

**Dr. B. Satyanarayana**

B.Tech., M.Tech., Ph.D., MISTE

Professor & Principal

Date: 20.12.2023

### AUTHENTICATION CERTIFICATE

This is to certify that institution offers programmes that have components of field projects /research projects / internships during the last five years.



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**Note : The details of the students undergone internship, projects and course sturcture are made available in the HEI website**

**Internship :** [https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/Internships\\_merged.pdf](https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/Internships_merged.pdf)

**Summer Internship:** [https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/Summer\\_Internships.pdf](https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/Summer_Internships.pdf)

**Major Project :** [https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/MAJOR\\_Projects.pdf](https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/MAJOR_Projects.pdf)

**Mini Project :** <https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/Mini-Projects-merged.pdf>

**Micro Project :** <https://cmrithyderabad.edu.in/wp-content/uploads/2023/12/Micro-Projects-Merged.pdf>

**1.3.3 Percentage of programmes that have components of field projects / research projects / internships during the last five years.**

S.No	Regulations	Department	Page No
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9	R-20	B.Tech- Computer Science and Engineering	28
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18	R-17	M.Tech- CAD/CAM	38
19	R-17	M.Tech- Computer Science and Engineering	40
20	R-17	M.Tech- VLSI System Design	42
21	R-20	M.Tech- Structural Engineering	44
22	R-20	M.Tech- CAD/CAM	47
23	R-20	M.Tech- Computer Science and Engineering	50
24	R-20	M.Tech- VLSI System Design	53
25	R-22	M.Tech- Computer Science and Engineering	56
26	R-22	M.Tech- VLSI System Design	59
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**DEPARTMENT OF CIVIL ENGINEERING**

**B.Tech. – R-17 COURSE STRUCTURE**

(Applicable from the batch admitted during 2017-18 and onwards)

<b>I – B.Tech. – I - Semester</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC1101BS	Engineering Mathematics – I	1,2,12	4	1	-	4
2	17EC1102HS	Professional Communication in English	10,12	3	-	-	3
3	17EC1103ES	Basic Electrical & Electronics Engineering	1,2,3,12	4	1	-	4
4	17EC1104ES	Engineering Graphics	1,5,10	2	-	3	4
5	17EC1105ES	Computer Programming	1,2,3,12	3	1	-	3
6	17EC1106HS	English Language Communication Skills Lab	5,10	-	-	3	2
7	17EC1107ES	Computer Programming in C Lab	4	-	-	3	2
8	17EC1108ES	Basic Electrical & Electronics Engineering Lab	4	-	-	3	2
<b>TOTAL</b>				<b>16</b>	<b>3</b>	<b>12</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17AC1109MC	NSS / Physical Education /Yoga	3,6,8,9,12	-	-	2	-
<b>I – B.Tech. – II - Semester</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC1201BS	Engineering Mathematics – II	1,2,12	4	1	-	4
2	17EC1202BS	Applied Physics	1,2,12	4	1	-	4
3	17EC1203BS	Engineering Chemistry	1,2,12	4	1	-	4
4	17CE1204ES	Engineering Mechanics	1,2,12	3	-	-	3
5	17EC1205ES	Data Structures through C	1,2,3,12	3	1	-	3
6	17EC1206BS	Applied Physics /Engineering Chemistry Lab	4	-	-	3	2
7	17EC1207ES	Data Structures through C Lab	4	-	-	3	2
8	17EC1208ES	IT & Engineering Workshop	1,5,9,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>4</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17AC1209MC	Micro Project	1 to 14	-	-	2	-
<b>II – B.Tech. – I – Semester</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CE2101BS	Statistical & Numerical Methods	1,2,12	4	1	-	4
2	17CE2102PC	Strength of Materials – I	1,2,12,13	4	-	-	4
3	17CE2103ES	Building Materials, Construction & Planning	1,6,12,13	3	-	-	3
4	17CE2104BS	Engineering Geology	1,2,12	3	1	-	3
5	17CE2105PC	Surveying	1,2,12,13	4	-	-	4
6	17CE2106ES	Computer Aided Building Drawing Lab	4,5,10,14	-	-	3	2
7	17CE2107BS	Engineering Geology Lab	4	-	-	3	2
8	17CE2108PC	Surveying Lab-I	4,5,10,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS2109MC	Gender Sensitization Lab	9,12	-	-	2	-
10	17HS2110MC	Verbal Ability	9,10	-	-	2	-

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II – B.Tech. – II – Semester							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CE2201PC	Strength of Materials – II	2,12,13	4	-	-	4
2	17CE2202PC	Geo Technical Engineering	1,2,12,13	4	-	-	4
3	17CE2203PC	Structural Analysis – I	2,12,13	4	-	-	4
4	17CE2204PC	Fluid Mechanics	1,2,12,13	3	1	-	3
5	17CE2205HS	Financial Analysis, Management & Economics	11,12	3	-	-	3
6	17CE2206PC	Strength of Materials Lab	4,14	-	-	3	2
7	17CE2207PC	Geo Technical Engineering Lab	4,6,14	-	-	3	2
8	17CE2208PC	Surveying Lab- II	4,5,10,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS2209MC	Environmental Science and Technology	1,6,7,12	-	-	2	-
10	17BS2210MC	Analytical Skills	9,10	-	-	2	-
III – B.Tech. – I - Semester							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CE3101PC	Hydraulics & Hydraulic Machinery	2,12,13	4	-	-	4
2	17CE3102PC	Concrete Technology	3,8,12,13	4	-	-	4
3	17CE3103PC	Environmental Engineering	3,6,7,12,13	3	1	-	3
4	17CE3104PC	Design of Reinforced Concrete Structures	3,8,10,12,14	4	-	-	4
5	<b>Open Elective – I</b>			3	-	3	-
	17CE3105OE	Disaster Management	2,7,8,12				
	17ME3105OE	Operations Research	1,2,12				
	17EC3105OE	Electronic Measurements and Instrumentation	1,2,12				
	17CS3105OE	JAVA Programming	1,2,3,5,12				
6	17CE3106PC	Concrete Technology Lab	4,6,14	-	-	3	2
7	17CE3107PC	Fluid Mechanics & Hydraulic Machinery Lab	4,14	-	-	3	2
8	17CE3108PC	Environmental Engineering Lab	4,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS3109MC	Human Values & Professional Ethics	6,7,8,12	3	-	-	-
10	17HS3110MC	Soft Skills	9,10	-	-	2	-

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III – B.Tech. – II – Semester							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CE3201PC	Water Resources Engineering	2,3,12,13	4	1	-	4
2	17CE3202PC	Structural Analysis – II	2,12,13	4	1	-	4
3	17CE3203PC	Transportation Engineering	2,3,12,13	4	-	-	4
4	<b>Open Elective – II</b>			3	-	-	3
	17CE3204OE	Global Warming & Climate Change	2,6,7,8,12				
	17ME3204OE	Fundamentals of Robotics	1,2,5,12				
	17EC3204OE	Principles of Communication Systems	1,2,3,12				
	17CS3204OE	Database Management Systems	1,2,3,5,12				
5	<b>Professional Elective – I</b>			3	-	-	3
	17CE3205PE	Construction Technology and Management	11,12,14				
	17CE3206PE	Bridge Engineering	2,3,5,6,7,12,13				
	17CE3207PE	Geo Environmental Engineering	2,3,6,7,12,13				
	17CE3208PE	Elements of Earthquake Engineering	2,3,6,8,12,13				
6	17CE3209PC	Transportation Engineering Lab	4,7,14	-	-	3	2
7	17CE3210ES	Software Application in Construction Management Lab	4,5,14	-	-	3	2
8	17CE3211HS	Advanced English Communication Skills Lab	5,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17BS3212MC	Quantitative Aptitude	9,10	-	-	2	-
10	17AC3213MC	Internship / Industrial training / Certification Course / MOOCs Certificate	1 to 14	-	-	2	-
IV – B.Tech. – I - Semester							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CE4101PC	Design & Drawing of Steel Structures	3,8,10,12,14	4	1	-	4
2	17CE4102PC	Foundation Engineering	2,3,8,12,14	4	1	-	4
3	17CE4103PC	Estimation, Quantity Survey & Valuation	11,12,14	4	1	-	4
4	<b>Open Elective – III</b>			3	-	-	3
	17CE4104OE	Environmental Impact Assessment	6,7,10,12				
	17ME4104OE	Principles of Entrepreneurship	7,8,9,11,12				
	17EC4104OE	Principles of Embedded Systems	1,2,3,12				
	17CS4104OE	Web Technologies	2,3,5,6,12				
5	<b>Professional Elective – II</b>			3	-	-	3
	17CE4105PE	FEM for Civil Engineering	2,3,4,12,14				
	17CE4106PE	Air Pollution and Control	2,6,7,8,12,13				
	17CE4107PE	Prestressed Concrete	2,3,8,12,14				
	17CE4108PE	Ground Water Development & Management	2,12,13				
6	17CE4109PC	Computer Aided Design Lab (By Using Staad. Pro)	4,5,10,14	-	-	3	2
7	17CE4110PC	Advanced Concrete Lab	4,6,14	-	-	3	2
8	17CE4111CC	Industry Oriented Mini Project	1 to 14	-	-	-	2
<b>TOTAL</b>				<b>18</b>	<b>3</b>	<b>6</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS4112MC	Foreign Language: French	9,10	2	-	-	-
	17HS4113MC	Foreign Language: German					

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IV – B.Tech. – II - Semester							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CE4201PC	Remote Sensing and GIS	2,5,7,12,14	4	1	-	4
2	<b>Professional Elective – III</b>			3	-	-	3
	17CE4202PE	Design of Hydraulics Structures	2,3,5,12,13				
	17CE4203PE	Modern Transport Engineering	2,3,7,12,13				
	17CE4204PE	Soil Dynamics and Machine Foundations	3,5,6,12,13				
	17CE4205PE	Repair and Rehabilitation of Structures	2,4,7,12,14				
3	<b>Professional Elective - IV</b>			3	-	-	3
	17CE4206PE	Architectrural Engineering	1,2,12,13				
	17CE4207PE	Waste Management	2,3,6,7,12,13				
	17CE4208PE	Pavement Design	3,6,8,12,14				
	17CE4209PE	Ground Improvement Techniques	2,12,13				
4	17CE4210CC	Technical Seminar	1 to 14	-	-	3	2
5	17CE4211CC	Major Project	1 to 14	-	-	18	12
<b>TOTAL</b>				<b>10</b>	<b>01</b>	<b>21</b>	<b>24</b>



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**DEPARTMENT OF MECHANICAL ENGINEERING**

**B.Tech. – R-17 COURSE STRUCTURE**

(Applicable from the batch admitted during 2017-18 and onwards)

<b>I – B.Tech. – I - Semester</b>							
S. No .	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME1101BS	Engineering Mathematics – I	1,2,12	4	1	-	4
2	17ME1102BS	Engineering Physics	1,2,12	4	1	-	4
3	17ME1103BS	Engineering Chemistry	1,2,12	4	1	-	4
4	17ME1104ES	Engineering Mechanics	1,2,12	3	-	-	3
5	17ME1105ES	Computer Programming	1,2,3,12	3	1	-	3
6	17ME1106BS	Engineering Physics / Engineering Chemistry Lab	4	-	-	3	2
7	17ME1107ES	Computer Programming in C Lab	4	-	-	3	2
8	17ME1108ES	IT & Engineering Workshop	1,5,9,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>4</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17AC1109MC	NSS / Physical Education /Yoga	3,6,8,9,12	-	-	2	-
<b>I – B.Tech. – II - Semester</b>							
S. No .	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME1201BS	Engineering Mathematics – II	1,2,12	4	1	-	4
2	17ME1202HS	Professional Communication in English	10,12	3	-	-	3
3	17ME1203ES	Basic Electrical & Electronics Engineering	1,2,3,12	4	1	-	4
4	17ME1204ES	Engineering Graphics	1,5,10	2	-	3	4
5	17ME1205ES	Data Structures through C	1,2,3,12	3	1	-	3
6	17ME1206HS	English Language Communication Skills Lab	5,10	-	-	3	2
7	17ME1207ES	Data Structures through C Lab	4	-	-	3	2
8	17ME1208ES	Basic Electrical & Electronics Engineering Lab	4	-	-	3	2
<b>TOTAL</b>				<b>16</b>	<b>3</b>	<b>12</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17AC1209MC	Micro Project	1 to 14	-	-	2	-
<b>II – B.Tech. – I – Semester</b>							
S. No .	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME2101BS	Statistical & Numerical Methods	1,2,12	4	1	-	4
2	17ME2102ES	Metallurgy & Material Science	1,2,12	3	-	-	3
3	17ME2103PC	Mechanics of Solids	1,2,3,12,13	3	1	-	3
4	17ME2104BS	Basic Thermodynamics	1,2,12,14	4	-	-	4
5	17ME2105PC	Kinematics of Machinery	1,2,3,12	4	-	-	4
6	17ME2106ES	Metallurgy & Material Science Lab	3,4,5	-	-	3	2
7	17ME2107BS	Fuels and Lubricants Lab	3,4,5	-	-	3	2
8	17ME2108PC	Mechanics of Solids Lab	3,4,13	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>

Mandatory Course (Non-Credit)							
9	17HS2209MC	Environmental Science and Technology	1,6,7,12	3	-	-	-
10	17BS2210MC	Analytical Skills	9,10	-	-	2	-
II – B.Tech. – II – Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME2201PC	Manufacturing Processes	1,2,12,14	4	-	-	4
2	17ME2202PC	Dynamics of Machinery	1,2,3,12	4	-	-	4
3	17ME2203PC	Fluid Mechanics & Hydraulic Machines	1,2,3,12	4	-	-	4
4	17ME2204PC	Machine Drawing	4,5,6,10,13,14	1	-	3	3
5	17ME2205HS	Financial Analysis, Management & Economics	11,12	3	-	-	3
6	17ME2206PC	Manufacturing Processes Lab	3,4,14	-	-	3	2
7	17ME2207PC	Kinematics & Dynamics Lab	3,4,13	-	-	3	2
8	17ME2208PC	Fluid Mechanics & Hydraulic Machinery Lab	3,4,14	-	-	3	2
<b>TOTAL</b>				<b>16</b>	<b>-</b>	<b>12</b>	<b>24</b>
Mandatory Course (Non-Credit)							
9	17HS2109MC	Gender Sensitization Lab	9,12	-	-	2	-
10	17HS2110MC	Verbal Ability	9,10	-	-	2	-
III – B.Tech. – I - Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME3101PC	Thermal Engineering – I	2,3,12,14	4	-	-	4
2	17ME3102PC	Design of Machine Members – I	2,3,8,12,13	3	1	-	3
3	17ME3103PC	Refrigeration & Airconditioning	2,3,7,12,14	4	-	-	4
4	17ME3104PC	Machine Tools & Metrology	1,2,3,12,14	4	-	-	4
5	<b>Open Elective – I</b>			3	-	3	-
	17CE3105OE	Disaster Management	2,7,8,12				
	17ME3105OE	Operations Research	1,2,12				
	17EC3105OE	Electronic Measurements and Instrumentation	1,2,12				
	17CS3105OE	JAVA Programming	1,2,3,5,12				
6	17ME3106PC	Thermal Engineering Lab	3,4,7,14	-	-	3	2
7	17ME3107PC	Machine Tools Lab	3,4,6,14	-	-	3	2
8	17ME3108HS	Advanced English Communication Skills Lab	5,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
Mandatory Course (Non-Credit)							
9	17HS3109MC	Human Values & Professional Ethics	6,7,8,12	3	-	-	-
10	17BS3110MC	Quantitative Aptitude	9,10	3	-	-	-
III – B.Tech. – II – Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME3201PC	Thermal Engineering – II	2,6,12,14	4	-	-	4
2	17ME3202PC	Heat Transfer	1,2,3,12,14	4	1	-	4
3	17ME3203PC	Design of Machine Members – II	2,3,8,12,13	4	1	-	4
4	<b>Open Elective – II</b>			3	-	-	3
	17CE3204OE	Global Warming & Climate Change	2,6,7,8,12				
	17ME3204OE	Fundamentals of Robotics	1,2,5,12				
	17EC3204OE	Principles of Communication Systems	1,2,3,12				
	17CS3204OE	Database Management Systems	1,2,3,5,12				
5	<b>Professional Elective – I</b>			3	<i>Principal</i>		3



	17ME3205PE	Automobile Engineering	6,7,12,14				
	17ME3206PE	Nano Technology	2,5,6,7,12,13				
	17ME3207PE	Automation in Manufacturing	2,3,5,12,13,14				
	17ME3208PE	Mechanics of Composite Materials	2,3,4,12,13				
6	17ME3209PC	Heat Transfer Lab	4,6,7,14	-	-	3	2
7	17ME3210PC	Production Drawing Practice	4,5,6,10,13,14	-	-	3	2
8	17ME3211PC	Metrology Lab	3,4,6,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>

<b>Mandatory Course (Non-Credit)</b>							
9	17HS3110MC	Soft Skills	9,10	-	-	2	-
10	17AC3213MC	Internship / Industrial training / Certification Course / MOOCs Certificate	1 to 14				

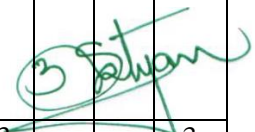
#### IV – B.Tech. – I - Semester

S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME4101PC	CAD/ CAM	2,3,12,13	4	1	-	4
2	17ME4102PC	Instrumentation & Control Systems	1,2,12	4	1	-	4
3	17ME4103PC	Finite Element Methods	2,3,4,12,13	4	1	-	4
4	<b>Open Elective – III</b>			3	-	-	3
	17CE4104OE	Environmental Impact Assessment	6,7,10,12				
	17ME4104OE	Principles of Entrepreneurship	7,8,9,11,12				
	17EC4104OE	Principles of Embedded Systems	1,2,3,12				
	17CS4104OE	Web Technologies	2,3,5,6,12				
5	<b>Professional Elective – II</b>			3	-	-	3
	17ME4105PE	Operations Research	1,2,3,12,14				
	17ME4106PE	Power Plant Engineering	2,3,6,12,14				
	17ME4107PE	Industrial Engineering	1,2,8,11,12				
	17ME4108PE	Unconventional Machining Processes	2,3,5,12,14				
6	17ME4109PC	CAD/CAM Lab	4,5,10,13,14	-	-	3	2
7	17ME4110PC	Instrumentation & Control Systems Lab	3,4,5	-	-	3	2
8	17ME4111CC	Industry Oriented Mini Project	1 to 14	-	-	-	2
<b>TOTAL</b>				<b>17</b>	<b>3</b>	<b>6</b>	<b>24</b>

<b>Mandatory Course (Non-Credit)</b>							
9	17HS4112MC	Foreign Language: French	9,10	2	-	-	-
	17HS4113MC	Foreign Language: German					

#### IV – B.Tech. – II - Semester

S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17ME4201PC	Robotics	1,2,12,14	4	1	-	4
2	<b>Professional Elective – III</b>			3	-	-	3
	17ME4202PE	Renewable Energy Systems	2,6,7,12,14				
	17ME4203PE	Machine Tool Design	2,3,4,5,12,13,14				
	17ME4204PE	Neural networks & Fuzzy logics	2,3,4,5,12,13,14				
	17ME4205PE	Production Planning and Control	2,3,11,12,14				
3	<b>Professional Elective - IV</b>			3	-	-	3
	17ME4206PE	Fluid Power Systems	2,3,4,12,13				
	17ME4207PE	Computational Fluid Dynamics	2,3,5,12,13				
	17ME4208PE	Flexible Manufacturing Systems	2,3,12,14				
	17ME4209PE	Advanced mechanics of solids	2,3,5,12,13				
4	17ME4210CC	Technical Seminar	1 to 14	-	-	3	2
5	17ME4211CC	Major Project	1 to 14	-	-	18	12
<b>TOTAL</b>				<b>10</b>	<b>01</b>	<b>21</b>	<b>24</b>

  
 Principal  
**MR INSTITUTE OF TECHNOLOGY**  
 Kandlakoya (V), Medchal Road,  
 Hyderabad-501 401.

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**B.Tech. – R-17 COURSE STRUCTURE**

(Applicable from the batch admitted during 2017-18 and onwards)

I – B.Tech. – I - Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS1101BS	Engineering Mathematics – I	1,2,12	4	1	-	4
2	17CS1102BS	Applied Physics	1,2,12	4	1	-	4
3	17CS1103BS	Engineering Chemistry	1,2,12	4	1	-	4
4	17CS1104ES	Fundamentals of Information Technology	1,2,3,12	3	-	-	3
5	17CS1105ES	Computer Programming	1,2,3,12	3	1	-	3
6	17CS1106BS	Applied Physics / Engineering Chemistry Lab	4	-	-	3	2
7	17CS1107ES	C Programming Lab	4	-	-	3	2
8	17CS1108ES	IT & Engineering Workshop	1,5,9,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>4</b>	<b>9</b>	<b>24</b>
Mandatory Course (Non-Credit)							
9	17AC1109MC	NSS / Physical Education /Yoga	3,6,8,9,12	-	-	2	-
I – B.Tech. – II - Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS1201BS	Engineering Mathematics – II	1,2,12	4	1	-	4
2	17CS1202HS	Professional Communication in English	10,12	3	-	-	3
3	17CS1203ES	Basic Electrical & Electronics Engineering	1,2,3,12	4	1	-	4
4	17CS1204ES	Engineering Graphics	1,5,10	2	-	3	4
5	17CS1205ES	Data Structures through C	1,2,3,12	3	1	-	3
6	17CS1206HS	English Language Communication Skills Lab	5,10	-	-	3	2
7	17CS1207ES	Data Structures through C Lab	4	-	-	3	2
8	17CS1208ES	Basic Electrical & Electronics Engineering Lab	4	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
Mandatory Course (Non-Credit)							
9	17AC1209MC	Micro Project	1 to 14	-	-	2	-
II – B.Tech. – I – Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS2101BS	Discrete Mathematical Structures	1,2,12	4	-	-	4
2	17CS2102ES	Digital Logic Design	1,2,3,6,12	3	-	-	3
3	17CS2103PC	Computer Organization	1,2,3,6,12	3	1	-	3
4	17CS2104PC	OOPS through JAVA	1,2,3,12	4	1	-	4
5	17CS2105PC	Database Management Systems	1,2,3,12	4	-	-	4
6	17CS2106PC	Computer Organization Lab	4,5	-	-	3	2
7	17CS2107PC	OOPS through JAVA Lab	4,5	-	-	3	2
8	17CS2108PC	Database Management Systems Lab	4,5	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>
Mandatory Course (Non-Credit)							

9	17HS2109MC	Gender Sensitization Lab	9,12	-	-	2	-
10	17HS2110MC	Verbal Ability	9,10	-	-	2	-
<b>II – B.Tech. – II – Semester</b>							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS2201BS	Statistical and Numerical Methods	1,2,12	4	-	-	4
2	17CS2202PC	Operating Systems	1,2,12	4	-	-	4
3	17CS2203PC	Computer Networks	1,2,12,13	3	1	-	3
4	17CS2204PC	Design & Analysis of Algorithms	2,3,12,13	4	-	-	4
5	17CS2205HS	Financial Analysis, Management & Economics	11,12	3	-	-	3
6	17CS2206PC	Computer Networks & Operating Systems Lab	4,5,14	-	-	3	2
7	17CS2207PC	Design & Analysis of Algorithms Lab	4,5,14	-	-	3	2
8	17CS2208PC	Scripting Languages Lab	1,2,3,4,5,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS2209MC	Environmental Science and Technology	1,6,7,12	3	-	-	-
10	17BS2210MC	Analytical Skills	9,10	-	-	2	-
<b>III – B.Tech. – I - Semester</b>							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS3101PC	Linux Programming	1,2,12	3	1	-	3
2	17CS3102PC	Formal Languages and Automata Theory	1,2,3,12	4	-	-	4
3	17CS3103PC	Data Mining & Data Warehousing	1,2,3,12,13	4	-	-	4
4	17CS3104PC	Web Technologies	2,3,6,12,13	4	-	-	4
5	<b>Open Elective – I</b>			3	-	3	-
	17CE3105OE	Disaster Management	2,7,8,12				
	17ME3105OE	Operations Research	1,2,12				
	17EC3105OE	Electronic Measurements and Instrumentation	1,2,12				
	17CS3105OE	JAVA Programming	1,2,3,5,12				
6	17CS3106PC	Linux Programming Lab	4,5,14	-	-	3	2
7	17CS3107PC	Data Mining & Data Warehousing Lab	4,5,14	-	-	3	2
8	17CS3108PC	Web Technologies Lab	4,5,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS3109MC	Human Values & Professional Ethics	6,7,8,12	3	-	-	-
10	17HS3110MC	Soft Skills	9,10	-	-	2	-
<b>III – B.Tech. – II – Semester</b>							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS3201PC	Compiler Design	2,3,4,12,13	4	-	-	4
2	17CS3202PC	Cloud Computing	1,2,3,12,13	4	1	-	4
3	17CS3203PC	Software Engineering	2,3,8,11,12,13	4	1	-	4
4	<b>Open Elective – II</b>			3	-	-	3
	17CE3204OE	Global Warming & Climate Change	2,6,7,8,12				
	17ME3204OE	Fundamentals of Robotics	1,2,5,12				
	17EC3204OE	Principles of Communication Systems	1,2,3,12				
	17CS3204OE	Database Management Systems	1,2,3,5,12				
5	<b>Professional Elective – I</b>			3	-	-	3
	17CS3205PE	Multimedia Computing	2,5,12,13				

	17CS3206PE	Computer Graphics	2,3,5,12,13				
	17CS3207PE	Mobile Application Development	1,2,3,5,12,13				
	17CS3208PE	Principles of Programming Languages	2,3,5,8,12,13				
6	17CS3209PC	Compiler Design & Mobile Application Development (Android) Lab	4,5,14	-	-	3	2
7	17CS3210PC	Cloud Application Development Lab	4,5,14	-	-	3	2
8	17CS3211HS	Advanced English Communication Skills Lab	5,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>

<b>Mandatory Course (Non-Credit)</b>							
9	17BS3212MC	Quantitative Aptitude	9,10	3	-	-	-
10	17AC3213MC	Internship / Industrial training / Certification Course / MOOCs Certificate	1 to 14				

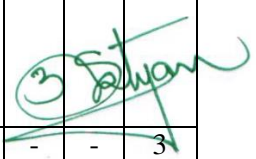
#### IV – B.Tech. – I - Semester

S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS4101PC	Network Security & Cryptography	2,3,6,8,12,13	4	1	-	4
2	17CS4102PC	Big Data Analytics	2,3,4,12,13	4	1	-	4
3	17CS4103PC	Machine Learning	1,2,3,6,12,13	4	1	-	4
4	<b>Open Elective – III</b>			3	-	-	3
	17CE4104OE	Environmental Impact Assessment	6,7,10,12				
	17ME4104OE	Principles of Entrepreneurship	7,8,9,11,12				
	17EC4104OE	Principles of Embedded Systems	1,2,3,12				
	17CS4104OE	Web Technologies	2,3,5,6,12				
5	<b>Professional Elective – II</b>			3	-	-	3
	17CS4105PE	Artificial Intelligence	1,2,3,6,12,13				
	17CS4106PE	Human Computer Interaction	1,2,3,5,8,12,13				
	17CS4107PE	Social Network Analysis	2,3,5,6,8,12,13				
	17CS4108PE	Distributed Systems	3,4,12,13				
6	17CS4109PC	Network Security & Cryptography Lab	4,5,14	-	-	3	2
7	17CS4110PC	Big Data Engineering Lab	4,5,14	-	-	3	2
8	17CS4111CC	Industry Oriented Mini Project	1 to 14	-	-	-	2
<b>TOTAL</b>				<b>18</b>	<b>3</b>	<b>06</b>	<b>24</b>

<b>Mandatory Course (Non-Credit)</b>							
9	17HS4112MC	Foreign Language: French	9,10	2	-	-	-
	17HS4113MC	Foreign Language: German					

#### IV – B.Tech. – II - Semester

S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17CS4201PC	Internet of Things	2,3,6,7,12,13	4	1	-	4
2	<b>Professional Elective – III</b>			3	-	-	3
	17CS4202PE	Ethical Hacking	2,3,5,8,12,13				
	17CS4203PE	Software Testing Methodologies	3,4,5,12,13				
	17CS4204PE	Web Mining	2,3,5,12,13				
	17CS4205PE	Neural Networks	2,3,5,6,12,13				
3	<b>Professional Elective - IV</b>			3	-	-	3
	17CS4206PE	Information Retrieval Systems	2,3,4,12,13				
	17CS4207PE	Computer Forensics	2,3,5,8,12,13				
	17CS4208PE	Natural Language Processing	2,3,5,6,12,13				
	17CS4209PE	Software Project Management	3,4,5,11,12,13				
4	17CS4210CC	Technical Seminar	1 to 14	-	-	3	2
5	17CS4211CC	Major Project	1 to 14	-	-	18	12
<b>TOTAL</b>				<b>10</b>	<b>01</b>	<b>21</b>	<b>24</b>

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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**B.Tech. – R-17 COURSE STRUCTURE**

(Applicable from the batch admitted during 2017-18 and onwards)

I – B.Tech. – I - Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC1101BS	Engineering Mathematics – I	1,2,12	4	1	-	4
2	17EC1102HS	Professional Communication in English	10,12	3	-	-	3
3	17EC1103ES	Basic Electrical & Electronics Engineering	1,2,3,12	4	1	-	4
4	17EC1104ES	Engineering Graphics	1,5,10	2	-	3	4
5	17EC1105ES	Computer Programming	1,2,3,12	3	1	-	3
6	17EC1106HS	English Language Communication Skills Lab	5,10	-	-	3	2
7	17EC1107ES	Computer Programming in C Lab	4	-	-	3	2
8	17EC1108ES	Basic Electrical & Electronics Engineering Lab	4	-	-	3	2
<b>TOTAL</b>				<b>16</b>	<b>3</b>	<b>12</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17AC1109MC	NSS / Physical Education /Yoga	3,6,8,9,12	-	-	2	-
I – B.Tech. – II - Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC1201BS	Engineering Mathematics – II	1,2,12	4	1	-	4
2	17EC1202BS	Applied Physics	1,2,12	4	1	-	4
3	17EC1203BS	Engineering Chemistry	1,2,12	4	1	-	4
4	17EC1204ES	Electric Circuits & Machines	1,2,12	3	1	-	3
5	17EC1205ES	Data Structures through C	1,2,3,12	3	1	-	3
6	17EC1206BS	Applied Physics /Engineering Chemistry Lab	4	-	-	3	2
7	17EC1207ES	Data Structures through C Lab	4	-	-	3	2
8	17EC1208ES	IT & Engineering Workshop	1,5,9,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>5</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17AC1209MC	Micro Project	1 to 14	-	-	2	-
II – B.Tech. – I – Semester							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC2101BS	Complex Analysis and Numerical Methods	1,2,12	4	-	-	4
2	17EC2102BS	Probability Theory & Stochastic Processes	1,2,12,13	4	-	-	4
3	17EC2103PC	Analog Electronics	1,2,3,12,13	4	-	-	4
4	17EC2104PC	Signals and Systems	1,2,12,13	3	1	-	3
5	17EC2105PC	Switching Theory and Logic Design	1,2,3,12,13	3	1	-	3
6	17EC2106PC	Analog Electronics Lab	4,5,14	-	-	3	2
7	17EC2107PC	Basic Simulation Lab	4,5,14	-	-	3	2
8	17EC2108ES	Electric Circuits & Machines Lab	4,5,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							



9	17HS2109MC	Environmental Science & Technology	1,6,7,12	3	-	-	-
10	17BS2110MC	Analytical Skills	9,10	-	-	2	-
<b>II – B.Tech. – II – Semester</b>							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC2201PC	Pulse & Digital Circuits	2,3,12,13	3	1	-	3
2	17EC2202PC	Analog Communications	1,2,3,12,13	4	-	-	4
3	17EC2203PC	Electro Magnetic Theory & Transmission Lines	1,2,12,13	4	1	-	4
4	17EC2204PC	Digital Design through Verilog HDL	2,3,12,13	4	-	-	4
5	17EC2205HS	Financial Analysis, Management & Economics	11,12	3	-	-	3
6	17EC2206PC	Pulse & Digital Circuits Lab	4,5,14	-	-	3	2
7	17EC2207PC	Analog Communications Lab	4,5,14	-	-	3	2
8	17EC2208PC	Digital Design through Verilog HDL Lab	4,5,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS2209MC	Gender Sensitization Lab	9,12	-	-	2	-
10	17HS2210MC	Verbal Ability	9,10	-	-	2	-
<b>III – B.Tech. – I - Semester</b>							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC3101PC	Linear & Digital IC Applications	2,3,12,13	4	-	-	4
2	17EC3102PC	Digital Communications	2,3,8,12,13	4	-	-	4
3	17EC3103PC	Control Systems	1,2,12	3	1	-	3
4	17EC3104PC	Antenna & Wave Propagation	2,3,12,13	4	-	-	4
5	<b>Open Elective – I</b>			3	-	3	-
	17CE3105OE	Disaster Management	2,7,8,12				
	17ME3105OE	Operations Research	1,2,12				
	17EC3105OE	Electronic Measurements and Instrumentation	1,2,12				
	17CS3105OE	JAVA Programming	1,2,3,5,12				
6	17EC3106PC	Linear & Digital IC Applications Lab	4,5,14	-	-	3	2
7	17EC3107PC	Digital Communications Lab	4,5,14	-	-	3	2
8	17EC3108HS	Advanced English Communication Skills Lab	5,10	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>1</b>	<b>9</b>	<b>24</b>
<b>Mandatory Course (Non-Credit)</b>							
9	17HS3109MC	Human Values & Professional Ethics	6,7,8,12	3	-	-	-
10	17BS3110MC	Quantitative Aptitude	9,10	-	-	2	-
<b>III – B.Tech. – II – Semester</b>							
S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC3201PC	Micro Processors & Micro Controllers	2,3,7,12,13	4	1	-	4
2	17EC3202PC	Digital Signal Processing	2,3,6,12,13	4	1	-	4
3	17EC3203PC	Micro Wave Engineering	2,3,12,13	4	-	-	4
4	<b>Open Elective – II</b>			3	-	-	3
	17CE3204OE	Global Warming & Climate Change	2,6,7,8,12				
	17ME3204OE	Fundamentals of Robotics	1,2,5,12				



	17EC3204OE	Principles of Communication Systems	1,2,3,12				
	17CS3204OE	Database Management Systems	1,2,3,5,12				
5	<b>Professional Elective – I</b>			3	-	-	3
	17EC3205PE	Computer Organization & Operating Systems	2,3,12,13				
	17EC3206PE	Data Communications	2,3,12,13				
	17EC3207PE	Advanced Digital Design	2,3,5,12,13				
	17EC3208PE	Telecommunication Switching Systems and Networks	2,3,6,12,13				
6	17EC3209PC	Micro Processors & Micro Controllers Lab	4,5,14	-	-	3	2
7	17EC3210PC	Digital Signal Processing Lab	4,5,14	-	-	3	2
8	17EC3211PC	Micro Wave Engineering Lab	4,5,14	-	-	3	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>9</b>	<b>24</b>

**Mandatory Course (Non-Credit)**

9	17HS3212MC	Soft Skills	9,10	-	-	2	-
10	17AC3213MC	Internship / Industrial training / Certification Course / MOOCs Certificate	1 to 14	-	-	2	-

**IV – B.Tech. – I - Semester**

S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC4101PC	Cellular and Mobile Communications	2,3,6,12,13	4	1	-	4
2	17EC4102PC	VLSI Design	2,3,7,12,13	4	1	-	4
3	17EC4103PC	Satellite Communications	2,3,6,12,13	4	1	-	4
4	<b>Open Elective – III</b>			3	-	-	3
	17CE4104OE	Environmental Impact Assessment	6,7,10,12				
	17ME4104OE	Principles of Entrepreneurship	7,8,9,11,12				
	17EC4104OE	Principles of Embedded Systems	1,2,3,12				
	17CS4104OE	Web Technologies	2,3,5,6,12				
5	<b>Professional Elective – II</b>			3	-	-	3
	17EC4105PE	Computer Networks	2,6,12,13				
	17EC4106PE	Wireless Communications and Networks	2,3,5,8,12,13				
	17EC4107PE	Bio-Medical Instrumentation	2,3,5,12,13				
	17EC4108PE	Coding Theory & Techniques	2,3,8,12,13				
6	17EC4109PC	Cellular and Mobile Communications Lab	4,5,14	-	-	3	2
7	17EC4110PC	VLSI Design Lab	4,5,14	-	-	3	2
8	17EC4111CC	Industry Oriented Mini Project	1 to 14	-	-	-	2
<b>TOTAL</b>				<b>18</b>	<b>2</b>	<b>6</b>	<b>24</b>

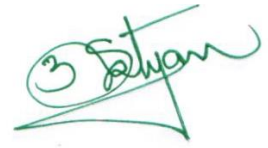
**Mandatory Course (Non-Credit)**

9	17HS4112MC	Foreign Language: French	9,10	2	-	-	-
	17HS4113MC	Foreign Language: German					

**IV – B.Tech. – II - Semester**

S. No	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	17EC4201ES	Internet of Things	2,3,6,7,12,13	4	1	-	4
2	<b>Professional Elective – III</b>			3	-	-	3
	17EC4202PE	Digital Signal Processors and Controllers	2,3,5,12,13				
	17EC4203PE	Radar Systems	2,3,7,12,13				
	17EC4204PE	Artificial Neural Networks	2,3,5,6,12,13				
	17EC4205PE	Television Engineering	2,5,6,7,12,13				
3	<b>Professional Elective - IV</b>			3			
	17EC4206PE	Data Analytics & Machine Learning	1,2,3,5,12				

	17EC4207PE	Digital Image Processing	2,5,12,13				
	17EC4208PE	RF Circuit Design	2,3,5,12,13				
	17EC4209PE	Adhoc Wireless Sensor Networks	2,3,6,12,13				
4	17EC4210CC	Technical Seminar	1 to 14	-	-	3	2
5	17EC4211CC	Major Project	1 to 14	-	-	18	12
<b>TOTAL</b>				<b>10</b>	<b>01</b>	<b>21</b>	<b>24</b>



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Kandlakoya (V), Medchal Road,  
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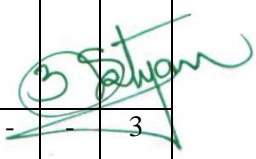
**DEPARTMENT OF CIVIL ENGINEERING**  
**B.Tech. – R-18 COURSE STRUCTURE**

(Applicable from the batch admitted during 2018-19 and onwards)

<b>I – Semester (I – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-101	Engineering Mathematics – I (Linear Algebra & Calculus)	1,2,12	3	1	-	4
2	BSC-107	Engineering Chemistry	1,2,12	3	-	-	3
3	ESC-101	Basic Electrical & Electronics Engineering	1,2,3,12	3	-	-	3
4	ESC-107	Engineering Mechanics	1,2,12	3	-	-	3
5	BSC-108	Engineering Chemistry Lab	4	-	-	3	1.5
6	ESC-102	Basic Electrical & Electronics Engineering Lab	4	-	-	3	1.5
7	ESC-108	Engineering Mechanics Lab	3	-	-	3	1.5
8	ESC-110	IT & Engineering Workshop	1,5,9,10	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-101	Technology Exploration for Social Innovation Lab - I	1 to 14	-	-	2	-
<b>II – Semester (I – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-102	Engineering Mathematics – II (Advanced Calculus)	1,2,12	3	1	-	4
2	BSC-105	Engineering Physics	1,2,12	3	-	-	3
3	HSMC-101	English	10,12	2	-	-	2
4	ESC-103	Programming for Problem Solving	1,2,3,12	3	-	-	3
5	ESC-109	Engineering Graphics	1,5,10	1	-	4	3
6	BSC-106	Engineering Physics Lab	4	-	-	3	1.5
7	HSMC-102	English Language and communication Skills Lab	5,10	-	-	2	1
8	ESC-104	Programming for Problem Solving Lab	4	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-102	Technology Exploration for Social Innovation Lab – II	1 to 14	-	-	2	-
<b>III – Semester (II – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	ESC-201	Engineering Geology	1,2,12	3	-	-	3
2	ESC-202	Building Materials, Construction & Planning	1,6,12,13	3	-	-	3
3	CE-PCC-211	Strength of Materials – I	1,2,12,13	3	1	-	4
4	CE-PCC-212	Fluid Mechanics	1,2,12,13	3	-	-	3
5	CE-PCC-213	Surveying	1,2,12,13	3	-	-	3
6	ESC-203	Engineering Geology Lab	4	-	-	3	1.5
7	CE-PCC-214	Fluid Mechanics Lab	4,14	-	-	2	1
8	CE-PCC-215	Surveying Lab – I	4,5,10,14	-	-	3	1.5
9	CE-PCC-216	Computer Aided Civil Engineering	4,5,10,14	-	-	3	1.5

		Drawing Lab					
<b>TOTAL</b>				<b>15</b>	<b>01</b>	<b>10</b>	<b>21</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-202	Environmental Sciences	1,6,7,12	2	-	-	-
<b>IV – Semester (II – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-201	Numerical and Statistical Methods	1,2,12	3	1	-	4
2	CE-PCC-221	Strength of Materials – II	2,12,13	3	-	-	3
3	CE-PCC-222	Hydraulics & Hydraulic Machinery	2,12,13	3	-	-	3
4	CE-PCC-223	Soil Mechanics – I	1,2,12,13	3	-	-	3
5	CE-PCC-224	Structural Analysis	2,12,13	3	-	-	3
6	CE-PCC-225	Strength of Materials Lab	4,14	-	-	2	1
7	CE-PCC-226	Hydraulics & Hydraulic Machinery Lab	4,14	-	-	3	1.5
8	CE-PCC-227	Surveying Lab – II	4,5,10,14	-	-	3	1.5
9	BSC-203	Computational Mathematics Lab using Sci Lab	3,4,5,14	-	-	2	1
<b>TOTAL</b>				<b>15</b>	<b>01</b>	<b>10</b>	<b>21</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-201	Gender Sensitization Lab	9,12	-	-	2	-
<b>V – Semester (III – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	CE-PCC-311	Concrete Technology	3,8,12,13	3	-	-	3
2	CE-PCC-312	Soil Mechanics - II	2,3,8,12,14	3	-	-	3
3	CE-PCC-313	Environmental Engineering	3,6,7,12,13	3	-	-	3
4	CE-PCC-314	Design of Reinforced Concrete Structures	3,8,10,12,14	3	-	-	3
5	CE-PCC-315	Water Resources Engineering	2,3,12,13	3	-	-	3
6	CE-PCC-316	Concrete Technology Lab	4,6,14	-	-	2	1
7	CE-PCC-317	Soil Mechanics Lab	4,6,14	-	-	2	1
8	CE-PCC-318	Environmental Engineering Lab	4,14	-	-	2	1
9	HSMC-301	Advanced English Communication Skills Lab	5,10	1	-	2	2
<b>TOTAL</b>				<b>16</b>	<b>-</b>	<b>08</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-311	Employability Skills – I	9,10	3	-	-	-
11	MC-312	Summer Internship – I	1 to 14	-	-	-	-
<b>VI – Semester (III – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	CE-PCC-321	Artificial Intelligence and Robotics	1,2,12,13	3	-	-	3
2	CE-PCC-322	Transportation Engineering	2,3,12,13	3	-	-	3
3	CE-PCC-323	Design of Steel Structures	3,8,10,12,14	3	-	-	3
4	<b>Professional Elective – I</b>			3	-	-	3
	CE-PEC-301	G: Rock Mechanics	2,7,12,13				
	CE-PEC-302	S: Construction Technology & Project Management	11,12,14				
	CE-PEC-303	T: Urban Public Transportation System	2,6,12,13				
	CE-PEC-304	W: Irrigation Engineering	3,4,7,12,13				
5	<b>Open Elective – I</b>			3	-	-	3
	OEC-301	CE: Disaster Management	2,7,8,12				
	OEC-302	ME: Fundamentals of Operation Research	1,2,12				
	OEC-303	ECE: Electronic Measurements and Instrumentation	1,2,12				
	OEC-304	CSE: Java Programming	1,2,3,5,12				

	OEC-305	HSMC: Indian Culture and Constitution	8,12				
6	CE-PCC-324	Artificial Intelligence and Robotics Lab	4,5,14	-	-	2	1
7	CE-PCC-325	Transportation Engineering Lab	4,7,14	-	-	2	1
8	CE-PCC-326	Computer Aided Civil Engineering Design Lab	4,5,10,14	-	-	3	1.5
9	CE-PCC-327	Advanced Concrete Technology Lab	4,6,14	-	-	3	1.5
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-321	Employability Skills – II	9,10	3	-	-	-
<b>VII – Semester (IV – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	CE-PCC-411	Estimation & Costing	11,12,13	3	-	-	3
2	<b>Professional Elective – II</b>			3	-	-	3
	CE-PEC-401	G: Geosynthetics and Soil Reinforcement	2,7,12,13				
	CE-PEC-405	S: Finite Element Analysis	2,3,4,12,14				
	CE-PEC-409	T: Pavement Design	3,6,8,12,14				
	CE-PEC-413	W: Watershed Management	6,7,12,13				
3	<b>Professional Elective – III</b>			3	-	-	3
	CE-PEC-402	G: Municipal and Hazardous Waste Management	2,3,6,7,12,13				
	CE-PEC-406	S: Advanced Structural Analysis	2,12,13				
	CE-PEC-410	T: Remote Sensing and GIS	2,5,7,12,14				
	CE-PEC-414	W: Stochastic Hydrology	3,4,7,12,13				
4	<b>Professional Elective – IV</b>			3	-	-	3
	CE-PEC-403	G: Ground Improvement Techniques	2,12,13				
	CE-PEC-407	S: Prestressed Concrete	2,3,8,12,14				
	CE-PEC-411	T: Traffic Engineering	3,5,6,12,14				
	CE-PEC-415	W: Urban Hydrology and Hydraulics	2,3,4,12,13				
5	<b>Open Elective – II</b>			3	-	-	3
	OEC-401	CE: Environmental Impact Assessment	6,7,10,12				
	OEC-403	ME: Non-Conventional Energy Sources	6,7,12				
	OEC-405	ECE: Principles of Communication Systems	1,2,3,12				
	OEC-407	CSE: Database Management Systems	1,2,3,5,12				
	OEC-409	HSMC: Intellectual Property Rights	1,6,8,10,12				
6	HSMC-402	Technical Writing Skills Lab	5,10	-	-	2	1
7	CE-PCC-412	Estimation & Costing Lab	4,5,14	-	-	2	1
8	CE-PRJ-413	<b>Project – I</b>	1 to 14	-	-	6	3
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-411	Summer Internship – II	1 to 14	-	-	-	-
<b>VIII – Semester (IV – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	HSMC-401	Management, Economics and Accountancy	11,12	3	-	-	3
2	<b>Professional Elective – V</b>			3	-	-	3
	CE-PEC-404	G: Earthen Dams and Slopes Stability	3,5,12,13				
	CE-PEC-408	S: Repair and Rehabilitation of Structures	2,4,7,12,14				
	CE-PEC-412	T: Modern Transportation Engineering	2,4,7,12,13				
	CE-PEC-416	W: Water Resources Systems Analysis	2,3,5,6,12,13				
3	<b>Open Elective – III</b>			3	-	-	3
	OEC-402	CE: Green Building Technologies	1,2,7,12				
	OEC-404	ME: Fundamentals of Robotics	1,2,5,12				
	OEC-406	ECE: Fundamentals of Embedded Systems	1,2,3,12				
	OEC-408	CSE: Web Technologies	2,3,5,6,12				
	OEC-410	HSMC: Principles of Entrepreneurship	7,8,9,11,12				
4	CE-PRJ-421	<b>Project-II</b>	1 to 14	-	-	22	11
<b>TOTAL</b>				<b>9</b>	<b>-</b>	<b>22</b>	<b>20</b>

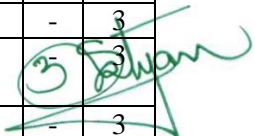
  
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**DEPARTMENT OF MECHANICAL ENGINEERING**

**B.Tech. – R-18 COURSE STRUCTURE**

(Applicable from the batch admitted during 2018-19 and onwards)

<b>I – Semester (I – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-101	Engineering Mathematics – I (Linear Algebra & Calculus)	1,2,12	3	1	-	4
2	BSC-105	Engineering Physics	1,2,12	3	-	-	3
3	HSMC-101	English	10,12	2	-	-	2
4	ESC-103	Programming for Problem Solving	1,2,3,12	3	-	-	3
5	ESC-109	Engineering Graphics	5,10	1	-	4	3
6	BSC-106	Engineering Physics Lab	4	-	-	3	1.5
7	HSMC-102	English Language and communication Skills Lab	5,10	-	-	2	1
8	ESC-104	Programming for Problem Solving Lab	4	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-101	Technology Exploration for Social Innovation Lab - I	1 to 14	-	-	2	-
<b>II – Semester (I – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-102	Engineering Mathematics – II (Advanced Calculus)	1,2,12	3	1	-	4
2	BSC-107	Engineering Chemistry	1,2,12	3	-	-	3
3	ESC-101	Basic Electrical & Electronics Engineering	1,2,3,12	3	-	-	3
4	ESC-107	Engineering Mechanics	1,2,3,12	3	-	-	3
5	BSC-108	Engineering Chemistry Lab	4	-	-	3	1.5
6	ESC-102	Basic Electrical & Electronics Engineering Lab	4	-	-	3	1.5
7	ESC-108	Engineering Mechanics Lab	4	-	-	3	1.5
8	ESC-110	IT & Engineering Workshop	1,2,5,12	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-102	Technology Exploration for Social Innovation Lab – II	1 to 14	-	-	2	-
<b>III – Semester (II – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-201	Numerical and Statistical Methods	1,2,12	3	1	-	4
2	ESC-204	Thermodynamics	1,2,12,14	3	-	-	3
3	ESC-205	Materials Engineering	1,2,12	3	-	-	3
4	ME-PCC-211	Solid Mechanics	1,2,3,12,13	3	-	-	3

  
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5	ME-PCC-212	Instrumentation & Control systems	1,2,12	3	-	-	3
6	ESC-206	Materials Engineering Lab	3,4,5	-	-	3	1.5
7	ME-PCC-213	Solid Mechanics Lab	3,4,13	-	-	3	1.5
8	ME-PCC-214	Instrumentation & Control systems Lab	3,4,5	-	-	2	1
9	BSC-203	Computational Mathematics Lab using Sci Lab	3,4,5,14	-	-	2	1
<b>TOTAL</b>				<b>15</b>	<b>01</b>	<b>10</b>	<b>21</b>

**Mandatory Course (Non-Credit)**

10	MC-201	Gender Sensitization Lab	9,12	-	-	2	-
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**IV – Semester (II – B.Tech. – II - Semester)**

S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	ME-PCC-221	Design of Machine Elements - I	2,3,8,12,13	3	1	-	4
2	ME-PCC-222	Applied Thermodynamics – I	2,6,12,14	3	-	-	3
3	ME-PCC-223	Fluid Mechanics & Hydraulic Machinery	1,2,3,12	3	-	-	3
4	ME-PCC-224	Kinematics of Machinery	1,2,3,12	3	-	-	3
5	ME-PCC-225	Manufacturing Processes	1,2,12,14	3	-	-	3
6	ME-PCC-226	Applied Thermodynamics Lab	3,4,7,14	-	-	3	1.5
7	ME-PCC-227	Fluid Mechanics & Hydraulic Machinery Lab	3,4,14	-	-	2	1
8	ME-PCC-228	Manufacturing Processes Lab	3,4,14	-	-	3	1.5
9	ME-PCC-229	Machine Drawing using AutoCAD	4,5,6,10,13,14	-	-	2	1
<b>TOTAL</b>				<b>15</b>	<b>01</b>	<b>10</b>	<b>21</b>

**Mandatory Course (Non-Credit)**

10	MC-202	Environmental Sciences	1,6,7,12	2	-	-	-
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**V – Semester (III – B.Tech. – I - Semester)**

S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	ME-PCC-311	Dynamics of Machinery	1,2,3,12	3	-	-	3
2	ME-PCC-312	Machine Tools & Metrology	1,2,3,12,14	3	-	-	3
3	ME-PCC-313	Heat Transfer	1,2,3,12,14	3	-	-	3
4	ME-PCC-314	Design of Machine Elements - II	2,3,8,12,13	3	-	-	3
5	ME-PCC-315	Applied Thermodynamics – II	2,6,12,14	3	-	-	3
6	ME-PCC-316	Kinematics & Dynamics Lab	3,4,13	-	-	2	1
7	ME-PCC-317	Heat Transfer Lab	4,6,7,14	-	-	3	1.5
8	ME-PCC-318	Machine Tools & Metrology Lab	3,4,6,14	-	-	3	1.5
9	ME-PCC-319	Design of Machine Elements Lab using CAD	4,5,6,10,13,14	-	-	2	1
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>

**Mandatory Course (Non-Credit)**

10	MC-311	Employability Skills - I	9,10	3	-	-	-
11	MC-312	Summer Internship - I	1 to 14	-	-	-	-

**VI – Semester (III – B.Tech. – II - Semester)**

S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	ME-PCC-321	Operations Research	1,2,3,12,14	3	-	-	3
2	ME-PCC-322	Computer Aided Design	2,3,12,13	3	-	-	3
3	ME-PCC-323	Automation in Manufacturing	2,3,5,12,13	3	-	-	3
4	<b>Professional Elective – I</b>			3	-	-	3
	ME-PEC-301	T: Renewable Energy Sources	2,6,7,12,14				
	ME-PEC-302	I: Industrial Engineering	1,2,8,11,12				
	ME-PEC-303	P: Unconventional machining processes	2,3,5,12,14				
	ME-PEC-304	D: Finite Element Analysis	2,3,4,12,13				

5	<b>Open Elective – I</b>			3	-	-	3
	OEC-301	CE: Disaster Management	2,7,8,12				
	OEC-302	ME: Fundamentals of Operations Research	1,2,12				
	OEC-303	ECE: Electronic Measurements and Instrumentation	1,2,12				
	OEC-304	CSE: Java Programming	1,2,3,5,12				
	OEC-305	HSMC: Indian Culture and Constitution	8,12				
6	ME-PCC-324	Automation in Manufacturing Lab	4,5,10,13,14	-	-	2	1
7	ME-PCC-325	Production Drawing Practice using CAD	4,5,6,10,13,14	-	-	2	1
8	ME-PCC-326	Computer Aided Analysis Lab	4,5,10,14	-	-	2	1
9	HSMC-301	Advanced English Communication Skills Lab	5,10	1	-	2	2
<b>TOTAL</b>				<b>16</b>	<b>-</b>	<b>08</b>	<b>20</b>

**Mandatory Course (Non-Credit)**

10	MC-321	Employability Skills - II	9,10	3	-	-	-
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**VII – Semester (IV – B.Tech. – I - Semester)**

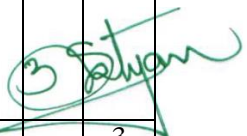
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	HSMC-401	Management, Economics and Accountancy	11,12	3	-	-	3
2	ME-PCC-411	Artificial Intelligence and Robotics	1,2,12,13	3	-	-	3
3	<b>Professional Elective – II</b>			3	-	-	3
	ME-PEC-401	T: Automobile engineering	6,7,12,14				
	ME-PEC-405	I: Total Quality Management	2,3,5,6,7,8,12,13				
	ME-PEC-409	P: Flexible manufacturing systems	2,3,12,14				
	ME-PEC-413	D: Design of Experiments	2,3,4,11,12,13				
4	<b>Professional Elective – III</b>			3	-	-	3
	ME-PEC-402	T: Refrigeration and air conditioning	2,3,7,12,14				
	ME-PEC-406	I: Maintenance and Safety Engineering	2,3,6,7,8,12,13				
	ME-PEC-410	P: Plant Layout & Material Handling	2,6,7,12,14				
	ME-PEC-414	D: Design of Transmission Systems	2,3,4,12,14				
5	<b>Open Elective – II</b>			3	-	-	3
	OEC-401	CE: Environmental Impact Assessment	6,7,12				
	OEC-403	ME: Non-Conventional Energy Sources	6,7,12				
	OEC-405	ECE: Principles of Communication Systems	1,2,3,12				
	OEC-409	HSMC: Intellectual Property Rights	1,6,8,12				
6	HSMC-402	Technical Writing Skills Lab	5,10	-	-	2	1
7	ME-PCC-412	Artificial Intelligence and Robotics Lab	4,5,14	-	-	2	1
8	ME-PRJ-413	<b>Project – I</b>	1 to 14	-	-	6	3
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>

**Mandatory Course (Non-Credit)**

9	MC-411	Summer Internship - II	1 to 12	-	-	-	-
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**VIII – Semester (IV – B.Tech. – II - Semester)**

S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	<b>Professional Elective – IV</b>			3	-	-	3
	ME-PEC-403	T: Power Plant Engineering	2,3,6,12,14				
	ME-PEC-407	I: Production Planning & Control	2,3,11,12,14				
	ME-PEC-411	P: Theory of Metal Cutting	2,3,4,5,12,13				
	ME-PEC-415	D: Mechanics of Composite Materials	2,3,4,12,13				
2	<b>Professional Elective – V</b>			3	-	-	3
	ME-PEC-404	T: Computational Fluid Dynamics	2,3,5,12,13				
	ME-PEC-408	I: Optimization Techniques	2,3,12,14				
	ME-PEC-412	P: Additive Manufacturing	2,3,12,13,14				
	ME-PEC-416	D: Design of Press Tools, Jigs and Fixtures	2,3,5,12,13,14				
3	<b>Open Elective – III</b>			3	-	-	3

  
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	OEC-402	CE: Green Building Technologies	1,2,7,12				
	OEC-404	ME: Fundamentals of Robotics	1,2,5,12				
	OEC-406	ECE: Fundamentals of Embedded Systems	1,2,3,12				
	OEC-408	CSE: Web Technologies	2,3,5,6,12				
	OEC-410	HSMC: Principles of Entrepreneurship	7,8,9,11,12				
4	ME-PRJ-421	<b>Project-II</b>	1 to 14	-	-	22	11
<b>TOTAL</b>				<b>9</b>	<b>-</b>	<b>22</b>	<b>20</b>



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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

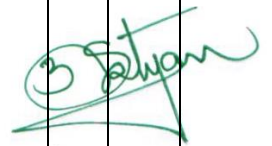
**B.Tech. – R-18 COURSE STRUCTURE**

(Applicable from the batch admitted during 2018-19 and onwards)

<b>I – Semester (I – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-101	Engineering Mathematics – I (Linear Algebra & Calculus)	1,2,12	3	1	-	4
2	BSC-103	Applied Physics	1,2,12	3	-	-	3
3	HSMC-101	English	10,12	2	-	-	2
4	ESC-103	Programming for Problem Solving	1,2,3,12	3	-	-	3
5	ESC-109	Engineering Graphics	1,5,10	1	-	4	3
6	BSC-104	Applied Physics Lab	4	-	-	3	1.5
7	HSMC-102	English Language and communication Skills Lab	5,10	-	-	2	1
8	ESC-104	Programming for Problem Solving Lab	4	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-101	Technology Exploration for Social Innovation Lab - I	1 to 14	-	-	2	-
<b>II – Semester (I – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-102	Engineering Mathematics – II (Advanced Calculus)	1,2,12	3	1	-	4
2	BSC-107	Engineering Chemistry	1,2,12	3	-	-	3
3	ESC-101	Basic Electrical & Electronics Engineering	1,2,3,12	3	-	-	3
4	ESC-105	Data Structures	1,2,3,12	3	-	-	3
5	BSC-108	Engineering Chemistry Lab	4	-	-	3	1.5
6	ESC-102	Basic Electrical & Electronics Engineering Lab	4	-	-	3	1.5
7	ESC-106	Data Structures Lab	4	-	-	3	1.5
8	ESC-110	IT & Engineering Workshop	1,5,9,10	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-102	Technology Exploration for Social Innovation Lab – II	1 to 14	-	-	2	-
<b>III – Semester (II – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	ESC-210	Discrete Mathematics	1,2,12	3	-	-	3
2	ESC-211	Digital Logic Design and Computer Organization	1,2,3,6,12	3	-	-	3
3	CS-PCC-211	Python Programming	1,2,3,12	3	-	-	3
4	CS-PCC-212	OOP through Java	1,2,3,12	3	1	-	4
5	CS-PCC-213	Database Management Systems	1,2,3,12	3	-	-	3
6	CS-PCC-214	Python Programming Lab	4,5	-	-	2	1
7	CS-PCC-215	OOP through Java Lab	4,5	-	-	3	1.5
8	CS-PCC-216	Database Management Systems Lab	4,5	-	-	2	1
9	ESC-212	Digital Logic Design and Computer Organization Lab	4,5	-	-	3	1.5

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TOTAL				15	01	10	21
<b>Mandatory Course (Non-Credit)</b>							
10	MC-201	Gender Sensitization Lab	9,12	-	-	2	-
<b>IV – Semester (II – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-201	Numerical and Statistical Methods	1,2,12	3	1	-	4
2	CS-PCC-221	Formal Languages and Automata Theory	1,2,3,12	3	-	-	3
3	CS-PCC-222	Software Design and Engineering	2,3,8,11,12,13	3	-	-	3
4	CS-PCC-223	Operating Systems	1,2,12	3	-	-	3
5	CS-PCC-224	Computer Networks	1,2,12,13	3	-	-	3
6	CS-PCC-225	Operating Systems (Linux) Lab	3,5,14	-	-	2	1
7	CS-PCC-226	Computer Networks Lab	3,5,14	-	-	2	1
8	CS-PCC-227	Internet of Things Lab	1,2,3,4,5,6,7,14	1	-	2	2
9	BSC-203	Computational Mathematics Lab using Sci Lab	3,4,5,14	-	-	2	1
<b>TOTAL</b>				<b>16</b>	<b>01</b>	<b>8</b>	<b>21</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-202	Environmental Sciences	1,6,7,12	2	-	-	-
<b>V – Semester (III – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	CS-PCC-311	Design & Analysis of Algorithms	2,3,12,13	3	-	-	3
2	CS-PCC-312	Compiler Design	2,3,4,12,13	3	-	-	3
3	CS-PCC-313	Data Mining and Analytics	1,2,3,12,13	3	-	-	3
4	CS-PCC-314	Web Technologies	2,3,6,12,13	3	-	-	3
5	CS-PCC-315	Artificial Intelligence	1,2,3,6,12,13	3	-	-	3
6	CS-PCC-316	Data Mining and Analytics Lab	4,5,14	-	-	2	1
7	CS-PCC-317	Web Technologies Lab	4,5,14	-	-	2	1
8	CS-PCC-318	Artificial Intelligence Lab	4,5,14	-	-	2	1
9	HSMC-301	Advanced English Communication Skills Lab	5,10	1	-	2	2
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-311	Employability Skills - I	9,10	3	-	-	-
11	MC-312	Summer Internship - I	1 to 14	-	-	-	-
<b>VI – Semester (III – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	CS-PCC-321	Cloud Computing	1,2,3,12,13	3	-	-	3
2	CS-PCC-322	Machine Learning and Data Sciences	2,3,6,12,13	3	-	-	3
3	CS-PCC-323	Full Stack Web Development	2,3,6,12,13	3	-	-	3
4	<b>Professional Elective – I</b>			3	-	-	3
	CS-PEC-301	T: Advanced Algorithms	2,3,4,12,13				
	CS-PEC-302	S: Distributed Systems	3,4,12,13				
	CS-PEC-303	D: Digital marketing	2,3,5,6,8,12				
	CS-PEC-304	A: Blockchain Technology	2,3,5,6,12,13				
5	<b>Open Elective – I</b>			3	-	-	3
	OEC-301	CE: Disaster Management	2,7,8,12				
	OEC-302	ME: Fundamentals of Operations Research	1,2,12				
	OEC-303	ECE: Electronic Measurements and Instrumentation	1,2,12				
	OEC-304	CSE: Java Programming	1,2,3,5,12				

  
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	OEC-305	HSMC: Indian Culture and Constitution	8,12				
6	CS-PCC-324	Cloud Computing Lab	4,5,14	-	-	2	1
7	CS-PCC-325	Machine Learning and Data Sciences Lab	4,5,14	-	-	2	1
8	CS-PCC-326	Full Stack Web Development Lab	4,5,14	-	-	2	1
9	CS-PCC-327	Mobile Application Development (Android) Lab	2,3,4,5,8,14	1	-	2	2
<b>TOTAL</b>				<b>16</b>	<b>-</b>	<b>8</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-321	Employability Skills - II	9,10	3	-	-	-
<b>VII – Semester (IV – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	HSMC-401	Management, Economics and Accountancy	11,12	3	-	-	3
2	CS-PCC-411	Information Security	2,3,6,8,12,13	3	-	-	3
3	<b>Professional Elective – II</b>			3	-	-	3
	CS-PEC-401	T: Software Testing Methodologies	3,4,5,12,13				
	CS-PEC-405	S: Advanced Computer Architecture	3,4,12,13				
	CS-PEC-409	D: Natural Language Processing	2,3,5,6,12,13				
	CS-PEC-413	A: Virtual Reality	2,3,5,8,12,13				
4	<b>Professional Elective – III</b>			3	-	-	3
	CS-PEC-402	T: Quantum Computing	1,2,3,5,12,13				
	CS-PEC-406	S: Adhoc and Sensor Networks	2,3,4,12,13				
	CS-PEC-410	D: Information Retrieval Systems	2,3,4,12,13				
	CS-PEC-414	A: Ethical Hacking	2,4,5,6,8,12,13				
5	<b>Open Elective – II</b>			3	-	-	3
	OEC-401	CE: Environmental Impact Assessment	6,7,10,12				
	OEC-403	ME: Non-Conventional Energy Sources	6,7,12				
	OEC-405	ECE: Principles of Communication Systems	1,2,3,12				
	OEC-407	CSE: Database Management Systems	1,2,3,5,12				
	OEC-409	HSMC: Intellectual Property Rights	1,6,8,10,12				
6	HSMC-402	Technical Writing Skills Lab	10,12	-	-	2	1
7	CS-PCC-412	Information Security Lab	4,5,14	-	-	2	1
8	CS-PRJ-413	Project – I	1 to 14	-	-	6	2
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-411	Summer Internship - II	1 to 14	-	-	-	-
<b>VIII – Semester (IV – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	<b>Professional Elective –IV</b>			3	-	-	3
	CS-PEC-403	T: Software Project Management	3,4,5,11,12,13				
	CS-PEC-407	S: Computational Biology	1,2,5,6,12,13				
	CS-PEC-411	D: Cyber-Physical Systems	2,3,5,6,12,13				
	CS-PEC-415	A: Cognitive Computing	1,2,3,4,5,6,12,13				
2	<b>Professional Elective – V</b>			3	-	-	3
	CS-PEC-404	T: Computer Forensics	2,3,5,8,12,13				
	CS-PEC-408	S: Digital Image Processing	1,2,3,12,13				
	CS-PEC-412	D: Neural Networks and Deep Learning	2,3,5,6,12,13				
	CS-PEC-416	A: Cyber Security	2,4,5,6,8,12,13				
3	<b>Open Elective – III</b>			3	-	-	3
	OEC-402	CE: Green Building Technologies	1,2,7,12				
	OEC-404	ME: Fundamentals of Robotics	1,2,5,12				
	OEC-406	ECE: Fundamentals of Embedded Systems	1,2,3,12				
	OEC-408	CSE: Web Technologies	2,3,5,6,12				
	OEC-410	HSMC: Principles of Entrepreneurship	7,8,9,11,12				
4	CS-PRJ-421	Project-II	1 to 14	-	-	22	11
<b>TOTAL</b>				<b>9</b>	<b>-</b>	<b>22</b>	<b>20</b>

  
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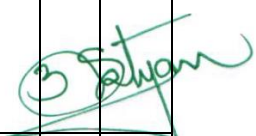
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**B.Tech. – R-18 COURSE STRUCTURE**

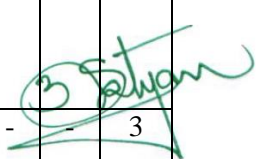
(Applicable from the batch admitted during 2018-19 and onwards)

<b>I – Semester (I – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-101	Engineering Mathematics – I (Linear Algebra & Calculus)	1,2,12	3	1	-	4
2	BSC-107	Engineering Chemistry	1,2,12	3	-	-	3
3	ESC-101	Basic Electrical & Electronics Engineering	1,2,3,12	3	-	-	3
4	ESC-103	Programming for Problem Solving	1,2,3,12	3	-	-	3
5	BSC-108	Engineering Chemistry Lab	4	-	-	3	1.5
6	ESC-102	Basic Electrical & Electronics Engineering Lab	4	-	-	3	1.5
7	ESC-104	Programming for Problem Solving Lab	4	-	-	3	1.5
8	ESC-110	IT & Engineering Workshop	1,5,9,10	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-101	Technology Exploration for Social Innovation Lab - I	1 to 14	-	-	2	-
<b>II – Semester (I – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-102	Engineering Mathematics – II (Advanced Calculus)	1,2,12	3	1	-	4
2	BSC-103	Applied Physics	1,2,12	3	-	-	3
3	HSMC-101	English	10,12	2	-	-	2
4	ESC-105	Data Structures	1,2,3,12	3	-	-	3
5	ESC-109	Engineering Graphics	1,5,10	1	-	4	3
6	BSC-104	Applied Physics Lab	4	-	-	3	1.5
7	HSMC-102	English Language and communication Skills Lab	5,10	-	-	2	1
8	ESC-106	Data Structures Lab	4	-	-	3	1.5
<b>TOTAL</b>				<b>12</b>	<b>01</b>	<b>12</b>	<b>19</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-102	Technology Exploration for Social Innovation Lab – II	1 to 14	-	-	2	-
<b>III – Semester (II – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	BSC-202	Numerical Methods and Complex Analysis	1,2,12	3	1	-	4
2	ESC-207	Networks and Measurements	1,2,3,12,13	3	-	-	3
3	ESC-208	Probability Theory & Stochastic Processes	1,2,12,13	3	-	-	3
4	EC-PCC-211	Analog Electronics	1,2,3,12,13	3	-	-	3
5	EC-PCC-212	Signals and Systems	1,2,12,13	3	-	-	3
6	EC-PCC-213	Analog Electronics Lab	4,5,14	-	-	3	1.5
7	EC-PCC-214	Networks and Measurements Lab	4,5,14	-	-	2	1
8	ESC-209	Scripting Languages Lab	1,2,3,4,5,14	-	-	3	1.5
9	BSC-203	Computational Mathematics Lab using	3,4,5,14	-	-	2	1

		Sci Lab					
<b>TOTAL</b>				<b>15</b>	<b>01</b>	<b>10</b>	<b>21</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-202	Environmental Sciences	1,6,7,12	2	-	-	-
<b>IV – Semester (II – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	EC-PCC-221	Pulse & Digital Circuits	2,3,12,13	3	1	-	4
2	EC-PCC-222	Linear & Digital IC Applications	2,3,12,13	3	-	-	3
3	EC-PCC-223	Electromagnetic Theory & Transmission Lines	1,2,12,13	3	1	-	4
4	EC-PCC-224	Digital Design and Computer Organization	2,3,12,13	3	-	-	3
5	EC-PCC-225	Control Systems	1,2,12	3	-	-	3
6	EC-PCC-226	Pulse & Digital Circuits Lab	4,5,14	-	-	2	1
7	EC-PCC-227	Linear & Digital IC Applications Lab	4,5,14	-	-	2	1
8	EC-PCC-228	Simulation Lab	4,5,14	-	-	2	1
9	EC-PCC-229	Digital Design Lab through Verilog	4,5,14	-	-	2	1
<b>TOTAL</b>				<b>15</b>	<b>02</b>	<b>08</b>	<b>21</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-201	Gender Sensitization Lab	9,12	-	-	2	-
<b>V – Semester (III – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	EC-PCC-311	Analog and Digital Communication	2,3,8,12,13	3	1	-	4
2	EC-PCC-312	Antenna & Wave Propagation	2,3,12,13	3	-	-	3
3	EC-PCC-313	Digital Signal Processing	2,3,6,12,13	3	-	-	3
4	EC-PCC-314	Micro Processors & Micro Controllers	2,3,7,12,13	3	-	-	3
5	EC-PCC-315	Internet of Things	2,3,6,7,12,13	3	-	-	3
6	EC-PCC-316	Analog and Digital Communication Lab	4,5,14	-	-	2	1
7	EC-PCC-317	Digital Signal Processing Lab	4,5,14	-	-	2	1
8	EC-PCC-318	Micro Processors & Micro Controllers Lab	4,5,14	-	-	2	1
9	EC-PCC-319	Internet of Things Lab	4,5,14	-	-	2	1
<b>TOTAL</b>				<b>15</b>	<b>01</b>	<b>8</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-311	Employability Skills - I	9,10	3	-	-	-
11	MC-312	Summer Internship - I	1 to 14	-	-	-	-
<b>VI – Semester (III – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	EC-PCC-321	Microwave Engineering	2,3,12,13	3	-	-	3
2	EC-PCC-322	VLSI Design	2,3,7,12,13	3	-	-	3
3	EC-PCC-323	Artificial Intelligence	1,2,3,6,12,13	3	-	-	3
4	<b>Professional Elective – I</b>			3	-	-	3
	EC-PEC-301	C: Information Theory & Coding	2,3,8,12,13				
	EC-PEC-302	D: Data Mining and Analytics	1,2,3,5,12				
	EC-PEC-303	P: Digital Image Processing	2,5,12,13				
	EC-PEC-304	S: Operating Systems	1,2,12				
5	<b>Open Elective – I</b>			3	-	-	3
	OEC-301	CE: Disaster Management	2,7,8,12				
	OEC-302	ME: Fundamentals of Operation Research	1,2,12				
	OEC-303	ECE: Electronic Measurements and Instrumentation	1,2,12				
	OEC-304	CSE: Java Programming	1,2,3,5,12				

  
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	OEC-305	HSMC: Indian Culture and Constitution	8,12				
6	EC-PCC-324	Microwave Engineering Lab	4,5,14	-	-	2	1
7	EC-PCC-325	VLSI Design Lab	4,5,14	-	-	2	1
8	EC-PCC-326	Artificial Intelligence Lab	4,5,14	-	-	2	1
9	HSMC-301	Advanced English Communication Skills Lab	5,10	1	-	2	2
<b>TOTAL</b>				<b>16</b>	<b>-</b>	<b>08</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
10	MC-321	Employability Skills - II	9,10	3	-	-	-
<b>VII – Semester (IV – B.Tech. – I - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	EC-PCC-411	Data Communication & Computer Networks	2,12,13	3	-	-	3
2	<b>Professional Elective – II</b>			3	-	-	3
	EC-PEC-401	C: Satellite Communications	2,3,6,12,13				
	EC-PEC-405	D: Machine Learning and Data Sciences	2,3,6,12,13				
	EC-PEC-409	P: Embedded Systems	2,3,5,7,12,13				
	EC-PEC-413	S: Cyber-Physical Systems	2,3,5,6,12,13				
3	<b>Professional Elective – III</b>			3	-	-	3
	EC-PEC-402	C: Radar Engineering	2,3,7,12,13				
	EC-PEC-406	D: Blockchain Technology	2,3,5,6,12,13				
	EC-PEC-410	P: Low Power VLSI Design	2,3,4,12,13				
	EC-PEC-414	S: Digital Marketing	2,3,5,6,8,12				
4	<b>Professional Elective – IV</b>			3	-	-	3
	EC-PEC-403	C: Cellular and Mobile Communications	2,3,6,12,13				
	EC-PEC-407	D: FPGA – CPLD Architectures	2,3,6,12,13				
	EC-PEC-411	P: Cyber Security	2,4,5,6,8,12,13				
	EC-PEC-415	S: Application Specific Integrated Circuits	2,3,4,12,13				
5	<b>Open Elective – II</b>			3	-	-	3
	OEC-401	CE: Environmental Impact Assessment	6,7,10,12				
	OEC-403	ME: Non-Conventional Energy Sources	6,7,12				
	OEC-405	ECE: Principles of Communication Systems	1,2,3,12				
	OEC-407	CSE: Database Management Systems	1,2,3,5,12				
	OEC-409	HSMC: Intellectual Property Rights	1,6,8,10,12				
6	HSMC-402	Technical Writing Skills Lab	5,10	-	-	2	1
7	EC-PCC-412	Data Communication & Computer Networks Lab	4,5,14	-	-	2	1
8	EC-PRJ-413	<b>Project – I</b>	1 to 14	-	-	6	3
<b>TOTAL</b>				<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>
<b>Mandatory Course (Non-Credit)</b>							
9	MC-411	Summer Internship - II	1 to 14	-	-	-	-
<b>VIII – Semester (IV – B.Tech. – II - Semester)</b>							
S. No.	Subject Code	Subject	POs	Hours Per Week			Credits
				L	T	P	
1	HSMC-401	Management, Economics and Accountancy	11,12	3	-	-	3
2	<b>Professional Elective – V</b>			3	-	-	3
	EC-PEC-404	C: Wireless Communications	2,3,5,8,12,13				
	EC-PEC-408	D: Virtual Reality	1,2,3,4,5,6				
	EC-PEC-412	P: Quantum Computing	1,2,3,5,12,13				
	EC-PEC-416	S: Software Defined Radio	2,3,5,7,12,13				
3	<b>Open Elective – III</b>			3	-	-	3
	OEC-402	CE: Green Building Technologies	1,2,7,12				
	OEC-404	ME: Fundamentals of Robotics	1,2,5,12				
	OEC-406	ECE: Fundamentals of Embedded Systems	1,2,3,12				
	OEC-408	CSE: Web Technologies	2,3,5,6,12				
	OEC-410	HSMC: Principles of Entrepreneurship	7,8,9,11,12				
4	EC-PRJ-421	<b>Project - II</b>	1 to 14	-	-	22	11
<b>TOTAL</b>				<b>9</b>	<b>-</b>	<b>22</b>	<b>20</b>

  
 Principal  
**CMR INSTITUTE OF TECHNOLOGY**  
 Kandlakoya (V), Medchal Road,  
 Hyderabad-501 401.

Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4
BSC	Applied Physics	4	BSC	Engineering Chemistry	3
HSMC	English for Engineers	2	ESC	Basic Electrical & Electronics Engineering	3
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3
ESC	Computer Aided Engineering Graphics	1.5	BSC	Engineering Chemistry Lab	1.5
BSC	Applied Physics Lab	1.5	ESC	Basic Electrical & Electronics Engineering Lab	1.5
HSMC	English Language and Communication Skills Lab	1.5	ESC	Data Structures through C Lab	1.5
ESC	Problem Solving with C Programming Lab	1.5	ESC	IT & Engineering Workshop Practice	1.5
MC	NSS / Physical Education / Yoga	-	MC	Environmental Sciences	-
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits
BSC	Statistical Foundations for Computer Science	4	PCC	Automata and Compiler Design	3
ESC	Discrete Mathematics & Graph Theory	3	PCC	Design & Analysis of Algorithms	3
ESC	Digital Logic Design and Computer Organization	3	PCC	OOP through Java	3
PCC	Database Management Systems	3	PCC	Computer Networks	3
PCC	Python Programming	3	PCC	Operating Systems	3
PCC	Digital Logic Design and Computer Organization Lab	1.5	PCC	OOP through Java Lab	1.5
PCC	Database Management Systems Lab	1	PCC	Operating Systems (Linux)Lab	1.5
PCC	Python Programming Lab	1	BSC	Aptitude and critical thinking skills Lab	1.5
HSMC	Business Communication Skills Lab	1.5	BSC	Social Innovation Lab	1.5
MC	Gender Sensitization Lab	-	MC	Indian Culture and Constitution	-
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits
PCC	Software Design and Engineering	3	PCC	IoT with Cloud Computing	3
PCC	Data Mining and Data Analytics	3	PCC	Machine Learning and Data Science	3
PCC	Information and Cyber Security	3	PCC	Full Stack Web Development	3
PCC	Artificial Intelligence	3	<b>PEC</b>	<b>Professional Elective – II</b>	3
<b>PEC</b>	<b>Professional Elective – I</b>	3		Computer Vision	
	Soft Computing			Blockchain and Cryptocurrency	
	Gamification			Augmented and Virtual Reality	
	Digital marketing		<b>OEC</b>	<b>Open Elective – I</b>	3
PCC	Data Mining and Data Analytics Lab	1		CE: Disaster Management	
PCC	Information and Cyber Security Lab	1		ME: Robotics	
PCC	Artificial Intelligence Lab	1		ECE: Electronic Measurements and Instrumentation	
PCC	Automated Testing Tools (Selenium)Lab	2		CSE: Java Programming	
PRJ	Summer Internship	1	PCC	IoT with Cloud Computing Lab	1.5
MC	Coding Skills	-	PCC	Machine Learning and Data Science Lab	1
Category	B.Tech. – VII– Semester(19)	Credits	PCC <th>Full Stack Web Development Lab</th> <th>1.5</th>	Full Stack Web Development Lab	1.5
HSMC	Business Economics	3	HSMC	Advanced English Communication Skills Lab	2
PCC	Go Programming	3	MC	Human Values and Professional Ethics	-
<b>PEC</b>	<b>Professional Elective – III</b>	3	<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>
	Natural Language Processing		<b>PEC</b>	<b>Professional Elective – V</b>	3
	Robotic Process Automation			Genetic Algorithms and Applications	
	Computer Forensics			Advanced Algorithms	
<b>PEC</b>	<b>Professional Elective – IV</b>	3		Nature Inspired Computing	
	Neural Networks and Deep Learning		<b>PEC</b>	<b>Professional Elective – VI</b>	3
	Quantum Computing			Cognitive Computing	
	Software Process & Project Management			Information Storage and Retrieval	
<b>OEC</b>	<b>Open Elective – II</b>	3		Ad-hoc & Sensor Networks	
	CE: Green Building Technologies		<b>OEC</b>	<b>Open Elective – III</b>	3
	ME: Drones			CE: Intellectual Property Rights	
	ECE: 5G Technologies			ME: Principles of Entrepreneurship	
	CSE: Database Management Systems			ECE: Precision Agriculture	
PCC	Go Programming Lab	1		CSE: Web Technologies	
PRJ	Industry Oriented Mini-Project	3	PRJ	Major Project	10
<b>TOTAL CREDITS</b>					<b>160</b>



Principal



Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4
BSC	Engineering Chemistry	3	BSC	Applied Physics	4
ESC	Basic Electrical & Electronics Engineering	3	HSMC	English for Engineers	2
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3
BSC	<i>Engineering Chemistry Lab</i>	1.5	ESC	<i>Computer Aided Engineering Graphics</i>	1.5
ESC	<i>Basic Electrical &amp; Electronics Engineering Lab</i>	1.5	BSC	<i>Applied Physics Lab</i>	1.5
ESC	<i>Problem Solving with C Programming Lab</i>	1.5	HSMC	<i>English Language and Communication Skills Lab</i>	1.5
ESC	<i>IT &amp; Engineering Workshop Practice</i>	1.5	ESC	<i>Data Structures through C Lab</i>	1.5
MC	<i>NSS / Physical Education / Yoga(MC)</i>	-	MC	<i>Environmental Sciences(MC)</i>	-
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits
BSC	Statistical Foundations for Computer Science	4	PCC	Automata and Compiler Design	3
ESC	Discrete Mathematics & Graph Theory	3	PCC	Design & Analysis of Algorithms	3
ESC	Digital Logic Design and Computer Organization	3	PCC	OOP through Java	3
PCC	Database Management Systems	3	PCC	Computer Networks	3
PCC	Python Programming	3	PCC	Operating Systems	3
PCC	<i>Digital Logic Design and Computer Organization Lab</i>	1.5	PCC	<i>OOP through Java Lab</i>	1.5
PCC	<i>Database Management Systems Lab</i>	1	PCC	<i>Operating Systems (Linux) Lab</i>	1.5
PCC	<i>Python Programming Lab</i>	1	BSC	<i>Aptitude and critical thinking skills Lab</i>	1.5
HSMC	<i>Business Communication Skills Lab</i>	1.5	BSC	<i>Social Innovation Lab</i>	1.5
MC	<i>Gender Sensitization Lab</i>	-	MC	<i>Indian Culture and Constitution</i>	-
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits
PCC	Software Design and Engineering	3	PCC	IoT with Cloud Computing	3
PCC	Data Mining and Data Analytics	3	PCC	Machine Learning and Data Science	3
PCC	Information and Cyber Security	3	PCC	Full Stack Web Development	3
PCC	Artificial Intelligence	3	<b>PEC</b>	<b>Professional Elective – II</b>	3
<b>PEC</b>	<b>Professional Elective – I</b>	3		Computer Vision	
	Soft Computing			Blockchain and Cryptocurrency	
	Gamification			Augmented and Virtual Reality	
	Digital marketing		<b>OEC</b>	<b>Open Elective – I</b>	3
PCC	<i>Data Mining and Data Analytics Lab</i>	1		CE: Disaster Management	
PCC	<i>Information and Cyber Security Lab</i>	1		ME: Robotics	
PCC	<i>Artificial Intelligence Lab</i>	1		ECE: Electronic Measurements and Instrumentation	
PCC	<i>Automated Testing Tools (Selenium) Lab</i>	2		CSE: Java Programming	
PRJ	<i>Summer Internship</i>	1	PCC	<i>IoT with Cloud Computing Lab</i>	1.5
MC	<i>Coding Skills</i>	-	PCC	<i>Machine Learning and Data Science Lab</i>	1
Category	B.Tech. – VII– Semester(19)	Credits	Category	B.Tech. – VIII – Semester(19)	Credits
HSMC	Business Economics	3	PCC	<i>Full Stack Web Development Lab</i>	1.5
PCC	Go Programming	3	HSMC	<i>Advanced English Communication Skills Lab</i>	2
<b>PEC</b>	<b>Professional Elective – III</b>	3	MC	<i>Human Values and Professional Ethics</i>	-
	Natural Language Processing		<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>
	Robotic Process Automation		<b>PEC</b>	<b>Professional Elective – V</b>	3
	Document Analysis and Speech Recognition			Genetic Algorithms and Applications	
<b>PEC</b>	<b>Professional Elective – IV</b>	3		AI in Healthcare	
	Neural Networks and Deep Learning			Nature Inspired Computing	
	Pattern Recognition and Anomaly Detection		<b>PEC</b>	<b>Professional Elective – VI</b>	3
	Software Process & Project Management			Cognitive Computing	
<b>OEC</b>	<b>Open Elective – II</b>	3		Artificial Immune System	
	CE: Green Building Technologies			AI in Robotics	
	ME: Drones		<b>OEC</b>	<b>Open Elective – III</b>	3
	ECE: 5G Technologies			CE: Intellectual Property Rights	
	CSE: Database Management Systems			ME: Principles of Entrepreneurship	
PCC	<i>Go Programming Lab</i>	1		ECE: Precision Agriculture	
PRJ	<i>Industry Oriented Mini-Project</i>	3	PRJ	<i>Major Project</i>	10
<b>TOTAL CREDITS</b>					<b>160</b>



Principal

Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4
BSC	Engineering Chemistry	3	BSC	Applied Physics	4
ESC	Basic Electrical & Electronics Engineering	3	HSMC	English for Engineers	2
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3
BSC	Engineering Chemistry Lab	1.5	ESC	Computer Aided Engineering Graphics	1.5
ESC	Basic Electrical & Electronics Engineering Lab	1.5	BSC	Applied Physics Lab	1.5
ESC	Problem Solving with C Programming Lab	1.5	HSMC	English Language and Communication Skills Lab	1.5
ESC	IT & Engineering Workshop Practice	1.5	ESC	Data Structures through C Lab	1.5
MC	NSS / Physical Education / Yoga(MC)	-	MC	Environmental Sciences(MC)	-
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits
BSC	Statistical Foundations for Computer Science	4	PCC	Automata and Compiler Design	3
ESC	Discrete Mathematics & Graph Theory	3	PCC	Design & Analysis of Algorithms	3
ESC	Digital Logic Design and Computer Organization	3	PCC	OOP through Java	3
PCC	Database Management Systems	3	PCC	Computer Networks	3
PCC	Python Programming	3	PCC	Operating Systems	3
PCC	Digital Logic Design and Computer Organization Lab	1.5	PCC	OOP through Java Lab	1.5
PCC	Database Management Systems Lab	1	PCC	Operating Systems (Linux) Lab	1.5
PCC	Python Programming Lab	1	BSC	Aptitude and critical thinking skills Lab	1.5
HSMC	Business Communication Skills Lab	1.5	BSC	Social Innovation Lab	1.5
MC	Gender Sensitization Lab	-	MC	Indian Culture and Constitution	-
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits
PCC	Software Design and Engineering	3	PCC	IoT with Cloud Computing	3
PCC	Data Mining and Data Analytics	3	PCC	Machine Learning and Data Science	3
PCC	Information and Cyber Security	3	PCC	Full Stack Web Development	3
PCC	Artificial Intelligence	3	<b>PEC</b>	<b>Professional Elective – II</b>	3
<b>PEC</b>	<b>Professional Elective – I</b>	3		Computer Vision	
	Soft Computing			Blockchain and Cryptocurrency	
	Gamification			Augmented and Virtual Reality	
	Digital marketing		<b>OEC</b>	<b>Open Elective – I</b>	3
PCC	Data Mining and Data Analytics Lab	1		CE: Disaster Management	
PCC	Information and Cyber Security Lab	1		ME: Robotics	
PCC	Artificial Intelligence Lab	1		ECE: Electronic Measurements and Instrumentation	
PCC	Automated Testing Tools (Selenium) Lab	2		CSE: Java Programming	
PRJ	Summer Internship	1	PCC	IoT with Cloud Computing Lab	1.5
MC	Coding Skills	-	PCC	Machine Learning and Data Science Lab	1
Category	B.Tech. – VII– Semester(19)	Credits	Category	B.Tech. – VIII – Semester(19)	Credits
HSMC	Business Economics	3	PCC	Full Stack Web Development Lab	1.5
PCC	Go Programming	3	HSMC	Advanced English Communication Skills Lab	2
<b>PEC</b>	<b>Professional Elective – III</b>	3	MC	Human Values and Professional Ethics	-
	Data Visualization Techniques		<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>
	Robotic Process Automation		<b>PEC</b>	<b>Professional Elective – V</b>	3
	Web and Social Media Analytics			Predictive Analytics	
<b>PEC</b>	<b>Professional Elective – IV</b>	3		Data Streaming Techniques	
	Data Optimization Techniques			Healthcare Data Analytics	
	Quantum Computing		<b>PEC</b>	<b>Professional Elective – VI</b>	3
	Software Process & Project Management			Mining Massive Datasets	
<b>OEC</b>	<b>Open Elective – II</b>	3		Information Storage and Retrieval	
	CE: Green Building Technologies			Time Series Analysis and Forecasting	
	ME: Drones		<b>OEC</b>	<b>Open Elective – III</b>	3
	ECE: 5G Technologies			CE: Intellectual Property Rights	
	CSE: Database Management Systems			ME: Principles of Entrepreneurship	
PCC	Go Programming Lab	1		ECE: Precision Agriculture	
PRJ	Industry Oriented Mini-Project	3	PRJ	CSE: Web Technologies	
<b>TOTAL CREDITS</b>					<b>160</b>



Principal



Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits	
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4	
BSC	Engineering Chemistry	3	BSC	Applied Physics	4	
ESC	Basic Electrical & Electronics Engineering	3	HSMC	English for Engineers	2	
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3	
BSC	<i>Engineering Chemistry Lab</i>	1.5	ESC	<i>Computer Aided Engineering Graphics</i>	1.5	
ESC	<i>Basic Electrical &amp; Electronics Engineering Lab</i>	1.5	BSC	<i>Applied Physics Lab</i>	1.5	
ESC	<i>Problem Solving with C Programming Lab</i>	1.5	HSMC	<i>English Language and Communication Skills Lab</i>	1.5	
ESC	<i>IT &amp; Engineering Workshop Practice</i>	1.5	ESC	<i>Data Structures through C Lab</i>	1.5	
MC	<i>NSS / Physical Education / Yoga(MC)</i>	-	MC	<i>Environmental Sciences(MC)</i>	-	
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits	
BSC	Statistical Foundations for Computer Science	4	PCC	Automata and Compiler Design	3	
ESC	Discrete Mathematics & Graph Theory	3	PCC	Design & Analysis of Algorithms	3	
ESC	Digital Logic Design and Computer Organization	3	PCC	OOP through Java	3	
PCC	Database Management Systems	3	PCC	Computer Networks	3	
PCC	Python Programming	3	PCC	Operating Systems	3	
PCC	<i>Digital Logic Design and Computer Organization Lab</i>	1.5	PCC	<i>OOP through Java Lab</i>	1.5	
PCC	<i>Database Management Systems Lab</i>	1	PCC	<i>Operating Systems (Linux) Lab</i>	1.5	
PCC	<i>Python Programming Lab</i>	1	BSC	<i>Aptitude and critical thinking skills Lab</i>	1.5	
HSMC	<i>Business Communication Skills Lab</i>	1.5	BSC	<i>Social Innovation Lab</i>	1.5	
MC	<i>Gender Sensitization Lab</i>	-	MC	<i>Indian Culture and Constitution</i>	-	
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits	
PCC	Software Design and Engineering	3	PCC	IoT with Cloud Computing	3	
PCC	Data Mining and Data Analytics	3	PCC	Machine Learning and Data Science	3	
PCC	Information and Cyber Security	3	PCC	Full Stack Web Development	3	
PCC	Artificial Intelligence	3	<b>PEC</b>	<b>Professional Elective – II</b>	3	
<b>PEC</b>	<b>Professional Elective – I</b>	3				Computer Vision
						Soft Computing
						Gamification
			Digital marketing			
PCC	<i>Data Mining and Data Analytics Lab</i>	1	<b>OEC</b>	<b>Open Elective – I</b>	3	
PCC	<i>Information and Cyber Security Lab</i>	1				CE: Disaster Management
PCC	<i>Artificial Intelligence Lab</i>	1				ME: Robotics
PCC	<i>Automated Testing Tools (Selenium) Lab</i>	2				ECE: Electronic Measurements and Instrumentation
PRJ	<i>Summer Internship</i>	1	PCC	<i>IoT with Cloud Computing Lab</i>	1.5	
MC	<i>Coding Skills</i>	-	PCC	<i>Machine Learning and Data Science Lab</i>	1	
Category	B.Tech. – VII– Semester(19)	Credits	Category	B.Tech. – VIII – Semester(19)	Credits	
HSMC	Business Economics	3	PCC	<i>Full Stack Web Development Lab</i>	1.5	
PCC	Go Programming	3	HSMC	<i>Advanced English Communication Skills Lab</i>	2	
<b>PEC</b>	<b>Professional Elective – III</b>	3	<b>MC</b>	<b>Human Values and Professional Ethics</b>	-	
						Natural Language Processing
						Robotic Process Automation
						Document Analysis and Speech Recognition
<b>PEC</b>	<b>Professional Elective – IV</b>	3	<b>PEC</b>	<b>Professional Elective – V</b>	3	
						Neural Networks and Deep Learning
						Pattern Recognition and Anomaly Detection
						Software Process & Project Management
<b>OEC</b>	<b>Open Elective – II</b>	3	<b>PEC</b>	<b>Professional Elective – VI</b>	3	
						CE: Green Building Technologies
						ME: Drones
						ECE: 5G Technologies
PCC	<i>Go Programming Lab</i>	1	<b>OEC</b>	<b>Open Elective – III</b>	3	
						CSE: Database Management Systems
PRJ	<i>Industry Oriented Mini-Project</i>	3	PRJ	<i>Major Project</i>	10	
<b>TOTAL CREDITS</b>					<b>160</b>	



Principal

## Department of Artificial Intelligence and Data Science – Course Structure: R20

Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits									
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4									
BSC	Engineering Chemistry	3	BSC	Applied Physics	4									
ESC	Basic Electrical & Electronics Engineering	3	HSMC	English for Engineers	2									
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3									
BSC	Engineering Chemistry Lab	1.5	ESC	Computer Aided Engineering Graphics	1.5									
ESC	Basic Electrical & Electronics Engineering Lab	1.5	BSC	Applied Physics Lab	1.5									
ESC	Problem Solving with C Programming Lab	1.5	HSMC	English Language and Communication Skills Lab	1.5									
ESC	IT & Engineering Workshop Practice	1.5	ESC	Data Structures through C Lab	1.5									
MC	NSS / Physical Education / Yoga(MC)	-	MC	Environmental Sciences(MC)	-									
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits									
BSC	Statistical Foundations for Computer Science	4	PCC	Automata and Compiler Design	3									
ESC	Discrete Mathematics & Graph Theory	3	PCC	Design & Analysis of Algorithms	3									
ESC	Digital Logic Design and Computer Organization	3	PCC	OOP through Java	3									
PCC	Database Management Systems	3	PCC	Computer Networks	3									
PCC	Python Programming	3	PCC	Operating Systems	3									
PCC	Digital Logic Design and Computer Organization Lab	1.5	PCC	OOP through Java Lab	1.5									
PCC	Database Management Systems Lab	1	PCC	Operating Systems (Linux) Lab	1.5									
PCC	Python Programming Lab	1	BSC	Aptitude and critical thinking skills Lab	1.5									
HSMC	Business Communication Skills Lab	1.5	BSC	Social Innovation Lab	1.5									
MC	Gender Sensitization Lab	-	MC	Indian Culture and Constitution	-									
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits									
PCC	Software Design and Engineering	3	PCC	IoT with Cloud Computing	3									
PCC	Data Mining and Data Analytics	3	PCC	Machine Learning and Data Science	3									
PCC	Information and Cyber Security	3	PCC	Full Stack Web Development	3									
PCC	Artificial Intelligence	3	<b>PEC</b>	<b>Professional Elective – II</b> Computer Vision Blockchain and Cryptocurrency Augmented and Virtual Reality	3									
<b>PEC</b>	<b>Professional Elective – I</b> Soft Computing Gamification Digital marketing	3				<b>OEC</b>	<b>Open Elective – I</b> CE: Disaster Management ME: Robotics ECE: Electronic Measurements and Instrumentation CSE: Java Programming	3						
									<b>PCC</b>	Data Mining and Data Analytics Lab	1			
												<b>PCC</b>	Information and Cyber Security Lab	1
			<b>PCC</b>	Artificial Intelligence Lab	1									
<b>PCC</b>	Automated Testing Tools (Selenium) Lab	2												
<b>MC</b>	Coding Skills	-	<b>PCC</b>	IoT with Cloud Computing Lab	1.5									
<b>Category</b>	<b>B.Tech. – VII– Semester(19)</b>	<b>Credits</b>	<b>PCC</b>	Machine Learning and Data Science Lab	1									
HSMC	Business Economics	3	<b>PCC</b>	Full Stack Web Development Lab	1.5									
PCC	Go Programming	3	<b>HSMC</b>	Advanced English Communication Skills Lab	2									
<b>PEC</b>	<b>Professional Elective – III</b> Natural Language Processing Robotic Process Automation Document Analysis and Speech Recognition	3	<b>MC</b>	Human Values and Professional Ethics	-									
			<b>PEC</b>	<b>Professional Elective – IV</b> Data Optimization Techniques Quantum Computing Software Process & Project Management	3	<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>						
						<b>OEC</b>	<b>Open Elective – II</b> CE: Green Building Technologies ME: Drones ECE: 5G Technologies CSE: Database Management Systems	3	<b>PEC</b>	<b>Professional Elective – V</b> Genetic Algorithms and Applications AI in Healthcare Nature Inspired Computing	3			
<b>PEC</b>	<b>Professional Elective – VI</b> Mining Massive Datasets Information Storage and Retrieval Time Series Analysis and Forecasting	3												
			<b>OEC</b>	<b>Open Elective – III</b> CE: Intellectual Property Rights ME: Principles of Entrepreneurship ECE: Precision Agriculture CSE: Web Technologies	3									
<b>PCC</b>	Go Programming Lab	1												
						<b>PRJ</b>	Industry Oriented Mini-Project	3						
						<b>PRJ</b>	Major Project	10						
<b>TOTAL CREDITS</b>					<b>160</b>									



Principal

Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4
BSC	Applied Physics	4	BSC	Engineering Chemistry	3
HSMC	English for Engineers	2	ESC	Basic Electrical & Electronics Engineering	3
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3
ESC	Computer Aided Engineering Graphics	1.5	BSC	Engineering Chemistry Lab	1.5
BSC	Applied Physics Lab	1.5	ESC	Basic Electrical & Electronics Engineering Lab	1.5
HSMC	English Language and Communication Skills Lab	1.5	ESC	Data Structures through C Lab	1.5
ESC	Problem Solving with C Programming Lab	1.5	ESC	IT & Engineering Workshop Practice	1.5
MC	NSS / Physical Education / Yoga	-	MC	Environmental Sciences	-
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits
BSC	Numerical Methods and Complex Analysis	4	PCC	Pulse & Digital Circuits	3
ESC	Networks and Measurements	3	PCC	Linear & Digital IC Applications	3
ESC	Probability Theory & Stochastic Processes	3	PCC	Digital Design and Computer Organization	3
PCC	Analog Electronics	3	PCC	Electromagnetic Waves & Transmission Lines	3
PCC	Signals and Systems	3	PCC	Control Systems	3
PCC	Analog Electronics and Networks Lab	1	PCC	Pulse & Digital Circuits Lab	1.5
PCC	Simulation Lab	1	PCC	Linear & Digital IC Applications Lab	1.5
HSMC	Business Communication Skills Lab	1.5	PCC	Digital Design Lab through Verilog	1.5
BSC	Social Innovation Lab	1.5	BSC	Aptitude and critical thinking skills Lab	1.5
MC	Gender Sensitization Lab	-	MC	Indian Culture and Constitution	-
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits
PCC	Analog and Digital Communication	3	PCC	IoT with Cloud Computing	3
PCC	Antenna & Wave Propagation	3	PCC	VLSI Design	3
PCC	Digital Signal Processing	3	PCC	Artificial Intelligence	3
PCC	Micro Processors & Micro Controllers	3	<b>PEC</b>	<b>Professional Elective – II</b>	3
<b>PEC</b>	<b>Professional Elective – I</b>	3		Cellular and Mobile Communications	
	Data Communication & Computer Networks			Embedded Systems	
	Information Theory & Coding			Data Mining and Data Analytics	
	Digital Marketing		<b>OEC</b>	<b>Open Elective – I</b>	3
PCC	Analog and Digital Communication Lab	1		CE: Disaster Management	
PCC	Digital Signal Processing Lab	1		ME: Robotics	
PCC	Micro Processors & Micro Controllers Lab	1.5		ECE: Electronic Measurements and Instrumentation	
ESC	Scripting Languages Lab	1.5		CSE: Java Programming	
PRJ	Summer Internship	1	PCC	IoT with Cloud Computing Lab	1.5
MC	Coding Skills	-	PCC	VLSI Design Lab	1.5
Category	B.Tech. – VII– Semester(19)	Credits	Category	B.Tech. – VIII – Semester(19)	Credits
HSMC	Business Economics	3	PCC	Artificial Intelligence Lab	1
PCC	Microwave Engineering	3	HSMC	Advanced English Communication Skills Lab	2
<b>PEC</b>	<b>Professional Elective – III</b>	3	MC	Human Values and Professional Ethics	-
	Digital Image Processing		<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>
	IoT Architecture and Protocols		<b>PEC</b>	<b>Professional Elective – V</b>	3
	Machine Learning and Data Science			5G Communication Technologies	
<b>PEC</b>	<b>Professional Elective – IV</b>	3		Software Defined Radio	
	Radars and Satellite Communications			Neural Networks and Deep Learning	
	Smart Sensors and Networking		<b>PEC</b>	<b>Professional Elective – VI</b>	3
	Augmented and Virtual Reality			Wireless Communications	
<b>OEC</b>	<b>Open Elective – II</b>	3		Industry 4.0	
	CE: Green Building Technologies			Information and Cyber Security	
	ME: Drones		<b>OEC</b>	<b>Open Elective – III</b>	3
	ECE: 5G Technologies			CE: Intellectual Property Rights	
	CSE: Database Management Systems			ME: Principles of Entrepreneurship	
PCC	Microwave Engineering Lab	1		ECE: Precision Agriculture	
PRJ	Industry Oriented Mini-Project	3	PRJ	CSE: Web Technologies	
			PRJ	Major Project	10
<b>TOTAL CREDITS</b>					<b>160</b>



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Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4
BSC	Engineering Chemistry	3	BSC	Applied Physics	4
ESC	Basic Electrical & Electronics Engineering	3	HSMC	English for Engineers	2
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3
BSC	<i>Engineering Chemistry Lab</i>	1.5	ESC	<i>Computer Aided Engineering Graphics</i>	1.5
ESC	<i>Basic Electrical &amp; Electronics Engineering Lab</i>	1.5	BSC	<i>Applied Physics Lab</i>	1.5
ESC	<i>Problem Solving with C Programming Lab</i>	1.5	HSMC	<i>English Language and Communication Skills Lab</i>	1.5
ESC	<i>IT &amp; Engineering Workshop Practice</i>	1.5	ESC	<i>Data Structures through C Lab</i>	1.5
MC	<i>NSS / Physical Education / Yoga(MC)</i>	-	MC	<i>Environmental Sciences(MC)</i>	-
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits
ESC	Building Materials, Construction & Planning	3	BSC	Numerical and Statistical Methods	4
ESC	Engineering Mechanics	3	PCC	Engineering Geology	3
PCC	Strength of Materials – I	3	PCC	Strength of Materials – II	3
PCC	Fluid Mechanics	3	PCC	Hydraulics & Hydraulic Machinery	3
PCC	Surveying	3	PCC	Structural Analysis	3
PCC	<i>Surveying Lab</i>	1.5	PCC	Strength of Materials Lab	1
ESC	<i>Computer Aided Civil Engineering Drawing Lab</i>	1.5	PCC	FM & HHM Lab	1.5
HSMC	<i>Business Communication Skills Lab</i>	1.5	PCC	Engineering Geology Lab	1
BSC	<i>Social Innovation Lab</i>	1.5	BSC	Aptitude and critical thinking skills Lab	1.5
MC	<i>Gender Sensitization Lab</i>	-	MC	<i>Indian Culture and Constitution</i>	-
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits
PCC	Concrete Technology	3	PCC	Environmental Engineering	3
PCC	Geo-Technical Engineering	3	PCC	Design of Reinforced Concrete Structures	3
PCC	Water Resources Engineering	3	PCC	Artificial Intelligence and Robotics	3
PCC	Transportation Engineering	3	<b>PEC</b>	<b>Professional Elective – II</b>	3
<b>PEC</b>	<b>Professional Elective – I</b>	3		Foundation Engineering	
	Construction Technology & Management			Pavement Design	
	Advanced Structural Analysis			Irrigation Engineering	
	Modern Transportation Engineering		<b>OEC</b>	<b>Open Elective – I</b>	3
PCC	Concrete Technology Lab	1		CE: Disaster Management	
PCC	Geo-Technical Engineering Lab	1.5		ME: Robotics	
PCC	Transportation Engineering Lab	1.5		ECE: Electronic Measurements and Instrumentation	
PCC	Water Distribution Analysis and Design Software Lab (Using Water GEMS)	1		CSE: Java Programming	
PRJ	<i>Summer Internship</i>	1	PCC	<i>Environmental Engineering Lab</i>	1.5
MC	<i>Coding Skills</i>	-	PCC	<i>Artificial Intelligence and Robotics Lab</i>	1
Category	B.Tech. – VII– Semester(19)	Credits	Category	B.Tech. – VIII – Semester(19)	Credits
HSMC	Business Economics	3	PCC	<i>Computer Aided Civil Engineering Design Lab</i>	1.5
PCC	Estimation & Costing	3	HSMC	<i>Advanced English Communication Skills Lab</i>	2
<b>PEC</b>	<b>Professional Elective – III</b>	3	MC	<i>Human Values and Professional Ethics</i>	-
	Watershed Management		<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>
	Design of Steel Structures		<b>PEC</b>	<b>Professional Elective – V</b>	3
	Intelligence Transport Systems			Ground Improvement Techniques	
<b>PEC</b>	<b>Professional Elective – IV</b>	3		Prestressed Concrete	
	Municipal and Hazardous Waste Management			Traffic Engineering	
	Finite Element Analysis		<b>PEC</b>	<b>Professional Elective – VI</b>	3
	Remote Sensing and GIS			Earthen Dams and Slopes Stability	
<b>OEC</b>	<b>Open Elective – II</b>	3		Repair and Rehabilitation of Structures	
	CE: Green Building Technologies			Urban Public Transportation System	
	ME: Drones		<b>OEC</b>	<b>Open Elective – III</b>	3
	ECE: 5G Technologies			CE: Intellectual Property Rights	
	CSE: Database Management Systems			ME: Principles of Entrepreneurship	
PCC	<i>BIM Technologies Lab</i>	1		ECE: Precision Agriculture	
PRJ	<i>Industry Oriented Mini-Project</i>	3	PRJ	<i>Major Project</i>	10
<b>TOTAL CREDITS</b>					<b>160</b>



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Category	B.Tech. – I – Semester (19)	Credits	Category	B.Tech. – II – Semester (19)	Credits
BSC	Linear Algebra & Calculus	4	BSC	Advanced Calculus	4
BSC	Engineering Chemistry	3	BSC	Applied Physics	4
ESC	Basic Electrical & Electronics Engineering	3	HSMC	English for Engineers	2
ESC	Problem Solving with C Programming	3	ESC	Data Structures through C	3
BSC	<i>Engineering Chemistry Lab</i>	1.5	ESC	<i>Computer Aided Engineering Graphics</i>	1.5
ESC	<i>Basic Electrical &amp; Electronics Engineering Lab</i>	1.5	BSC	<i>Applied Physics Lab</i>	1.5
ESC	<i>Problem Solving with C Programming Lab</i>	1.5	HSMC	<i>English Language and Communication Skills Lab</i>	1.5
ESC	<i>IT &amp; Engineering Workshop Practice</i>	1.5	ESC	<i>Data Structures through C Lab</i>	1.5
MC	<i>NSS / Physical Education / Yoga(MC)</i>	-	MC	<i>Environmental Sciences(MC)</i>	-
Category	B.Tech. – III – Semester(21)	Credits	Category	B.Tech. – IV – Semester(21)	Credits
ESC	Engineering Mechanics	3	BSC	Numerical and Statistical Methods	4
ESC	Materials Engineering	3	PCC	Solid Mechanics	3
PCC	Thermodynamics	3	PCC	Fluid Mechanics & Hydraulic Machinery	3
PCC	Manufacturing Processes	3	PCC	Dynamics of Machinery	3
PCC	Kinematics of Machinery	3	PCC	Applied Thermodynamics – I	3
ESC	<i>Materials Engineering Lab</i>	1.5	PCC	Solid Mechanics Lab	1.5
PCC	<i>Manufacturing Processes Lab</i>	1.5	PCC	Fluid Mechanics & Hydraulic Machinery Lab	1
HSMC	<i>Business Communication Skills Lab</i>	1.5	PCC	Kinematics & Dynamics Lab	1
BSC	<i>Social Innovation Lab</i>	1.5	BSC	Aptitude and critical thinking skills Lab	1.5
MC	<i>Gender Sensitization Lab</i>	-	MC	<i>Indian Culture and Constitution</i>	-
Category	B.Tech. – V – Semester(21)	Credits	Category	B.Tech. – VI – Semester(21)	Credits
PCC	Instrumentation & Control systems	3	PCC	Heat Transfer	3
PCC	Machine Tools & Metrology	3	PCC	CAD/CAM	3
PCC	Design of Machine Elements	3	PCC	Operations Research	3
PCC	Applied Thermodynamics – II	3	<b>PEC</b>	<b>Professional Elective – II</b>	3
<b>PEC</b>	<b>Professional Elective – I</b>	3		Refrigeration and air conditioning	
	Automobile engineering			Unconventional machining processes	
	Industrial Engineering			Finite Element Analysis	
	Electric & Hybrid Vehicles		<b>OEC</b>	<b>Open Elective – I</b>	3
PCC	<i>Instrumentation &amp; Control systems Lab</i>	CE: Disaster Management			
PCC	<i>Mechanical Drawing Lab using CAD</i>	ME: Robotics			
PCC	<i>Applied Thermodynamics Lab</i>	ECE: Electronic Measurements and Instrumentation			
PCC	<i>Machine Tools &amp; Metrology Lab</i>	1.5	CSE: Java Programming		
PRJ	<i>Summer Internship</i>	1	PCC	<i>Heat Transfer Lab</i>	1.5
MC	<i>Coding Skills</i>	-	PCC	<i>Computer Aided Engineering Lab</i>	1
Category	B.Tech. – VII– Semester(19)	Credits	Category	B.Tech. – VIII – Semester(19)	Credits
HSMC	Business Economics	3	PCC	<i>Computer Aided Manufacturing Lab</i>	1.5
PCC	Artificial Intelligence and Robotics	3	HSMC	<i>Advanced English Communication Skills Lab</i>	2
<b>PEC</b>	<b>Professional Elective – III</b>	3	MC	<i>Human Values and Professional Ethics</i>	-
	Advanced IC Engines		<b>Category</b>	<b>B.Tech. – VIII – Semester(19)</b>	<b>Credits</b>
	Flexible manufacturing systems			<b>PEC</b>	
Production Planning & Control	Power Plant Engineering				
<b>PEC</b>	<b>Professional Elective – IV</b>	3		Product Life Cycle Management	
	Renewable Energy Sources		<b>PEC</b>	<b>Professional Elective – VI</b>	3
	Plant Layout & Material Handling			Computational Fluid Dynamics	
Design of Transmission Systems	Optimization Techniques				
<b>OEC</b>	<b>Open Elective – II</b>	3		Additive Manufacturing	
	CE: Green Building Technologies		<b>OEC</b>	<b>Open Elective – III</b>	3
	ME: Drones			CE: Intellectual Property Rights	
	ECE: 5G Technologies			ME: Principles of Entrepreneurship	
CSE: Database Management Systems	ECE: Precision Agriculture				
PCC	<i>Artificial Intelligence and Robotics Lab</i>	1	CSE: Web Technologies		
PRJ	<i>Industry Oriented Mini-Project</i>	3	PRJ	<i>Major Project</i>	10
<b>TOTAL CREDITS</b>					<b>160</b>



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**DEPARTMENT OF CIVIL ENGINEERING**

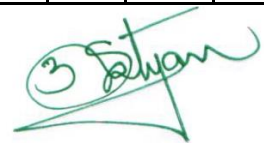
**M.Tech. (STRUCTURAL ENGINEERING) R17 COURSE STRUCTURE**

**I Year – I Semester**

Subject code	Course Title	Int.	Ext.	L	P	C
		Marks	Marks			
17SE1101CC	Theory of Elasticity	30	70	4	--	4
17SE1102CC	Structural Dynamics	30	70	4	--	4
17SE1103CC	Advanced Concrete Technology	30	70	4	--	4
17SE1104CE	Advanced Reinforced Concrete Design Soil Dynamics and Machine Foundations Fracture Mechanics of Concrete Structures Principles of Bridge Engineering	30	70	4	--	4
17SE1105CE	Experimental Stress Analysis Advanced Structural Analysis Optimization Techniques in Structural Engineering Computer Oriented Numerical Methods	30	70	4	--	4
17SE1106OE	Reliability Engineering Software Engineering E-Commerce Intellectual Property Rights	30	70	4	--	4
17SE1107CC	Advanced Concrete Laboratory	30	70	--	4	2
17SE1108CC	Seminar	100	--	--	4	2
	<b>Total</b>			<b>24</b>	<b>8</b>	<b>28</b>

**I Year – II Semester**

Subject code	Course Title	Int.	Ext.	L	P	C
		Marks	Marks			
17SE1201CC	Finite Element Methods	30	70	4	--	4
17SE1202CC	Analysis of Plates & Shells	30	70	4	--	4
17SE1203CC	Advanced Steel Design	30	70	4	--	4
17SE1204CE	Rehabilitation and Retrofitting of Structures Earthquake Resistant Design of Buildings Design of Pre stressed Concrete Structures Stability of Structures	30	70	4	--	4
17SE1205CE	Plastic Analysis and Design Design of Industrial Structures Tall buildings Design of Shells and Folded plates	30	70	4	--	4
17SE1206OE	Composite Materials Mobile Computing Social Media Intelligence Web Usability	30	70	4	--	4
17SE1207CC	CAD Laboratory	30	70	--	4	2
17SE1208CC	Seminar	100	--	--	4	2
	<b>Total</b>			<b>24</b>	<b>8</b>	<b>28</b>



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### I I Year - I Semester

Subject code	Course Title	Int. Marks	Ext. Marks	L	P	C
17SE2101CC	Comprehensive Viva-Voce	--	100	--	--	4
17SE2102CC	Project Work Review-I	100	--	--	24	12
	<b>Total</b>				<b>24</b>	<b>16</b>

### II Year - II Semester

Subject code	Course Title	Int. Marks	Ext. Marks	L	P	C
17SE2201CC	Project Work Review-II	100	--	--	8	4
17SE2202CC	Project Evaluation (Viva-Voce)	--	100	--	16	12
	<b>Total</b>				<b>24</b>	<b>16</b>



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**DEPARTMENT OF MECHANICAL ENGINEERING**

**M.Tech. (CAD/CAM) R17 COURSE STRUCTURE**

**I Year – I Semester**

Course Code	Course Title	Int. marks	Ext. marks	L	P	C
17ME1101CC	Advanced CAD	30	70	4	--	4
17ME1102CC	Computer Aided Manufacturing	30	70	4	--	4
17ME1103CC	Advanced FEM	30	70	4	--	4
17ME1104CE	Mechanical Behaviour of Materials Stress Analysis and Vibration Rapid Prototyping Technologies	30	70	4	--	4
17ME1105CE	Automation in Manufacturing Computer Aided Process Planning Performance Modeling and Analysis of Manufacturing Systems	30	70	4	--	4
17ME1106OE	Numerical Methods for Partial Differential Equations Production and Operations Management	30	70	4	--	4
17ME1107CC	Advanced CAD Laboratory	30	70	--	4	2
17ME1108CC	Seminar	100	--	--	4	2
<b>Total Credits</b>				<b>24</b>	<b>8</b>	<b>28</b>

**I Year – II Semester**

Course Code	Course Title	Int. marks	Ext. marks	L	P	C
17ME1201CC	Design for Manufacturing And Assembly	30	70	4	--	4
17ME1202CC	Flexible Manufacturing Systems	30	70	4	--	4
17ME1203CC	Industrial Robotics	30	70	4	--	4
17ME1104CE	Intelligent Manufacturing Systems Special Manufacturing Process Design Optimization	30	70	4	--	4
17ME1105CE	Advanced Mechatronics Design and Manufacturing of MEMS and Micro Systems Fuzzy Logic and Neural Networks	30	70	4	--	4
17ME1106OE	Engineering Research and Methodology Quality Engineering in Manufacturing	30	70	4	--	4
17ME1207CC	Advanced Computer Aided Manufacturing Lab	30	70	--	4	2
17ME1208CC	Seminar	100	--	--	4	2
<b>Total Credits</b>				<b>24</b>	<b>8</b>	<b>28</b>



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**I Year - I Semester**

Course Code	Course Title	Int. Marks	Ext. marks	L	P	C
17ME2101CC	Comprehensive Viva -Voce	--	100	--	--	4
17ME2102CC	Project work Review I	100	--	--	24	12
<b>Total Credits</b>				--	<b>24</b>	<b>16</b>

**II Year - II Semester**

Course Code	Course Title	Int. Marks	Ext. Marks	L	P	C
17ME2201CC	Project work Review II	100	--	--	8	4
17ME2202CC	Project Evaluation (Viva-Voce)	--	100	--	16	12
<b>Total Credits</b>				--	<b>24</b>	<b>16</b>



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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**M.Tech. (COMPUTER SCIENCE AND ENGINEERING) R 17 COURSE STRUCTURE**

**I Year – I Semester**

	<b>Course Title</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>L</b>	<b>P</b>	<b>C</b>
17CS1101CC	Data Structures and Algorithms	30	70	4	--	4
17CS1102CC	Database Internals	30	70	4	--	4
17CS1103CC	Distributed Systems	30	70	4	--	4
17CS1104CE	Network Security	30	70	4	--	4
	Android Application Development					
	Cloud Computing					
	Internet of Things					
17CS1105CE	Machine Learning	30	70	4	--	4
	Parallel and Distributed Algorithms					
	Software Architecture and Design Patterns					
	Embedded Systems					
17CS1106OE	Software Engineering	30	70	4	--	4
	E-Commerce					
	Intellectual Property Rights					
17CS1107CC	Data Structures and Algorithms Lab	30	70	--	4	2
17CS1108CC	Seminar	100	--	--	4	2
	<b>Total</b>			<b>24</b>	<b>8</b>	<b>28</b>

**I Year – II Semester**

	<b>Course Title</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>L</b>	<b>P</b>	<b>C</b>
17CS1201CC	Network Programming	30	70	4	--	4
17CS1202CC	Information Retrieval Systems	30	70	4	--	4
17CS1203CC	Internet Technologies and Services	30	70	4	--	4
17CS1204CE	Data Mining	30	70	4	--	4
	Storage Area Networks					
	Semantic Web and Social Networks					
	Cyber Security					
17CS1205CE	Big Data Analytics	30	70	4	--	4
	Soft Computing					
	Software Process and Project Management					
	Distributed Computing					
17CS1206OE	Mobile Computing	30	70	4	--	4
	Social Media Intelligence					
	Web Usability					
17CS1207CC	Internet Technologies and Services Lab	30	70	--	4	2
17CS1208CC	Seminar	100	--	--	4	2
	<b>Total</b>			<b>24</b>	<b>8</b>	<b>28</b>



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## II Year - I Semester

	Course Title	Int. Marks	Ext. Marks	L	P	C
17CS2101CC	Comprehensive Viva-Voce	--	100	--	--	4
17CS2102CC	Project Work Review-I	100	--	--	24	12
	<b>Total</b>				<b>24</b>	<b>16</b>

## II Year - II Semester

	Course Title	Int. Marks	Ext. Marks	L	P	C
17CS2201CC	Project Work Review-II	100	--	--	8	4
17CS2202CC	Project Evaluation (Viva-Voce)	--	100	--	16	12
	<b>Total</b>				<b>24</b>	<b>16</b>



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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**M.Tech. (VLSI SYSTEM DESIGN)**

**R 17 COURSE STRUCTURE**

**I Year – I Semester**

	Course Title	Int. Marks	Ext. Marks	L	P	C
17EC1101CC	VLSI Technology	30	70	4	--	4
17EC1102CC	CMOS Analog Integrated Circuit Design	30	70	4	--	4
17 EC1103CC	CMOS Digital Integrated Circuit Design	30	70	4	--	4
17EC1104CE	Digital System Design Hardware Software Co Design CPLD and FPGA Architectures and Applications	30	70	4	--	4
17EC1105CE	Algorithms for VLSI Design Automation Embedded System Design Device Modeling	30	70	4	--	4
17EC1106OE	Soft Computing Techniques Image and Video processing Software Defined Radio	30	70	4	--	4
17EC1107CC	VLSI Laboratory – I	30	70	--	4	2
17EC1108CC	Seminar	100	--	--	4	2
	<b>Total</b>			<b>24</b>	<b>8</b>	<b>28</b>

**I Year – II Semester**

	Course Title	Int. Marks	Ext. Marks	L	P	C
17EC1201CC	Low Power VLSI Design	30	70	4	--	4
17 EC1202CC	Design for Testability	30	70	4	--	4
17EC 1203CC	CMOS Mixed Signal Circuit Design	30	70	4	--	4
17EC1204CE	VLSI and DSP Architectures Full Custom IC Design Hardware Description Language	30	70	4	--	4
17EC1205CE	Optimization Techniques in VLSI Design System On Chip Architecture Semiconductor Memory Design and Testing	30	70	4	--	4
17EC1206OE	Scripting Languages Theory and Techniques Adhoc Wireless Networks	30	70	4	--	4
17EC1207CC	VLSI Laboratory – II	30	70	--	4	2
17EC1208CC	Seminar	100	--	--	4	2
	<b>Total</b>			<b>24</b>	<b>8</b>	<b>28</b>



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## II Year - I Semester

	Course Title	Int. Marks	Ext. Marks	L	P	C
17EC2101CC	Comprehensive Viva-Voce	--	100	--	--	4
17EC2102CC	Project Work Review-I	100	--	--	24	12
	<b>Total</b>				<b>24</b>	<b>16</b>

## II Year - II Semester

	Course Title	Int. Marks	Ext. Marks	L	P	C
17EC2201CC	Project Work Review-II	100	--	--	8	4
17EC2202CC	Project Evaluation (Viva-Voce)	--	100	--	16	12
	<b>Total</b>				<b>24</b>	<b>16</b>



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**DEPARTMENT OF CIVIL ENGINEERING**

**M.Tech. (STRUCTURAL ENGINEERING) R20 COURSE STRUCTURE**

I – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20SEPC101	Advanced Concrete Technology	3	0	0	3	30	70	100
2	20SEPC102	Theory of Elasticity	3	0	0	3	30	70	100
3	<b>Professional Elective-1:</b>		3	0	0	3	30	70	100
	20SEPE101	Advanced Reinforced Concrete Design							
	20SEPE102	Theory and Applications of Cement Composites							
	20SEPE103	Theory of Structural Stability							
4	<b>Professional Elective-2 :</b>		3	0	0	3	30	70	100
	20SEPE104	Numerical Methods in Structural Engineering							
	20SEPE105	Structural Health Monitoring							
	20SEPE106	Structural Optimization							
5	20SEPC103	Advanced Concrete Technology Lab-I	0	0	4	2	30	70	100
6	20SEPC104	Numerical Analysis Lab	0	0	4	2	30	70	100
7	20MC101	Research Methodology and IPR	2	0	0	2	30	70	100
8	<b>Audit Course -1</b>		2	0	0	0	100	-	100
	20AC101	English for Research Paper Writing							
	20AC102	Value Education							
	20AC103	Constitution of India							
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>8</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>



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II – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20SEPC201	FEM in Structural Engineering	3	0	0	3	30	70	100
2	20SEPC202	Structural Dynamics	3	0	0	3	30	70	100
3	<b>Professional Elective -3</b>		3	0	0	3	30	70	100
	20SEPE201	Advanced Steel Design							
	20SEPE202	Design of Formwork							
	20SEPE203	Design of Masonry Structures							
4	<b>Professional Elective -4</b>		3	0	0	3	30	70	100
	20SEPE204	Theory of Thin Plates & Shells							
	20SEPE205	Advanced Design of Foundations							
	20SEPE206	Design of Industrial Structures							
5	20SEPC203	Structural Design Lab	0	0	4	2	30	70	100
6	20SEPC204	Advanced Concrete Technology Lab-II	0	0	4	2	30	70	100
7	20SEPR201	Mini Project with Seminar	0	0	4	2	30	70	100
8	<b>Audit Course -2</b>		2	0	0	0	100	-	100
	20AC201	Pedagogy Studies							
	20AC202	Stress Management by yoga							
	20AC203	Personality Development through Life Enlightenment Skills							
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>12</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>



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III – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	<b>Professional Elective -5</b>		3	0	0	3	30	70	100
	20SEPE301	Earthquake Resistance Design of Buildings							
	20SEPE302	Design of Prestressed Concrete Structures							
	20SEPE303	Advanced Structural Analysis							
2	<b>Open Elective</b>		3	0	0	3	30	70	100
	20MEOE301	Composite Materials							
	20CEOE302	Construction Management							
	20ECOE303	VLSI Design							
	20CSOE304	Data Mining and Analytics							
3	20SEPR301	<b>Project – I / Dissertation Phase -I</b>	0	0	20	10	30	70	100
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>90</b>	<b>210</b>	<b>300</b>

IV – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20SEPR401	<b>Project – II / Dissertation Phase -II</b>	0	0	32	16	30	70	100
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>32</b>	<b>16</b>	<b>30</b>	<b>70</b>	<b>100</b>

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**DEPARTMENT OF MECHANICAL ENGINEERING**

**M.Tech. (CAD/CAM) R20 COURSE STRUCTURE**

I – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20CAPC101	Computer Aided Design	3	0	0	3	30	70	100
2	20CAPC102	Computer Aided Manufacturing	3	0	0	3	30	70	100
3	<b>Professional Elective-1:</b>		3	0	0	3	30	70	100
	20CAPE101	Mechanical Behavior of Materials							
	20CAPE102	Experimental Stress Analysis							
	20CAPE103	Fuzzy Logic & Neural Networks							
4	<b>Professional Elective-2 :</b>		3	0	0	3	30	70	100
	20CAPE104	Simulation & Analysis of Manufacturing Systems							
	20CAPE105	Computer Aided Process Planning							
	20CAPE106	Industrial Robotics							
5	20CAPC103	Computer Aided Design Lab	0	0	4	2	30	70	100
6	20CAPC104	Simulation of Manufacturing Systems Lab	0	0	4	2	30	70	100
7	20MC101	Research Methodology and IPR	2	0	0	2	30	70	100
8	<b>Audit Course -1</b>		2	0	0	0	100	-	100
	20AC101	English for Research Paper Writing							
	20AC102	Value Education							
	20AC103	Constitution of India							
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>8</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>



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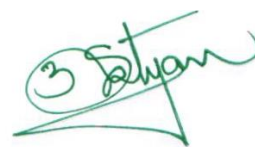
II – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20CAPC201	Advanced Finite Element Analysis	3	0	0	3	30	70	100
2	20CAPC202	Automation in Manufacturing	3	0	0	3	30	70	100
3	<b>Professional Elective -3</b>		3	0	0	3	30	70	100
	20CAPE201	Intelligent Manufacturing Systems							
	20CAPE202	Advanced Manufacturing Processes							
	20CAPE203	Optimization Techniques & Applications							
4	<b>Professional Elective -4</b>		3	0	0	3	30	70	100
	20CAPE204	Advanced Mechatronics							
	20CAPE205	Micro Electro Mechanical Systems							
	20CAPE206	Additive Manufacturing Technologies							
5	20CAPC203	Automation in Manufacturing Lab	0	0	4	2	30	70	100
6	20CAPC204	Computer Aided Engineering Lab	0	0	4	2	30	70	100
7	20CAPR201	Mini Project with Seminar	0	0	4	2	30	70	100
8	<b>Audit Course -2</b>		2	0	0	0	100	-	100
	20AC201	Pedagogy Studies							
	20AC202	Stress Management by yoga							
	20AC203	Personality Development through Life Enlightenment Skills							
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>12</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>

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III – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	<b>Professional Elective -5</b>		3	0	0	3	30	70	100
	20CAPE301	Flexible Manufacturing Systems							
	20CAPE302	Computational Fluid Dynamics							
	20CAPE303	Product Design and Process Development							
2	<b>Open Elective</b>		3	0	0	3	30	70	100
	20MEOE301	Composite Materials							
	20CEOE302	Construction Management							
	20ECOE303	VLSI Design							
	20CSOE304	Data Mining and Analytics							
3	20CAPR301	<b>Project – I / Dissertation Phase -I</b>	0	0	20	10	30	70	100
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>90</b>	<b>210</b>	<b>300</b>

IV – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20CAPR401	<b>Project – II / Dissertation Phase -II</b>	0	0	32	16	30	70	100
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>32</b>	<b>16</b>	<b>30</b>	<b>70</b>	<b>100</b>

  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**M.Tech. (COMPUTER SCIENCE AND ENGINEERING) R20 COURSE STRUCTURE**

I – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20CSPC101	Advanced Data Structures	3	0	0	3	30	70	100
2	20CSPC102	Machine Learning	3	0	0	3	30	70	100
3	<b>Professional Elective-1:</b>		3	0	0	3	30	70	100
	20CSPE101	Information Security							
	20CSPE102	Mobile Application Development							
	20CSPE103	Web & Database Security							
4	<b>Professional Elective-2 :</b>		3	0	0	3	30	70	100
	20CSPE104	Digital Marketing							
	20CSPE105	Distributed Systems							
	20CSPE106	Parallel Computing							
5	20CSPC103	Advanced Data Structures Lab	0	0	4	2	30	70	100
6	20CSPC104	Machine Learning Lab	0	0	4	2	30	70	100
7	20MC101	Research Methodology and IPR	2	0	0	2	30	70	100
8	<b>Audit Course -1</b>		2	0	0	0	100	-	100
	20AC101	English for Research Paper Writing							
	20AC102	Value Education							
	20AC103	Constitution of India							
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>8</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>



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II – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20CSPC201	Advanced Algorithms	3	0	0	3	30	70	100
2	20CSPC202	Data Sciences	3	0	0	3	30	70	100
3	<b>Professional Elective -3</b>		3	0	0	3	30	70	100
	20CSPE201	Software Project Management							
	20CSPE202	Natural Language Processing							
	20CSPE203	Cyber Security							
4	<b>Professional Elective -4</b>		3	0	0	3	30	70	100
	20CSPE204	Artificial Intelligence							
	20CSPE205	Blockchain Technology							
	20CSPE206	Computer Forensics							
5	20CSPC203	Advanced Algorithms Lab	0	0	4	2	30	70	100
6	20CSPC204	Data Sciences Lab	0	0	4	2	30	70	100
7	20CSPR201	Mini Project with Seminar	0	0	4	2	30	70	100
8	<b>Audit Course -2</b>		2	0	0	0	100	-	100
	20AC201	Pedagogy Studies							
	20AC202	Stress Management by yoga							
	20AC203	Personality Development through Life Enlightenment Skills							
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>12</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>

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III – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	<b>Professional Elective -5</b>		3	0	0	3	30	70	100
	20CSPE301	Internet of Things							
	20CSPE302	Ethical Hacking							
	20CSPE303	Virtual Reality and Augmented Reality							
2	<b>Open Elective</b>		3	0	0	3	30	70	100
	20MEOE301	Composite Materials							
	20CEOE302	Construction Management							
	20EEOE303	VLSI Design							
	20CSOE304	Data Mining and Analytics							
3	20CSPR301	<b>Project – I / Dissertation Phase -I</b>	0	0	20	10	30	70	100
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>90</b>	<b>210</b>	<b>300</b>

IV – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20CSPR401	<b>Project – II / Dissertation Phase -II</b>	0	0	32	16	30	70	100
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>32</b>	<b>16</b>	<b>30</b>	<b>70</b>	<b>100</b>

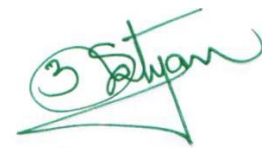


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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**M.Tech. (VLSI SYSTEM DESIGN) R20**

I – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20VLPC101	Digital Design and Verification	3	0	0	3	30	70	100
2	20VLPC102	Internet of Things	3	0	0	3	30	70	100
3	<b>Professional Elective-1</b>		3	0	0	3	30	70	100
	20VLPE101	CMOS Mixed Signal Circuit Design							
	20VLPE102	Digital System Design							
	20VLPE103	VLSI Signal Processing							
4	<b>Professional Elective-2</b>		3	0	0	3	30	70	100
	20VLPE104	Modeling and Synthesis with Verilog HDL							
	20VLPE105	CPLD and FPGA Architectures and Applications							
	20VLPE106	CAD of Digital System							
5	20VLPC103	Digital Design and Verification Lab	0	0	4	2	30	70	100
6	20VLPC104	Internet of Things Lab	0	0	4	2	30	70	100
7	20MC101	Research Methodology and IPR	2	0	0	2	30	70	100
8	<b>Audit Course -1</b>		2	0	0	0	100	-	100
	20AC101	English for Research Paper Writing							
	20AC102	Value Education							
	20AC103	Constitution of India							
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>8</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>



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II – Semester (I – Year)									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20VLPC201	Analog and Digital CMOS VLSI Design	3	0	0	3	30	70	100
2	20VLPC202	VLSI Design Verification and Testing	3	0	0	3	30	70	100
3	<b>Professional Elective -3</b>		3	0	0	3	30	70	100
	20VLPE201	Memory Technologies							
	20VLPE202	SOC Design							
	20VLPE203	Low power VLSI Design							
4	<b>Professional Elective -4</b>		3	0	0	3	30	70	100
	20VLPE204	Functional Verification using Hardware Verification Languages							
	20VLPE205	MOS Device Modeling and Characterization							
	20VLPE206	Physical Design Automation							
5	20VLPC203	Analog and Digital CMOS VLSI Design Lab	0	0	4	2	30	70	100
6	20VLPC204	VLSI Design Verification and Testing Lab	0	0	4	2	30	70	100
7	20VLPR201	Mini Project with Seminar	0	0	4	2	30	70	100
8	<b>Audit Course -2</b>		2	0	0	0	100	-	100
	20AC201	Pedagogy Studies							
	20AC202	Stress Management by Yoga							
	20AC203	Personality Development through Life Enlightenment Skills							
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>12</b>	<b>18</b>	<b>310</b>	<b>490</b>	<b>800</b>

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III – Semester									
S. No	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	<b>Professional Elective -5</b>		3	0	0	3	30	70	100
	20VLPE301	Microchip Fabrication Techniques							
	20VLPE302	Design for Testability							
	20VLPE303	Nano materials and Nanotechnology							
2	<b>Open Elective</b>		3	0	0	3	30	70	100
	20MEOE301	Composite Materials							
	20CEOE302	Construction Management							
	20EEOE303	VLSI Design							
	20CSOE304	Data Mining and Analytics							
3	20VLPR301	<b>Project – I / Dissertation Phase -I</b>	0	0	20	10	30	70	100
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>90</b>	<b>210</b>	<b>300</b>

IV – Semester									
S. No.	Course Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20VLPR401	<b>Project – II / Dissertation Phase -II</b>	0	0	32	16	30	70	100
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>32</b>	<b>16</b>	<b>30</b>	<b>70</b>	<b>100</b>

  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**M.Tech. (COMPUTER SCIENCE AND ENGINEERING) COURSE STRUCTURE**

**M.Tech. (Computer Science & Engineering) – R22 Course Structure**

(Applicable from the batch admitted during 2022-23 and onwards)

<b>I – Semester</b>								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22CSPC11	Mathematical Foundations of Computer Science	1,2,3	1,2	3	-	-	3
2	22CSPC12	Advanced Data Structures	1,2,3	1,2	3	-	-	3
3	<b>Professional Elective – I</b>				3	-	-	3
	22CSPE11	Database Programming with PL/SQL	1,2,3	1,2				
	22CSPE12	Deep Learning	1,2,3	1,2				
	22CSPE13	Natural Language Processing	1,2,3	1,2				
4	<b>Professional Elective – II</b>				3	-	-	3
	22CSPE14	Applied Cryptography	1,2,3	1,2				
	22CSPE15	Software Quality Engineering	1,2,3	1,2				
	22CSPE16	Mining Massive Datasets	1,2,3	1,2				
5	22CSPC13	Advanced Data Structures Lab	1,2,3	1,2	-	-	4	2
6	<b>Professional Elective – I Lab</b>				-	-	4	2
	22CSPE17	Database Programming with PL/SQL Lab	1,2,3	1,2				
	22CSPE18	Deep Learning Lab	1,2,3	1,2				
	22CSPE19	Natural Language Processing Lab	1,2,3	1,2				
7	22MC11	Research Methodology & IPR	1,2,3	1,2	2	-	-	2
8	<b>Audit Course -I</b>				2	-	-	0
	22AC11	English for Research Paper Writing	1,2,3					
	22AC12	Disaster Management	1,2,3					
	22AC13	Sanskrit for Technical Knowledge	1,2,3					
	22AC14	Value Education	1,2,3					
<b>TOTAL</b>					<b>16</b>	<b>00</b>	<b>08</b>	<b>18</b>



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II – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22CSPC21	Advanced Algorithms	1,2,3	1,2	3	-	-	3
2	22CSPC22	Advanced Computer Architecture	1,2,3	1,2	3	-	-	3
3	<b>Professional Elective – III</b>				3	-	-	3
	22CSPE21	Enterprise Cloud Concepts	1,2,3	1,2				
	22CSPE22	Advanced Computer Networks	1,2,3	1,2				
	22CSPE23	Edge Analytics	1,2,3	1,2				
4	<b>Professional Elective – IV</b>				3	-	-	3
	22CSPE24	Bio Informatics	1,2,3	1,2				
	22CSPE25	Nature Inspired Computing	1,2,3	1,2				
	22CSPE26	Robotic Process Automation	1,2,3	1,2				
5	22CSPC23	Advanced Algorithms Lab	1,2,3	1,2	-	-	4	2
6	<b>Professional Elective-III Lab</b>				-	-	4	2
	22CSPE27	Enterprise Cloud Concepts Lab	1,2,3	1,2				
	22CSPE28	Advanced Computer Networks Lab	1,2,3	1,2				
	22CSPE29	Edge Analytics Lab	1,2,3	1,2				
7	22CSPR21	Mini Project with Seminar	1,2,3	1,2	-	-	4	2
8	<b>Audit Course -II</b>				2	-	-	0
	22AC21	Constitution of India	1,2,3					
	22AC22	Pedagogy Studies	1,2,3					
	22AC23	Stress Management by Yoga	1,2,3					
	22AC24	Personality Development Through Life Enlightenment Skills	1,2,3					
<b>TOTAL</b>					<b>14</b>	<b>00</b>	<b>12</b>	<b>20</b>

III – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	<b>Professional Elective – V</b>				3	-	-	3
	22CSPE31	Digital Forensics	1,2,3	1,2				
	22CSPC32	High Performance Computing	1,2,3	1,2				
	22CSPC33	Quantum Computing	1,2,3	1,2				
2	<b>Open Elective</b>				3	-	-	3
	22OE31	Business Analytics	1,2,3					
	22OE32	Industrial Safety	1,2,3					
	22OE33	Operations Research	1,2,3					
	22OE34	Cost Management of Engineering projects	1,2,3					
	22OE35	Composite Materials	1,2,3					
3	22CSPR31	Dissertation Work Review-II	1,2,3		-	-	12	6
<b>TOTAL</b>					<b>06</b>	<b>00</b>	<b>12</b>	<b>12</b>



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IV – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22CSPR41	Dissertation Work Review-III	1,2,3	1,2	-	-	12	6
2	22CSPR42	Dissertation Viva-Voce	1,2,3	1,2	-	-	28	14
<b>TOTAL</b>					<b>00</b>	<b>00</b>	<b>40</b>	<b>20</b>



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**CMR INSTITUTE OF TECHNOLOGY**

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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**M.Tech. (VLSI SYSTEM DESIGN) R22**

**M.Tech. (VLSI) – R22 Course Structure**

<b>I – Semester</b>								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22VLPC11	Digital System Design with FPGAs	1,2,3	1,2	3	-	-	3
2	22VLPC12	CMOS Analog IC Design	1,2,3	1,2	3	-	-	3
3	<b>Professional Elective – I</b>				3	-	-	3
	22VLPE11	Pattern Recognition and Machine Learning	1,2,3	1,2				
	22VLPE12	CMOS Mixed Signal Design	1,2,3	1,2				
	22VLPE13	Memory Technologies	1,2,3	1,2				
4	<b>Professional Elective – II</b>				3	-	-	3
	22VLPE14	Communication Buses & Interfaces	1,2,3	1,2				
	22VLPE15	ARM Microcontrollers	1,2,3	1,2				
	22VLPE16	Embedded Real Time Operating System	1,2,3	1,2				
5	22VLPC13	Digital System Design with FPGAs Lab	1,2,3	1,2	-	-	4	2
6	22VLPC14	CMOS Analog IC Design Lab	1,2,3	1,2	-	-	4	2
7	22MC11	Research Methodology & IPR	1,2,3	1,2	2	-	-	2
8	<b>Audit Course -I</b>				2	-	-	0
	22AC11	English for Research Paper Writing	1,2,3					
	22AC12	Disaster Management	1,2,3					
	22AC13	Sanskrit for Technical Knowledge	1,2,3					
	22AC14	Value Education	1,2,3					
<b>TOTAL</b>					<b>16</b>	<b>00</b>	<b>08</b>	<b>18</b>
<b>II – Semester</b>								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22VLPC21	Internet of Things	1,2,3	1,2	3	-	-	3
2	22VLPC22	System Verilog Test Benches using UVM	1,2,3	1,2	3	-	-	3
3	<b>Professional Elective – III</b>				3	-	-	3
	22VLPE21	VLSI Advanced Physical Design	1,2,3	1,2				
	22VLPE22	SoC Design	1,2,3	1,2				
	22VLPE23	Design for Testability	1,2,3	1,2				
4	<b>Professional Elective – IV</b>				3	-	-	3
	22VLPE24	Device Modeling	1,2,3	1,2				
	22VLPE25	RFIC Design	1,2,3	1,2				
	22VLPE26	Hardware and Software Co-Design	1,2,3	1,2				
5	22VLPC23	Internet of Things Lab	1,2,3	1,2	-	-	4	2
6	22VLPC24	VLSI Design Verification and Testing Lab	1,2,3	1,2	-	-	4	2
7	22VLPR21	Mini Project with Seminar	1,2,3	1,2	-	-	4	2
8	<b>Audit Course -II</b>				2	-	-	0
	22AC21	Constitution of India	1,2,3					
	22AC22	Pedagogy Studies	1,2,3					
	22AC23	Stress Management by Yoga	1,2,3					
	22AC24	Personality Development Through Life Enlightenment Skills	1,2,3					
<b>TOTAL</b>					<b>14</b>	<b>00</b>	<b>12</b>	<b>20</b>

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III – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	<b>Professional Elective – V</b>				3	-	-	3
	22VLPE31	Advanced Computer Architecture	1,2,3	1,2				
	22VLPC32	Nanomaterials & Nanotechnology	1,2,3	1,2				
	22VLPC33	Hardware Security	1,2,3	1,2				
2	<b>Open Elective</b>				3	-	-	3
	22OE31	Business Analytics	1,2,3					
	22OE32	Industrial Safety	1,2,3					
	22OE33	Operations Research	1,2,3					
	22OE34	Cost Management of Engineering projects	1,2,3					
	22OE35	Composite Materials	1,2,3					
3	22VLPR31	Dissertation Work Review-II	1,2,3		-	-	12	6
<b>TOTAL</b>					<b>06</b>	<b>00</b>	<b>12</b>	<b>12</b>

IV – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22VLPR41	Dissertation Work Review-III	1,2,3	1,2	-	-	12	6
2	22VLPR42	Dissertation Viva-Voce	1,2,3	1,2	-	-	28	14
<b>TOTAL</b>					<b>00</b>	<b>00</b>	<b>40</b>	<b>20</b>



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**DEPARTMENT OF MASTER OF BUSINESS ADMINISTRATION**

**MBA – R-18 COURSE STRUCTURE**

(Applicable from the batch admitted during 2018-19 and onwards)

I – Semester (I – Year)									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	18MBPCC1101	Management and Organizational Behavior	3	1	0	4	30	70	100
2	18MBPCC1102	Managerial Economics	3	1	0	4	30	70	100
3	18MBPCC1103	Financial Accounting & Analysis	3	1	0	4	30	70	100
4	18MBPCC1104	Business & Tax Laws	3	1	0	4	30	70	100
5	18MBPCC1105	Business Analytics	3	1	0	4	30	70	100
6	18MBPCC1106	Entrepreneurship	3	1	0	4	30	70	100
7	18MBPCC1107	Business Analytics– Practice	0	0	3	1.5	30	70	100
8	18MBPCC1108	Professional Communications - Practice	0	0	3	1.5	30	70	100
<b>TOTAL</b>			<b>18</b>	<b>6</b>	<b>6</b>	<b>27</b>	<b>240</b>	<b>560</b>	<b>800</b>

II – Semester (I – Year)									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	18MBPCC1201	Financial Management	3	1	0	4	30	70	100
2	18MBPCC1202	Marketing Management	3	1	0	4	30	70	100
3	18MBPCC1203	Human Resources Management	3	1	0	4	30	70	100
4	18MBPCC1204	Production & Operations Management	3	1	0	4	30	70	100
5	18MBPCC1205	Quantitative Analysis for Business Decisions	3	1	0	4	30	70	100
6	18MBPCC1206	Business Environment	3	1	0	4	30	70	100
7	18MBPCC1207	Case Study Analysis -Practice	0	0	2	1	30	70	100
8	18MBPCC1208	Field/Market Watch/Study/Survey- Practice	0	0	4	2	30	70	100
<b>TOTAL</b>			<b>18</b>	<b>6</b>	<b>6</b>	<b>27</b>	<b>240</b>	<b>560</b>	<b>800</b>



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III – Semester (II – Year)									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	18MBPCC2101	Strategic Management	3	1	0	4	30	70	100
2	18MBPCC2102	Research Methodology	3	1	0	4	30	70	100
3	18MBOEC2103	Open Elective-1	3	0	0	3	30	70	100
		A: Business Ethics & Corporate Governance							
		B: Total Quality Management							
		C: DBMS							
		D: Disability & Rehabilitation							
		E: C-Programming							
4	18MBPEC2104	Core Elective-1	3	0	0	3	30	70	100
		E:Startup Management							
		F:Security Analysis and Portfolio Management							
		H:Performance Management Systems							
		M:Digital Marketing							
5	18MBPEC2105	Core Elective-2	3	0	0	3	30	70	100
		E: Management of NGOs & MSME							
		F:Financial Institutions, Markets and Services							
		H:Learning & Development							
		M:Advertising & Sales Management							
6	18MBPEC2106	Core Elective-3	3	0	0	3	30	70	100
		E:Project Management							
		F:Advanced Management Accounting							
		H:Management of Industrial Relations							
		M:Consumer Behaviour							
7	18MBPPC2107	Computer Applications to Business – Lab	0	0	2	1	30	70	100
8	18MBPPC2108	Professional Development, Yoga & Spirituality – Practice	2	0	2	3	30	70	100
<b>TOTAL</b>			<b>20</b>	<b>2</b>	<b>4</b>	<b>24</b>	<b>240</b>	<b>560</b>	<b>800</b>



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IV – Semester (II – Year)									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	18MBPCC2201	Management of Technology	3	1	0	4	30	70	100
2	18MBPCC2202	ERP & MIS	3	1	0	4	30	70	100
3	18MBOEC2203	Open Elective-2	3	0	0	3	30	70	100
		A: Knowledge Management							
		B: R-Programming							
		C: Marketing & Supply Chain Analytics							
		D: Cross Cultural Management							
		E: E-Commerce							
F: Cyber Security									
4	18MBPEC2204	Core Elective-4	3	0	0	3	30	70	100
		E:Entrepreneurial Finance & Marketing							
		F:International Financial Management							
		H:International Human Resource Management							
		M:Customer Relationship Management							
5	18MBPEC2205	Core Elective-5	3	0	0	3	30	70	100
		E: Intellectual Property Rights(IPR)							
		F:Strategic Investment & Financing Decisions							
		H:Leadership & Change Management							
		M:International Marketing Management							
6	18MBPEC2206	Core Elective-6	3	0	0	3	30	70	100
		E:Creativity, Innovation and Entrepreneurship							
		F:Banking Insurance & Risk Management							
		H: Strategic Talent Management							
		M:Marketing of Services							
7	18MBPRC2207	Comprehensive Viva Voce	0	0	2	1	30	70	100
8	18MBPRC2208	Main Project Review & Viva Voce	1	0	4	3	30	70	100
<b>TOTAL</b>			<b>19</b>	<b>2</b>	<b>6</b>	<b>24</b>	<b>240</b>	<b>560</b>	<b>800</b>

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## MBA – R-20 COURSE STRUCTURE

(Applicable from the batch admitted during 2020-21 and onwards)

<b>I – Semester (I – MBA – I - Semester)</b>									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20MBAPC101	Management and Organizational Behavior	3	1	0	4	30	70	100
2	20MBAPC102	Managerial Economics	3	1	0	4	30	70	100
3	20MBAPC103	Financial Accounting & Analysis	3	1	0	4	30	70	100
4	20MBAPC104	Business & Tax Laws	3	1	0	4	30	70	100
5	20MBAPC105	Statistics for Managers	3	1	0	4	30	70	100
6	20MBAPC106	Business Environment	3	1	0	4	30	70	100
7	20MBAPC107	Statistics for Managers - Practice	0	0	3	1.5	30	70	100
8	20MBAPC108	Professional Communication Skills Practice	0	0	3	1.5	30	70	100
<b>TOTAL</b>			<b>18</b>	<b>6</b>	<b>6</b>	<b>27</b>	<b>240</b>	<b>560</b>	<b>800</b>

<b>II – Semester (I – MBA – II - Semester)</b>									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20MBAPC201	Financial Management	3	1	0	4	30	70	100
2	20MBAPC202	Marketing Management	3	1	0	4	30	70	100
3	20MBAPC203	Human Resources Management	3	1	0	4	30	70	100
4	20MBAPC204	Production & Operations Management	3	1	0	4	30	70	100
5	20MBAPC205	Quantitative Analysis for Business Decisions	3	1	0	4	30	70	100
6	20MBAPC206	Entrepreneurship	3	1	0	4	30	70	100
7	20MBAPC207	Professional Managerial Skills Practices	0	0	3	1.5	30	70	100
8	20MBAPC208	Financial Analysis & Reporting - Practice	0	0	3	1.5	30	70	100
<b>TOTAL</b>			<b>18</b>	<b>6</b>	<b>6</b>	<b>27</b>	<b>240</b>	<b>560</b>	<b>800</b>

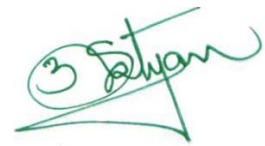
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III – Semester (II – MBA – I - Semester)									
S. No	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20MBAPC301	Strategic Management	3	1	0	4	30	70	100
2	20MBAPC302	Research Methodology	3	1	0	4	30	70	100
3	<b>Open Elective-1</b>		3	0	0	3	30	70	100
	20MBAOE301	Disaster Management							
	20MBAOE302	Total Quality Management							
	20MBAOE303	Environmental Science							
	20MBAOE304	C- Programming							
4	<b>Core Elective-1</b>		3	0	0	3	30	70	100
	20MBAPE301	E: Startup Management							
	20MBAPE304	F: Indian Financial System							
	20MBAPE307	H: Recruitment, Selection & Induction							
	20MBAPE310	M: Consumer Behaviour							
5	<b>Core Elective-2</b>		3	0	0	3	30	70	100
	20MBAPE302	E: Family Business Management							
	20MBAPE305	F: Security Analysis & Portfolio Management							
	20MBAPE308	H: Learning, Training & Development							
	20MBAPE311	M: Retailing Management							
6	<b>Core Elective-3</b>		3	0	0	3	30	70	100
	20MBAPE303	E: MSME & Management of NGOs							
	20MBAPE306	F: Financial Derivatives							
	20MBAPE309	H: Compensation and Reward Management							
	20MBAPE312	M: Services Marketing							
7	20MBAPC303	Computer Applications to Business Practice	-	1	2	2	30	70	100
8	20MBAPR301	Field work / Summer Internship	-	-	-	2	-	100	100
<b>Total</b>			<b>18</b>	<b>3</b>	<b>2</b>	<b>24</b>	<b>210</b>	<b>590</b>	<b>800</b>



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IV – Semester (II – MBA – II - Semester)									
S. No.	Subject Code	Subject	Hours Per Week			Credits	Scheme of Evaluation		
			L	T	P		Maximum Marks		
							Int.	Ext.	Tot.
1	20MBAPC401	Business Ethics & Corporate Governance	3	1	0	4	30	70	100
2	20MBAPC402	ERP & MIS	3	1	0	4	30	70	100
3	<b>Open Elective-2</b>		3	0	0	3	30	70	100
	20MBAOE401	R - Programming							
	20MBAOE402	Business Analytics							
	20MBAOE403	Non-Conventional Energy sources							
	20MBAOE404	Project Management							
4	<b>Core Elective-4</b>		3	0	0	3	30	70	100
	20MBAPE401	E: Entrepreneurial Finance & Marketing							
	20MBAPE404	F: Management Accounting							
	20MBAPE407	H: Management of Industrial Relations							
	20MBAPE410	M: Digital Marketing							
5	<b>Core Elective-5</b>		3	0	0	3	30	70	100
	20MBAPE402	E: WTO & IPR							
	20MBAPE405	F: Corporate Restructuring & Valuation							
	20MBAPE408	H: Performance Management Systems							
	20MBAPE411	M: Advertising, Sales Promotion & Distribution Management							
6	<b>Core Elective-6</b>		3	0	0	3	30	70	100
	20MBAPE403	E: Creativity & Innovation							
	20MBAPE406	F: Global Financial Management							
	20MBAPE409	H: Global Human Resource Management							
	20MBAPE412	M: Global Marketing Management							
7	20MBAPR401	Project	0	0	8	4	30	70	100
<b>TOTAL</b>			<b>18</b>	<b>2</b>	<b>8</b>	<b>24</b>	<b>210</b>	<b>490</b>	<b>700</b>



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## MBA– R22 COURSE STRUCTURE

(Applicable from the batch admitted during 2022-23 and onwards)

I – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22MBAPC11	Management and Organizational Behaviour	1,2,3,4,5	1,2	4	0	0	4
2	22MBAPC12	Business Economics	1,2,3,4,5	1,2	4	0	0	4
3	22MBAPC13	Financial Reporting & Analysis	1,2,3,4,5	1,2	4	0	0	4
4	22MBAPC14	Research Methodology and Statistical Analysis	1,2,3,4,5	1,2	4	0	0	4
5	22MBAPC15	Legal and Business Environment	1,2,3,4,5	1,2	4	0	0	4
6	<b>Open Elective – I</b>				3	0	0	3
	22MBAOE11	Business Ethics and Corporate Governance	1,2,3,4,5	1,2				
	22MBAOE12	Project Management	1,2,3,4,5	1,2				
	22MBAOE13	Sustainability Management	1,2,3,4,5	1,2				
	22MBAOE14	Cross Cultural Management	1,2,3,4,5	1,2				
7	22MBAPR11	Business Communication Lab	1,2,3,4,5	1,2	-	-	2	2
8	22MBAPR12	Statistical Data Analysis Lab	1,2,4,5	1,2	-	-	2	2
<b>TOTAL</b>					<b>23</b>	<b>00</b>	<b>04</b>	<b>27</b>

II – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22MBAPC21	Human Resource Management	1,2,3,4,5	1,2	4	0	0	4
2	22MBAPC22	Marketing Management	1,2,3,4,5	1,2	4	0	0	4
3	22MBAPC23	Financial Management	1,2,3,4,5	1,2	4	0	0	4
4	22MBAPC24	Quantitative Analysis for Business Decisions	1,2,3,4,5	1,2	4	0	0	4
5	22MBAPC25	Entrepreneurship and Design Thinking	1,2,3,4,5	1,2	4	0	0	4
6	22MBAPC26	Logistics & Supply Chain Management	1,2,3,4,5	1,2	4	0	0	4



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7	<b>Open Elective – II</b>				3	0	0	3
	22MBAOE21	Total Quality Management	1,2,3,4,5	1,2				
	22MBAOE22	Marketing Research	1,2,3,4,5	1,2				
	22MBAOE23	International Business	1,2,3,4,5	1,2				
	22MBAOE24	Rural Marketing	1,2,3,4,5	1,2				
<b>TOTAL</b>					<b>27</b>	<b>00</b>	<b>00</b>	<b>27</b>

<b>III – Semester</b>								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22MBAPC31	Production & Operations Management	1,2,3,4,5	1,2	4	0	0	4
2	22MBAPC32	Management Information Systems	1,2,3,4,5	1,2	4	0	0	4
3	22MBAPC33	Business Analytics	1,2,3,4,5	1,2	4	0	0	4
4	<b>Professional Elective – I</b>				4	0	0	4
	22MBAPE31M	Digital Marketing	1,2,3,4,5	1,2				
	22MBAPE31H	Talent and Performance Management Systems	1,2,3,4,5	1,2				
	22MBAPE31F	Security Analysis and Portfolio Management	1,2,3,4,5	1,2				
	22MBAPE31E	Start-up and MSME Management	1,2,3,4,5	1,2				
5	<b>Professional Elective – II</b>				4	0	0	4
	22MBAPE32M	Sales and Promotion Management	1,2,4,5	1,2				
	22MBAPE32H	Learning and Development	1,2,3,4,5	1,2				
	22MBAPE32F	Risk Management and Financial Derivatives	1,2,4,5	1,2				
	22MBAPE32E	Technology Business Incubation	1,2,3,4,5	1,2				
6	<b>Professional Elective – III</b>				4	0	0	4
	22MBAPE33M	Consumer Behaviour	1,2,3,4,5	1,2				
	22MBAPE33H	Employee Relations	1,2,3,4,5	1,2				
	22MBAPE33F	Strategic Cost and Management Accounting	1,2,4,5	1,2				
	22MBAPE33E	Innovation and Entrepreneurship	1,2,3,4,5	1,2				
7	22MBAPR31	Summer Internship	1,2,3,4,5	1,2	0	0	2	2
<b>TOTAL</b>					<b>24</b>	<b>00</b>	<b>02</b>	<b>26</b>



IV – Semester								
S. No.	Course Code	Subject	POs	PSOs	Hours Per Week			Credits
					L	T	P	
1	22MBAPC41	Strategic Management	1,2,3,4,5	1,2	4	0	0	4
2	<b>Professional Elective – IV</b>				4	0	0	4
	22MBAPE41M	International Marketing	1,2,3,4,5	1,2				
	22MBAPE41H	International Human Resource Management	1,2,3,4,5	1,2				
	22MBAPE41F	International Financial Management	1,2,4,5	1,2				
	22MBAPE41E	Entrepreneurial Finance	1,2,3,4,5	1,2				
3	<b>Professional Elective – V</b>				4	0	0	4
	22MBAPE42M	Services Marketing	1,2,3,4,5	1,2				
	22MBAPE42H	Leadership and Change Management	1,2,3,4,5	1,2				
	22MBAPE42F	Strategic Financial Management	1,2,4,5	1,2				
	22MBAPE42E	Entrepreneurial Marketing	1,2,3,4,5	1,2				
4	<b>Professional Elective – VI</b>				4	0	0	4
	22MBAPE43M	Marketing Analytics	1,2,3,4,5	1,2				
	22MBAPE43H	HR Analytics	1,2,3,4,5	1,2				
	22MBAPE43F	Financial Analytics	1,2,3,4,5	1,2				
	22MBAPE43E	Family Business Management	1,2,3,4,5	1,2				
5	22MBAPR41	Project: Pre-submission - Seminar	1,2,3,4,5	1,2	0	0	4	2
6	22MBAPR42	Project: Main Project Viva-Voce	1,2,3,4,5	1,2	0	0	8	4
<b>TOTAL</b>					<b>16</b>	<b>00</b>	<b>12</b>	<b>22</b>



Principal

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