progressively from 2018-19)	16	0.1
Sr. No	Teaching Scheme	GATE incentive-grade points (IP <sub>G</sub> )	Rise in CGPA <sub>VIII</sub> due to (IP <sub>G</sub> )										
1.	Existing UG schemes of 362 credits	36.2	0.1										
2.	Revised UG schemes of 160 credits (implemented progressively from 2018-19)	16	0.1										



**R 8. Academic Council**

Academic Council shall be constituted as per the guidelines for autonomous colleges prescribed by UGC under plan 11 of para 8.

**R 8.1**

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. A Faculty member nominated by the Principal (member secretary).

**R 8.2**

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 course of study, academic regulations, curricula, syllabi and modifications. Thereof, instructional and evaluation arrangements, methods, procedures relevant thereto etc.  
*provided* that where the Academic Council differs on any proposal, it will have to return the right to any matter for reconsideration to the Board of Studies concerned or reject it, after giving reasons to do so.
- 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 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.
- h) Any other matters time to time thought necessary by the Principal and the Board.

**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
- c) Two experts in the subject from outside the Institute to be nominated by the Academic Council.





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	<p>d) One expert to be nominated by the Vice Chancellor from a panel of six recommended by the Principal.</p> <p>e) One representative from the industry/ corporate sector/allied area relating to placement.</p> <p>f) One post graduate meritorious alumnus to be nominated by the Principal.</p> <p>The Chairman BOS, may with the approval of the Principal, co-opt</p> <p>i. Expert from outside the college whenever sufficient courses of studies are to be formulated.</p> <p>ii. Other members of staff of the same faculty.</p> <p>Provided that in case of Applied sciences the Chairman of the Board will be HOD of Physics, Chemistry, Mathematics and Humanities by rotation. Remaining composition of the Board will be the same.</p>
<b>R 10.2</b>	<p>Functions :</p> <p>BOS of a department in the Institute shall :</p> <p>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 ;</p> <p>b) Suggest methodologies for innovative teaching and evaluation techniques ;</p> <p>c) Suggest panel of names to the Academic Council for appointment of examiners ; and</p> <p>d) Coordinate research, teaching, extension and other academic activities in the department / Institute.</p>
<b>R 10.3</b>	<p>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.</p> <p>The Programme/Course Coordinator shall exercise the functions of the Chairman, of such ad-hoc Boards.</p>
<b>R 11. Courses of Special Nature</b>	
<b>R 11.1</b>	<p>(a) <b>Minor-Project</b></p> <p>A curriculum may contain a course on minor project, which may be offered in 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.</p> <p>(b) <b>Major Project</b></p> <p>A curriculum shall contain a credit component of project seminar and major project, offered in the seventh and eighth semester 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.</p> <p>(c) <b>Offering an Elective</b></p> <p>An elective course in a department shall run only if minimum of 15 students register for it in a regular semester. However, under special circumstances, a course may run with fewer students with prior permission of the Chairman, Board of Studies. If additional full time faculty is required, approval of the Principal is necessary.</p>





<b>R 12. Starting a New Programme</b>	
<b>R 12.1</b>	<p>(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.</p> <p>(b) The Institute is free to start a new degree or postgraduate programme with the approval of the academic council. Such programmes shall fulfill the minimum standards prescribed by the University/UGC in terms of number of hours, curricular content and the university shall be duly informed of such programmes.</p> <p>(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.</p> <p>(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.</p> <p>(e) A new programme proposed by Department(s) shall be placed before the APEC and the Academic Council for their recommendation to the Board/Government/AICTE for obtaining its approval.</p>
<b>R 13. Registration</b>	
<b>R 13.1</b>	<p>Every student admitted shall have his/her unique Student ID. The Student ID of a student shall consist of alpha-numerals nnPPPSmmmPPPS where,</p> <p>nn: Indicates year of admission, PPP: Indicates programme, S: Indicates shift and mmm: Indicates serial number in a programme.</p> <p>Example, 15EEU1001EEU1; 15— year of admission, EEU— programme in which admitted, 1 – - shift, 001—his serial number, EEU— programme in which admitted and 1 — shift. If his branch is changed to, let us say CS in second shift, then his ID will change as; 15EEU1001CSU2. Advantage of this is the first 9 alpha-numerals remain same throughout the course. Hence, in the software they can be used for his coding.</p>
<b>R 13.2</b>	<p>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.</p>
<b>R 13.3</b>	<p>Registration, according to 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 for 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 only after clearing the dues.</p>
<b>R 13.4</b>	<p>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.</p>
<b>R 13.5</b>	<p>The number of attempts and promotion rules for all undergraduate programs for existing and incoming batches to be implemented from academic year 2018-19 and onwards shall be as follows. The attempts pattern tabulated below shall be implemented from 2018-19 followed by the implementation of promotion rules from 2019-20.</p>



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	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).

*(Academic Council Meeting dt. 14th July 2018 and 15th May 2019)*

**R 14. Equivalence and Absorption of students**

<b>R 14.1</b>	The students from University pattern, desirous of seeking admission to III, V and VII semester in autonomous pattern, has to fulfill the prevailing ATKT norms of 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.																
<b>R 14.2</b>	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.																
<b>R 14.3</b>	While switching from University pattern to autonomous pattern the CGPA of such student shall be calculated as per the table below. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td>CGPA</td> <td>4.0</td> <td>5.0</td> <td>6.0</td> <td>7.0</td> <td>8.0</td> <td>9.0</td> <td>10.0</td> </tr> <tr> <td>Percentage</td> <td>40</td> <td>50</td> <td>60</td> <td>70</td> <td>80</td> <td>90</td> <td>100</td> </tr> </table> <p>The intermittent percentages should be calculated based upon the extrapolation of the values in the table.</p>	CGPA	4.0	5.0	6.0	7.0	8.0	9.0	10.0	Percentage	40	50	60	70	80	90	100
CGPA	4.0	5.0	6.0	7.0	8.0	9.0	10.0										
Percentage	40	50	60	70	80	90	100										



<b>R 14.4</b>	<p>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.</p> <p>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.</p> <p>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.</p>
<b>R 14.5</b>	<p>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.</p>
<b>R 14.6</b>	<p>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.</p>
<b>R 15. Change of Branch</b>	
<b>R 15.1</b>	<p>A student seeking change of branch at III semester must have earned all the credits of I and II semesters.</p> <p>The change of branch shall be effected as per the rules and norms approved by the Government from time to time.</p>
<b>R 16. Discipline and Conduct</b>	
<b>R 16.1</b>	<p>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.</p>
<b>R 16.2</b>	<p>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.</p> <ul style="list-style-type: none"><li>a) Lack of courtesy and decorum, as well as indecent behavior;</li><li>b) Willful damage of property of Institute/ Hostel or of fellow students;</li><li>c) Possession/ Consumption/ Distribution of alcoholic drink and banned drugs;</li><li>d) Mutilation or unauthorized possession of library materials like books, journals etc.</li><li>e) Noisy and Unseemly behavior disturbing peace in Institute and Hostel;</li><li>f) Hacking in Computer system, either hardware or software or both;</li><li>g) Any other act considered by the Institute as a gross indiscipline.</li></ul>
<b>R 16.3</b>	<p>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 Principal. The Discipline committee may inform the recommendations to the students. Decision of the Principal would be final.</p>
<b>R 16.4</b>	<p>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.</p>



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<b>R 16.5</b>	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 from 15th May 1999.
<b>R 16.6</b>	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.
<b>R 16.7</b>	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.
<b>R 16.8</b>	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.
<b>R 16.9</b>	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.
<b>R 17. Attendance, Absence, Leave Rules and Dismissals</b>	
<b>R 17.1</b>	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.
<b>R 17.2</b>	If a student is continuously absent from the 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.
<b>R 17.3</b>	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.
<b>R 17.4</b>	A student must have an overall 75 % attendance of the total number of classes including lectures/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.
<b>R 17.5</b>	<b>Condonation of Attendance :</b> 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. (Modified regulation as approved by Academic Council in its meeting dated 25th April 2015).



<b>R 17.6</b>	<p>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 minimum 60%, he/she shall be eligible to appear in end semester examination of that course.</p> <p>However the decision in this matter will be finally taken by the Principal. (Modified regulation as approved by Academic Council in its meeting dated 25th April 2015).</p>
<b>R 17.7</b>	<p>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.</p>
<b>R 18. Withdrawals</b>	
<b>R 18.1</b>	<p>A student who wants to withdraw from a semester shall apply through the HOD to the Principal, on a prescribed form 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.</p>
<b>R 18.2</b>	<p>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.</p> <p>However, such application shall be made as early as possible and latest before the start of the End Semester Examination.</p>
<b>R 18.3</b>	<p>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.</p>
<b>R 18.4</b>	<p>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.</p> <p>In case, a student is absorbed in autonomy from university, the maximum duration for completion of a UG degree programme will be twice the remaining duration of the programme.</p> <p>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 recommendations of Academic Council. (Modified in Academic Council Meeting dated 25/04/2016)</p>
<b>R 19 Examination Scheme</b>	
<p>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.</p>	
<b>R 19.1</b>	<p>a) For Theory courses, out of total 100% weightage, 40% shall be based on continuous evaluation out of which 30% evaluation shall be through Tests and 10% shall be by Teachers' assessment of students' performance. Remaining 60% evaluation shall be based on End Semester Examination. Valued answer books of theory courses shall be shown to the students within six working days after the last day of theory examination (Test as well as ESE).</p> <p>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 assignment, tutorials,</p>





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	<p>open-book test, seminars, group discussion, project, quizzes etc. The Course Coordinator shall declare the two heads chosen for each course, within the date prescribed by the Dean Academics.</p> <p>c) 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, to assign 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 2018-19.</p> <p>d) End Semester examination shall be conducted as per the schedule in Academic Calendar. Detail time-table of End Semester Examinations shall be prepared and disseminated by the office of Controller of Examination. End Semester examination will be of three-hour duration. The duration of examination may vary as per the need of the theory course. Valued answer books shall be shown to the students within six 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.</p> <p style="text-align: right;"><i>(Academic Council Meeting dt. 14th July 2018)</i></p>
<b>R 19.2</b>	A student who skips teachers' assessment or a part thereof shall be awarded zero marks under the respective head.
<b>R 19.3</b>	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 (Modified in Academic Council Meeting Dated 21/08/2019).
<b>R 19.4</b>	<p>A student shall be evaluated for his / her academic performance in a practical course on the basis of continuous evaluation &amp; one end semester practical examination or as per teaching scheme.</p> <p>a) Continuous assessment covering 50% evaluation on the basis of his/ her performance in each practical examination, journal completion and viva-voce/objective examination.</p> <p>b) There shall be one end semester practical examination covering 50% evaluation. In case of performance oriented practical, the evaluation shall be done on the basis of performance in practical examination and viva-voce/objective test. Mode of examination for non-performance type of practical shall be declared by the course coordinator in the beginning of the session. Type of practical course i.e. performance type or non performance type shall be decided by the respective BOS.</p>
<b>R 19.5</b>	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.



<b>R 19.6</b>	Project work shall be evaluated by mid-term seminar/s, the quality of work carried out, project report submission and the viva-voce examination.
<b>R 19.7</b>	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.
<b>R 19.8</b>	<p>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.</p> <p>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).</p> <p>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.</p> <p>a. For example, in case of a theory course wherein out of a total of 100 marks, 60 marks and 40 marks are allotted to end semester examination and continuous assessment respectively, the proportion would be 1.5:1 i.e. for every 1.5 marks scored in end semester examination, 1 mark would be assigned to continuous assessment.</p> <p>b. For example, in case of a practical course wherein out of a total of 50 marks, 25 marks each are allotted to end semester practical examination and continuous assessment respectively, the proportion would be 1:1 i.e. for every 1 mark scored in end semester practical examination, 1 mark would be assigned to continuous assessment.</p> <p>An examines can opt for forego of his/her marks in continuous assessment of a practical course only after submission of 'Term work completion' certificate issued by the concerned head of the department along with the 'Application for the examination'.</p> <p>For the courses (compulsory/ elective/any other course) of all PG and UG programmes which are closed by the respective department in a semester before 2017-18 academic session, maximum four consecutive available attempts will be provided starting from Regular Winter 2017 examination (as and when the examination is conducted) to pass these courses.</p> <p>For the courses (compulsory/elective/any other) of all PG and UG programs which are closed by the respective department in a semester from 2017-18 academic session and onwards, after the immediate make-up examination from closure of course, maximum four consecutive available attempts will be provided (as and when the examination is conducted) to pass these courses.</p>
<b>R 19.9</b>	<p>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.</p> <p style="text-align: right;"><i>(Academic Council Meeting dt. 14th July 2018)</i></p>





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<b>R 20. The Grading System</b>	
<b>R 20.1</b>	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.
<b>R 20.2</b>	The academic performance of a student shall be graded on a ten-point scale following guidelines Table 2.
<b>R 20.3</b>	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.
<b>R 20.4</b>	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.
<b>R 20.5</b>	A student passing a course in Makeup examination shall be treated as having cleared the course in First Attempt.
<b>R 20.6</b>	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.
<b>R 21. Grade Moderation Committee</b>	
<b>R 21.1</b>	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.
<b>R 21.2</b>	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.
<b>R 22. Award of Degree</b>	
<b>R 22.1</b>	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.
<b>R 23. Grade Card</b>	
<b>R 23.1</b>	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.



<b>R 23.2</b>	Grade card will not indicate class or division or rank.																
<b>R 23.3</b>	<p>Wherever required the conversion of CGPA to percentage of marks will be done using following table.</p> <table border="1"><tr><td>CGPA</td><td>4.0</td><td>5.0</td><td>6.0</td><td>7.0</td><td>8.0</td><td>9.0</td><td>10.0</td></tr><tr><td>Percentage</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr></table> <p>The intermittent percentages should be calculated based upon the extrapolation of the values in the table.</p>	CGPA	4.0	5.0	6.0	7.0	8.0	9.0	10.0	Percentage	40	50	60	70	80	90	100
CGPA	4.0	5.0	6.0	7.0	8.0	9.0	10.0										
Percentage	40	50	60	70	80	90	100										
<b>R 24. Minimum Requirements for the Award of the Degree</b>																	
<b>R 24.1</b>	The student should have taken and passed all the prescribed courses including seminar and projects under the general institutional and departmental requirements.																
<b>R 24.2</b>	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.																
<b>R 24.3</b>	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.																
<b>R 25 Extension of Maximum Period for Completion of a Programme</b>																	
<b>R 25.1</b>	<p>The maximum duration for any programme may be extended for genuine cases and unavoidable circumstances only, as verified by concerned BOS Chairman and a Special Power Committee at central level and approved 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.</p> <p style="text-align: right;"><i>(Modified in Academic Council Meeting Dt. 16th Sept. 2017)</i></p>																
<b>R 26. Award of Medals / Scholarships</b>																	
<b>R 26.1</b>	Awards available under excellent performances in sports, cultural, extra-curricular, debate, etc. shall be given to the students as per prevailing norms.																
<b>R 26.2</b>	The award of scholarships / freships and other benefits will be in accordance with rules framed by the Government of Maharashtra and Govt. of India.																
<b>R 26.3</b>	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.																
<b>R 26.4</b>	<p>Students clearing all courses offered in a programme in regular examination in first attempt shall be considered for the award of merit / medal.</p> <p>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.</p>																



**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 by the competent authorities.

**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 is 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.

$$SGPA = \frac{\sum_{i=1}^n C_i P_i + C_a P_a}{\sum C_i}$$

Where,

$C_i$  = The number of credits offered in the  $i$ th course of a semester for which SGPA is to be calculated

$P_i$  = Grade Point earned in the  $i$ th course

$i = 1, 2, \dots, n$  represent the number of courses 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.

(ii) 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.

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

Where,

$C_j$  = The number of credits offered in the  $j$ th course up to the semester for which CGPA is to be calculated

$P_j$  = Grade point earned in the  $j$ th course.

$j = 1, 2, \dots, m$  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,  $IP_G$  = 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 guidelines 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 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 Examinations 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, 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
- 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

**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 and 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. (a) Improvement of Grade/CGPA while undertaking 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.
3. The facility for improvement of grades will be available to the students having CGPA below **6.00** (*Modified regulation as approved by Academic Council in its meeting dated 15th April 2014*).
4. The improvement is possible only in theory papers. No improvement is permissible in practicals/lab courses, projects, workshops and assignments.
5. The improvement examination shall be conducted along with the Makeup Examination.
6. 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.
7. 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.
8. 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.
9. 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.
10. Student having undertaken Improvement Examination will not be eligible for the award of any medal/merit position.
11. 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.
12. 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. (b) Improvement of Grade/CGPA after successful completion of a Programme

1. The facility of improving CGPA at Bachelors' 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 Masters' 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 papers in which he/she had already passed during re-appearance.
10. Each examination for which candidate appears for improvement shall be considered as one attempt.
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.
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.
13. A candidate shall be issued revised grade card only after he/she surrenders his /her original grade cards to the College.
14. In the revised grade card, mention will be made of the fact that he/she has improved his/her CGPA under this Ordinance.
15. On award of a fresh grade card under this scheme, his/her previous grade card shall be treated as cancelled.
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.
17. 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).





<b>R 33. (c) Credit Transfer Scheme for completion of one semester in other institute.</b>	
	<ol style="list-style-type: none"><li>1. Third year UG Engineering students, without any backlog i.e. having earned all the credits offered up to second year and having secured minimum CGPA of 8 shall be eligible to apply under this scheme.</li><li>2. Students absorbed under absorption scheme in autonomy at RCOEM, shall not be eligible for C.T.S.</li><li>3. Eligible and interested students shall apply in the prescribed format and based on the merit, students may be issued offer letter from RCOEM.</li><li>4. The performance of the students transferred under Credit Transfer Scheme (CTS) in a particular semester shall be considered as it is in lieu of the requirement of RCOEM, Nagpur.</li><li>5. The student availing the facility of student exchange and credit transfer will abide by the rules, regulations &amp; amendments of the host institute from where the student is transferred and to institute where he/she is transferred.</li><li>6. The student will be required to register for courses offered at the institution for respective semester. Transfer of credit shall be governed by the equivalence and absorption scheme as proposed by the Board of Studies at RCOEM. In case of less number of Credits offered than the credits of RCOEM in the respective semester, student shall have to opt for additional course and earn additional credits at RCOEM. In case of more credits earned under CTS, the additional credits will be considered for calculation of SGPA/CGPA.</li><li>7. Promotion rule of RCOEM shall be applicable to the students.</li><li>8. In case the student fails in the courses during CTS in a particular semester, he/she shall be required to pass an equivalent course at RCOEM as per the equivalence and absorption scheme.</li><li>9. Student will not be allowed to leave the semester in between. In case, he/she leaves or gets detained in the respective semester, he/she shall take fresh admission at RCOEM with regular fees in the respective semester in next academic year.</li><li>10. On selection for CTS the student along with his/her parent/guardian will have to submit the undertaking.</li><li>11. Student availing facility of CTS will make his own staying arrangement at the venue of concerned institute.</li><li>12. On completion of evaluation by the institution, the student shall submit the score to RCOEM following which RCOEM will issue the grade card.</li></ol>
<b>R 34. Emergent Cases</b>	
<b>R 34.1</b>	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.
<b>R 35. Interpretation of Regulations</b>	
<b>R 35.1</b>	In case of any dispute, difference of opinion in interpretation of these regulations or any other matter not covered in these regulations, the decision of the Chairman, Academic Council shall be final and binding.
<b>R 36. Power to Modify</b>	
<b>R 36.1</b>	Notwithstanding all that has been stated above, the Board has the right to modify any of the above regulations from time to time.



<b>R. 37 Internship</b>	
<b>R. 37.1</b>	<p>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&amp;D Laboratory premises and earn real world exposure.</p> <p>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 relieved 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.</p> <p>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 the industry regarding internship.</p> <p>(Academic Council Meeting Dt. 16th Sept. 2017)</p>

**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 Engineering	B. Tech. (Electronics Engineering)	ENU
5	Electronics and Communication Engineering	B. Tech. (Electronics and Communication Engineering)	ECU
6	Information Technology	B. Tech. (Information Technology)	ITU
7	Industrial Engineering	B. Tech. (Industrial Engineering)	INU
8	Mechanical Engineering	B. Tech. (Mechanical Engineering)	MEU
9	Computer Science & Engineering	B. Tech. (Computer Science & Engineering (Data Science))	CDU
10	Computer Science & Engineering	B. Tech. (Computer Science & Engineering) (Artificial Intelligence & Machine Learning)	CAU
11	Computer Science & Engineering	B. Tech. (Computer Science & Engineering (Cyber Security))	CCU
12	Biomedical Engineering	B. Tech. (Biomedical Engineering)	BMU



<p>R. 38</p>	<p><b>Swachha Bharat Summer Internship for UG &amp; PG Students:</b> 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. <i>(Academic Council Meeting dt. 14th July 2018)</i></p>
<p>R. 39</p>	<p><b>Mandatory Internship (06-08 weeks) for UG Students:</b> Students admitted in B.E. Semester-I during 2018-19 and thereafter (or admitted laterally in Sem-III during 2019-20 and thereafter) are required to complete minimum six week internship in industry/research organization/IIT/IISc/IIT/NIT/In-house research internship at RCOEM during the winter/summer vacations prior to the commencement of Semester-VII as per 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. <i>(Academic Council Meeting dt. 14th July 2018)</i></p>
<p>R. 40</p>	<p><b>Credit transfer to the extent of 20% in every semester</b> 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 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.</p>
<p>R. 41</p>	<p><b>Credit Transfer of MOOC against Open Elective for UG students :</b> Students shall be eligible for credit transfer by successful completion of MOOC offered by SWAYAM / Coursera / EdX platforms with pass/successful grade in its examination against the Open Elective course that is being offered to students at RCOEM 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 <b>all four</b> 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 Academic (with recommendation from HoD</p>



	<p>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 week duration and approved by RCOEM will be allowed for credit transfer against open elective.</p>
<b>R 42</b>	<p><b>Choice of Open Electives in revised curriculum implemented from 2018-19 onwards :</b></p> <p>The revised UG curriculum implemented progressively from 2018-19 &amp; onwards will have four open electives, one each in semesters IV, V, VI and VII. Out of open electives, students will have the choice to choose the first three open elective course from Open Elective Baskets of other departments / programs. However, he / she will have the choice to select the last open elective course from the Open Elective Baskets of other as well as parent department / program.</p> <p style="text-align: right;"><i>(Academic Council Meeting dt. 14th July 2018)</i></p>
<b>R 43</b>	<p><b>One Semester, RCOEM Technology Business Incubation (TBI) Start-up Scheme :</b></p> <p>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.</p> <p>For UG students admitted in the program having scheme / curriculum existing before 2018-19, the academic component will include conduction of classes and 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 2018-19 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 students of VII semester as per the timetable provided by the institute.</p> <p>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 2018-19, 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 2018-19 onwards, the Start-up component will cover only the Project work of VIII Semester.</p> <p>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</p>



	<p>progress of each startup. The External Advisor shall be identified and assigned by RCOEM TBI Foundation.</p> <p>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).</p> <p style="text-align: right;"><i>(Academic Council Meeting dt. 14th July 2048)</i></p>
<p><b>R 44</b></p>	<p><b>Honors &amp; Minor Scheme:</b></p> <p>Apart from the minimum credit requirements of 160 for the award of the undergraduate engineering degree, these schemes provide opportunities for supplementing the learning experience by crediting additional courses, in parent as well as in diverse areas. These additional credits when they are in focused branch would earn the students, credentials like Honors/Minor. Honors scheme aims for vertical knowledge growth in his/her own branch which may have research orientation while Minor scheme aims for additional knowledge in any other branch for enhancement of employability.</p> <p>On successful completion of the requirements of Honors and Minors schemes, the UG students shall be awarded a Certificate by RCOEM. Participation of students in these schemes shall not be mandatory. Aspiring student will register for additional theory courses and acquire additional (minimum) 20 credits for any one of the two schemes. A student opting for 'Honors' will not be entitled to register for 'Minor' and vice-versa. It is expected that the students with good academic standing, utilize their surplus time for enhancing their academic learning experience and gain a wide exposure.</p> <p><b>Eligibility of student:</b></p> <p>Students having CGPA more than or equal to 6.75 and no backlogs shall be eligible to register for Honors/Minor theory courses (one per semester) 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 for Honors/Minor course. The scheme shall begin from Fourth Semester of UG programs.</p> <p><b>Course Registration &amp; Conduction:</b></p> <p>Every department will float courses from the Honors/Minor list, only one course per Semester (i.e. in Sem IV, V, VI, VII &amp; VIII). Aspiring students from the host department belonging to any Semester shall register for that course. He/she shall be permitted subject to availability of seats in the course. Common slots per week shall be allotted in the time-table for conduction of classes of Honors and Minor courses. The same criteria of attendance as applied to regular UG programs at RCOEM shall be applicable.</p> <p><b>Examination:</b></p> <p>The evaluation scheme of Honors/Minor courses will be 40% continuous evaluation and 60% 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.</p> <p>In Honors courses, it will be mandatory for student to secure minimum 'BC' grade else, it</p>





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 (VIII Semester) only provided that the student had secured 20 credits of Honors/Minor courses in addition to the 160 minimum credits of the respective program curriculum.

**Duration of Program with Honors:**

All requirements of the program and Honors/Minor 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 20 credits along with all the prescribed credits of parent program within the stipulated allowed duration of the parent program, he/she will not be awarded Honors/Minor. The Honors/Minor courses completed if any by such students shall not be adjusted or converted into program credits anywhere in the 160 credits structure of original curriculum of the program in which they were admitted and such additional credits will remain extra.

**Dropping/Withdrawal/Termination from Honors/Minor:**

If a student drops or withdraws from the Honors/Minor scheme at any stage, the additional credits earned through Honors/Minor courses shall not be converted into program credits (core/electives/lab/project etc) and they will remain extra. If at any stage during the duration of the program, if the student is found indulged in any in disciplinary 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:**

Successful completion of Honors/Minor scheme will not indicate any Class or Division. For the award of Medal to meritorious students, in case of a tie, student who has earned the Honors/Minor will be preferred.



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 denotes 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 courses 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.

