

# Course Structure

DEPARTMENT OF CIVIL ENGINEERING

**R20 COURSE STRUCTURE**

**B.Tech I Year – I Semester**

S.No.	CODE:	SUBJECT NAME	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1103	Engineering Chemistry	30	70	100	3	0	0	3
2	R20CC1102	Linear Algebra and Calculus	30	70	100	2	1	0	3
3	R20CC1101	Technical and Communicative English-I	30	70	100	3	0	0	3
4	R20CC1107	Engineering Mechanics	30	70	100	2	1	0	3
5	R20CC1105	Problem Solving Using C	30	70	100	3	0	0	3
6	R20CC11L1	Soft skills and Communication SkillsLab-I	15	35	50	0	0	3	1.5
7	R20CC11L5	Engineering Chemistry Lab	15	35	50	0	0	3	1.5
8	R20CC11L2	Problem Solving Using C Lab	15	35	50	0	0	3	1.5
		<b>Total</b>							<b>19.5</b>



  
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**B. Tech I Year II Semester**

S.No	CODE	SUBJECT NAME	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1201	Differential Equations and Vector Calculus	30	70	100	2	1	0	3
2	R20CC1203	Engineering Physics	30	70	100	3	0	0	3
3	R20CC1207	Engineering Drawing	30	70	100	1	0	4	3
4	R20CE1212	Elements of Mechanical and Electrical Engineering	30	70	100	3	0	0	3
5	R20CE1216	Elements of Building Science	30	70	100	3	0	0	3
6	R20CE12L6	Elements of Mechanical and Electrical Engineering Lab	15	35	50	0	0	3	1.5
7	R20CC12L5	Engineering Physics Lab	15	35	50	0	0	3	1.5
8	R20CC12L4	Engineering Workshop	15	35	50	0	0	3	1.5
9	R20CC12MC2	Constitution of India (zero credit course)				2	0	0	0
		<b>Total</b>							<b>19.5</b>



  
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**II B. Tech II Year I Semester**

S.No	CODE	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2101	Numerical Methods and Transformation	BS	30	70	100	2	1	0	3
2	R20CE2102	Fluid Mechanics	PC	30	70	100	3	0	0	3
3	R20CE2103	Strength of Materials-I	PC	30	70	100	3	0	0	3
4	R20CE2104	Surveying and Geomatics	PC	30	70	100	3	0	0	3
5	R20CE2105	Concrete Technology	PC	30	70	100	3	0	0	3
6	R20CE21L1	Strength Of Materials Lab	PC	15	35	50	0	0	3	1.5
7	R20CE21L2	Computer Aided Building Drawing Lab	PC	15	35	50	0	0	3	1.5
8	R20CE21L3	Surveying Field Work Lab	PC	15	35	50	0	0	3	1.5
9	R20CE21SC1	Building Materials and Construction Technology Lab	SC	-	50	50	0	0	4	2
10	R20CC21MC1	Environmental Studies (Non-Credit Course)	MC	-	-	-	2	0	0	0
<b>Total Credits</b>										<b>21.5</b>



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B.TECH II YEAR - II SEMESTER

S.No	CODE	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2201	Technical and Communicative English-II	HS	30	70	100	3	0	0	3
2	R20CE2202	Engineering Geology	ES	30	70	100	3	0	0	3
3	R20CE2203	Structural Analysis	PC	30	70	100	3	0	0	3
4	R20CE2204	Strength of Materials-II	PC	30	70	100	3	0	0	3
5	R20CE2205	Hydraulics And Hydraulic Machinery	PC	30	70	100	3	0	0	3
6	R20CE22L1	Engineering Geology Lab	EC	15	35	50	0	0	3	1.5
7	R20CE22L2	Fluid Mechanics And Hydraulic Machinery Lab	PC	15	35	50	0	0	3	1.5
8	R20CE22L3	Concrete Technology Lab	PC	15	35	50	0	0	3	1.5
9	R20CE22SC1	Advanced Surveying	SC		50	50	0	0	4	2
<b>Total Credits</b>										<b>21.5</b>
<b>HONORS/MINOR COURSE</b>										
10		Honors/Minor								4

**Note:** Summer Internship/Community Service Project (Mandatory) to be evaluated in III-I



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**III B.TECH I SEMESTER**

S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CE3101	Design and Drawing of Concrete Structures	PC	30	70	100	3	0	0	3
2	R20CE3102	Soil Mechanics	PC	30	70	100	3	0	0	3
3	R20CE3103	Highway Engineering	PC	30	70	100	3	0	0	3
<b>Open Elective Course/Job Oriented Elective – I</b>										
4	R20CC1OE01	Disaster Management	OE/JO E	30	70	100	3	0	0	3
	R20CC1OE02	Green Technology								
<b>Professional Elective Course-1</b>										
5	R20CE3104	Advanced Structural Analysis	PE	30	70	100	3	0	0	3
	R20CE3106	Environmental Impact Assessment								
	R20CE3107	Solid Waste and Hazardous Management								
6	R20CE31L1	Soil Mechanics Lab	PC LAB	15	35	50		0	3	1.5
7	R20CE31L2	Highway Engineering Lab	PC LAB	15	35	50		0	3	1.5
8	R20CE31SC3	STAAD.Pro	SAC/SC		50	50	1	0	2	2
9	R20CC31MC01	Professional Ethics & Human Values	MC				2	0	0	0
10	R20CC31IN	Summer INTERNSHIP/ Community Service Project	PROJ	15	35	50	0	0	0	1.5
<b>Total Credits</b>										21.5
<b>HONORS/MINOR COURSE</b>										
11		Honors/Minor	PC	30	70	100	4	0	0	4



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**III B.TECH II SEMESTER**

S.N O	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CE3201	Design and Drawing Of Steel Structures	PC	30	70	100	3	0	0	3
2	R20CE3202	Environmental Engineering	PC	30	70	100	3	0	0	3
3	R20CE3203	Hydrology & Irrigation Engineering	PC	30	70	100	3	0	0	3
<b>Open Elective Course/Job Oriented Elective – II</b>										
4	R20CC2OE01	Remote Sensing And GIS	OE/JOE	30	70	100	2	0	2	3
	R20CC2OE02	Traffic Safety								
<b>Professional Elective Course-II</b>										
5	R20CE3204	Foundation Engineering	PE	30	70	100	3	0	0	3
	R20CE3205	Bridge Engineering								
	R20CE3206	Urban Transportation Planning								
6	R20CE32L1	Environmental Engineering Lab	PC LAB	15	35	50		0	3	1.5
7	R20CE32L2	GIS Lab	PC LAB	15	35	50		0	3	1.5
8	R20CE32L3	Civil Engineering Drawing	PC LAB	15	35	50		0	3	1.5
9	R20CC32SC1	English for Employability Skills	SAC/SS C		50	50	1	0	2	2
10	R20CC32M C1	Essence of Indian Traditional Knowledge	MC				2	0	0	0
<b>Total Credits</b>										<b>21.5</b>
<b>HONORS/MINOR COURSE</b>										
11		Honors/Minor								4



  
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**IV B.TECH I SEMESTER**

S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
<b>Professional Elective Course-III</b>										
1	R20CE4101	Advanced Foundation Engineering	PE	30	70	100	3	0	0	3
	R20CE4102	Watershed Management								
	R20CE4103	Irrigation Structures								
<b>Professional Elective Courses – IV</b>										
2	R20CE4104	Prestressed Concrete	PE	30	70	100	3	0	0	3
	R20CE4105	Repair & Rehabilitation Of Structures								
	R20CE4106	Ground Water Development and Management								
<b>Professional Elective Courses – V</b>										
3	R20CE4107	Estimation Costing and Valuation	PE	30	70	100	3	0	0	3
	R20CE4108	Ground Improvement Techniques								
	R20CE4109	Pavement Materials								
<b>Open Elective Course/Job Oriented Elective - III</b>										
4	R20CC3OE01	Railway, Airport & Harbour Engineering	OE/JOE	30	70	100	2	0	2	3
	R20CC3OE02	Low Cost Housing								
<b>Open Elective Course/Job Oriented Elective – IV.</b>										
5	R20CC4OE01	Environmental Pollution & Control	OE/JOE	30	70	100	2	0	2	3
	R20CC4OE02	Construction Technology and Management								
6	R20CC4101	Business Management Concepts for Engineering	H&SSE	30	70	100	3	0	0	3
	R20CC4117	Entrepreneurship & Innovations								
7	R20CE41SC1	Quantity Estimation & Project Management lab	SAC/SSC		50	50	1	0	2	2
8	R20CC41IN	INTERNSHIP/ Community Service Project	PROJ	15	35	50				1.5
9	R20CC41MC	MOOCS								1.5
<b>Total Credits</b>										<b>23</b>
<b>HONORS/MINOR COURSE</b>										
10		Honors/Minor	PC	30	70	100	4	0	0	4





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IV B.TECH II SEMESTER										
S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CC42PW	Major project & Internship	PROJ	60	140	200	0	0	0	12
<b>INTERNSHIP (6 MONTHS)</b>										
<b>TOTAL CREDITS</b>										<b>12</b>
HONORS/MINOR COURSE										
2		HONORS/MINOR	PC	30	70	100	4	0	0	4

**LIST OF HONORS  
POOL 1 (structures stream)**

S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CEHN02	Finite element methods	PC	30	70	100	4	0	0	4
2	R20CEHN03	Advanced Structural Engineering	PC	30	70	100	4	0	0	4
3	R20CEHN04	Theory of Elasticity And Plasticity	PC	30	70	100	4	0	0	4
4	R20CEHN05	Matrix Methods of Structural Analysis	PC	30	70	100	4	0	0	4


**POOL 2 (Environmental stream)**

S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CEHN01	Air pollution and control	PC	30	70	100	4	0	0	4
2	R20CEHN06	Advanced Environmental Engineering	PC	30	70	100	4	0	0	4
3	R20CEHN07	Solid waste management	PC	30	70	100	4	0	0	4
4	R20CEHN08	Rural water supply and sanitation	PC	30	70	100	4	0	0	4



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**POOL 3 (SOIL MECHANICS)**

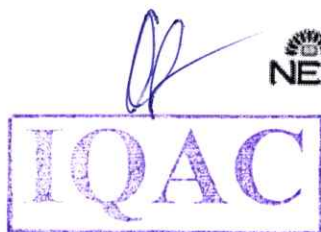
S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CEHN09	Rock Mechanics	PC	30	70	100	4	0	0	4
2	R20CEHN10	Geotechnical Exploration and Instrumentation	PC	30	70	100	4	0	0	4
3	R20CEHN11	Soil Dynamics And Machine Foundations	PC	30	70	100	4	0	0	4
4	R20CEHN12	Earth And Rockfill Dams	PC	30	70	100	4	0	0	4

**POOL 4 (TRANSPORTATION ENGINEERING)**

S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CEHN13	Highway Traffic Analysis and Design	PC	30	70	100	4	0	0	4
2	R20CEHN14	Pavement Analysis and Design	PC	30	70	100	4	0	0	4
3	R20CEHN15	Transportation Systems	PC	30	70	100	4	0	0	4
4	R20CEHN16	Road Transport Management and Economics	PC	30	70	100	4	0	0	4

**LIST OF MINORS**

S.No	CODE	Subject	Cat Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	R20CCMN01	Introduction to Civil Engineering-Concepts And Materials	PC	30	70	100	4	0	0	4
2	R20CCMN02	Geomatics	PC	30	70	100	4	0	0	4
3	R20CCMN05	Fundamentals of Structural Engineering	PC	30	70	100	4	0	0	4
4	R20CCMN06	Environmental Engineering	PC	30	70	100	4	0	0	4



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<b>OPEN ELECTIVE/JOB ORIENTED COURSE-I</b>										
S.NO	CODE	SUBJECT	CAT. CODE	INTERNAL	EXTERNAL	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1OE01	Disaster Management	OE	30	70	100	4	0	0	4
2	R20CC0E02	Green Technology	OE	30	70	100	4	0	0	4
<b>OPEN ELECTIVE/JOB ORIENTED COURSE-II</b>										
3	R20CC2OE01	Remote Sensing And Gis	OE	30	70	100	4	0	0	4
4	R20CC2OE02	Traffic Safety	OE	30	70	100	4	0	0	4
<b>OPEN ELECTIVE/JOB ORIENTED COURSE-III</b>										
5	R20CC3OE01	Railway, Airport & Harbor Engineering	OE	30	70	100	4	0	0	4
6	R20CC3OE02	Low Cost Housing	OE	30	70	100	4	0	0	4
<b>OPEN ELECTIVE/JOB ORIENTED COURSE-IV</b>										
7	R20CC4OE01	Environmental Pollution & Control	OE	30	70	100	4	0	0	4
8	R20CC4OE02	Construction Technology And Management	OE	30	70	100	4	0	0	4




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**I B. Tech. - I SEMESTER**

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20CC1101	Technical and Communicative English – I	HS	3	0	0	30	70	100	3
2	R20CC1102	Linear Algebra and Calculus	BS	2	1	0	30	70	100	3
	R20CC1105	Problem Solving Using C	ES	3	0	0	30	70	100	3
3	R20EE1109	Basics in Mechanical and Civil Engineering	ES	3	0	0	30	70	100	3
5	R20EE1110	Engineering Drawing and Design	ES	1	0	4	30	70	100	3
6	R20CC11L1	Soft Skills and Communication Skills Lab-1	HS	0	0	3	15	35	50	1.5
7	R20CC11L2	Problem Solving Using C Lab	ES	0	0	3	15	35	50	1.5
8	R20EE11L6	Basics in Mechanical and Civil Engineering Lab	ES	0	0	3	15	35	50	1.5
		<b>Total</b>		<b>12</b>	<b>1</b>	<b>13</b>	<b>195</b>	<b>455</b>	<b>650</b>	<b>19.5</b>



  
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**I B. Tech. – II SEMESTER**

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20CC1201	Differential Equations and Vector Calculus	BS	2	1	0	30	70	100	3
2	R20CC1205	Applied Physics	BS	3	0	0	30	70	100	3
3	R20EE1209	Electronics Devices and Circuits	ES	3	0	0	30	70	100	3
4	R20EE1213	Electrical Circuit Analysis-I	PC	2	1	0	30	70	100	3
5	R20CC1210	Data Structures	ESC	3	0	0	30	70	100	3
6	R20EE12L9	Electronics Devices and Circuits Lab	ES	0	0	3	15	35	50	1.5
7	R20CC12L10	Applied Physics Lab	BS	0	0	3	15	35	50	1.5
8	R20CC12L11	Data Structures Lab	ES	0	0	3	15	35	50	1.5
9	R20CC12MC2	Constitution of India (Zero Credit Course)	MC	2	0	0	-	-	-	-
		Total		15	2	9	195	455	650	19.5



  
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**II B. Tech. - I SEMESTER**

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20CC2101	Numerical Methods and Transformations	BS	2	1	0	30	70	100	3
2	R20EE2102	Electrical Circuit Analysis-II	PC	2	1	0	30	70	100	3
3	R20EE2103	Electrical Machines-I	PC	2	1	0	30	70	100	3
4	R20EE2104	Electromagnetic Fields	PC	2	1	0	30	70	100	3
5	R20EE2105	Analog Electronics	PC	3	0	0	30	70	100	3
6	R20EE21L1	Electrical Circuit Analysis Lab	PC	0	0	3	15	35	50	1.5
7	R20EE21L2	Electrical Machines-I Lab	PC	0	0	3	15	35	50	1.5
8	R20EE21L3	Analog Electronics Lab	PC	0	0	3	15	35	50	1.5
9	R20EE21SC1	PLC Automation Lab	SC	0	0	4	-	50	50	2
10	R20CC21MC1	Environmental Studies (Non-Credit Course)	MC	2	0	0	-	-	-	-
		<b>Total</b>		<b>13</b>	<b>4</b>	<b>13</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>



  
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**II B. Tech. - II SEMESTER**

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20CC2201	Technical and Communicative English – II	HS	3	0	0	30	70	100	3
2	R20CC2202	Complex Variables Probability and Statistics	BS	2	1	0	30	70	100	3
3	R20EE2203	Control Systems	PC	2	1	0	30	70	100	3
4	R20EE2204	Electrical Machines-II	PC	2	1	0	30	70	100	3
5	R20EE2205	Digital Electronics	PC	3	0	0	30	70	100	3
6	R20EE22L1	Control System Lab	PC	0	0	3	15	35	50	1.5
7	R20EE22L2	Electrical Machines Lab-II	PC	0	0	3	15	35	50	1.5
8	R20EE22L3	Digital Electronics Lab	PC	0	0	3	15	35	50	1.5
9	R20EE22SC1	Numerical Techniques using MATLAB	SC	0	0	4	-	50	50	2
<b>Total</b>				<b>12</b>	<b>3</b>	<b>13</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>

Honors/Minor Courses	4	0	0	30	70	100	4
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Summer Internship/ Community Service (Mandatory)	To be evaluated in III-I						
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III B. Tech. - I SEMESTER

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EE3101	Problem Solving with Python	PC	3	0	0	30	70	100	3
2	R20EE3102	Power Electronics	PC	3	0	0	30	70	100	3
3	R20EE3103	Power Generation and Transmission	PC	3	0	0	30	70	100	3
4	R20CC1OE03	<b>Open Elective-I</b> a. Micro Electro Mechanical System	OE	3	0	0	30	70	100	3
	R20CC1OE04	b. Fundamentals of Electrical Engineering								
5	R20EE3106	<b>Professional Elective-I</b> a. Digital Control System	PE	3	0	0	30	70	100	3
	R20EE3107	b. Signals and Systems								
	R20EE3108	c. Special Electrical Machines								
	R20EE3109	d. Energy Conservation and Auditing								
6	R20EE31L1	Problem Solving with Python Programming Lab	PC	0	0	3	15	35	50	1.5

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7	R20EE31L2	Power Electronics Lab	PC	0	0	3	15	35	50	1.5
8	R20EE31SC3	Internet of Things	SC	1	0	2	-	50	50	2
9	R20CC31MC01	Professional Ethics and Human Values (MC)	MC	2	0	0	-	-	-	-
10	R20CC31IN	Summer Internship / Community Service Project	PROJ	0	0	0	0	50	50	1.5
<b>Total</b>				<b>18</b>	<b>-</b>	<b>8</b>	<b>180</b>	<b>520</b>	<b>700</b>	<b>21.5</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>										<b>4</b>



  
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III B. Tech. - II SEMESTER

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EE3201	Microprocessor & Microcontrollers	PC	3	0	0	30	70	100	3
2	R20EE3202	Power System Analysis	PC	3	0	0	30	70	100	3
3	R20EE3203	Measurements & Instrumentation	PC	3	0	0	30	70	100	3
4	R20EE3204	<b>Professional Elective-II</b> a. Renewable and Distributed Energy System	PE	3	0	0	30	70	100	3
	R20EE3205	b. Electric Drives								
	R20EE3206	c. Utilization of Electrical Energy								
	R20EE3207	d. Big Data Analytics								
5	R20CC2OE03	<b>Open Elective-II</b> a. Hybrid Electric Vehicle	OE	3	0	0	30	70	100	3
	R20CC2OE04	b. Energy Audit and Conservation								
6	R20EE32L1	Microprocessors and Microcontrollers Lab	PC	0	0	3	15	35	50	1.5
7	R20EE32L2	Measurements and Instrumentation Lab	PC	0	0	3	15	35	50	1.5
8	R20EE32L3	Power System Simulation Lab	PC	0	0	3	15	35	50	1.5

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9	R20CC32SC1	English Employability Skills	SC	1	0	2	-	50	50	2
10	R20CC32MC1	Essence of Indian Traditional Knowledge (MC)	MC	2	0	0	-	-	-	-
<b>Total</b>				<b>18</b>	<b>-</b>	<b>11</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>										<b>4</b>

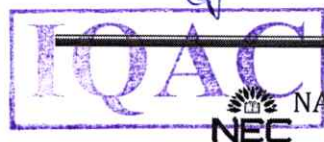


  
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IV B. Tech. - I SEMESTER

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EE4102	<b>Professional Elective-III</b> a. High Voltage Engineering	PE	3	0	0	30	70	100	3
	R20EE4103	b. Power System Stability								
	R20EE4104	c. Flexible AC Transmission Systems								
	R20EE4105	d. Smart Grid Technology								
2	R20EE4106	<b>Professional Elective-IV</b> a. Power Quality	PE	3	0	0	30	70	100	3
	R20EE4107	b. Electrical and Hybrid Vehicles								
	R20EE4108	c. Introduction to Embedded Systems								
	R20EE4109	d. Power System Operation and Control								
3	R20EE4110	<b>Professional Elective-V</b> a. HVDC Transmission	PE	3	0	0	30	70	100	3
	R20EE4111	b. Switchgear and Protection								
	R20EE4112	c. Electrical Machine Design								
	R20EE4113	d. AI Techniques to power System								
4	R20CC3OE03	<b>Open Elective-III</b> a. Concept of Smart Grid Technology	OE	3	0	0	30	70	100	3
	R20CC3OE04	b. Industrial Automation								



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5	R20CC4OE03	<b>Open Elective-IV</b> a. Non-Conventional Energy Resources	OE	3	0	0	30	70	100	3
	R20CC4OE04	b. Electrical Safety								
6	R20CC4101	<b>Humanities and Social Science Elective</b> a. Business Management Concepts for Engineers	HSE	3	0	0	30	70	100	3
	R20CC4117	b. Entrepreneurship & Innovation								
7	R20EE41SC1	<b>Machine Learning with Python</b>	SC	1	0	2	-	50	50	2
8	R20CC41IN	Internship / Community Service Project	PROJ	0	0	0	0	50	50	1.5
9	R20CC41MC	MOOCs Course	PC	-	-	-	-	-	-	1.5
<b>Total</b>				19	-	2	180	520	700	23
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>										4

IV B. Tech. - II SEMESTER

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20CC42PW	Major Project and Internship	PROJ	0	0	0	-	-	-	12
		<b>Total</b>		-	-	-	-	-	-	<b>12</b>



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**LIST OF HONORS**

**POOL-1**

**Power Systems Engineering:** (any four of the following subjects which are not chosen as professional electives are to be considered for Honors Degree)

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EEHN01	Advanced Power System Protection	PC	3	1	0	30	70	100	4
2	R20EEHN02	Power system reliability	PC	3	1	0	30	70	100	4
3	R20EEHN03	Power Systems Dynamics and Stability	PC	3	1	0	30	70	100	4
4	R20EEHN04	Economic Operation of Power System	PC	3	1	0	30	70	100	4
5	R20EEHN05	Renewable Energy and Grid Integration	PC	3	1	0	30	70	100	4

In addition to any of the four subjects, MOOC/NPTEL Courses for 04 credits (02 courses @ 2 credits each) are compulsory in the domain of Electrical and Electronics Engineering

**POOL-2**

**Power Electronics and Drives:** (any four of the following subjects which are not chosen as professional electives are to be considered for Honors Degree)

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EEHN06	Analysis of Power Electronic Converters	PC	3	1	0	30	70	100	4
2	R20EEHN07	Advanced Electric Drives	PC	3	1	0	30	70	100	4
3	R20EEHN08	Analysis of Electrical Machines	PC	3	1	0	30	70	100	4
4	R20EEHN09	SMPS and UPS	PC	3	1	0	30	70	100	4
5	R20EEHN10	Power Electronics for Renewable Energy Systems	PC	3	1	0	30	70	100	4

In addition to any of the four subjects, MOOC/NPTEL Courses for 04 credits (02 courses @ 2 credits each) are compulsory in the domain of Electrical and Electronics Engineering



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**POOL-3**

**Advanced Control Systems:** (any four of the following subjects which are not chosen as professional electives are to be considered for Honors Degree)

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EEHN11	Intelligent Controllers	PC	3	1	0	30	70	100	4
2	R20EEHN12	Non-Linear control	PC	3	1	0	30	70	100	4
3	R20EEHN13	Industrial Automation Systems	PC	3	1	0	30	70	100	4
4	R20EEHN14	Digital Instrumentation	PC	3	1	0	30	70	100	4
5	R20EEHN15	Control of Electrical Drives	PC	3	1	0	30	70	100	4

In addition to any of the four subjects, MOOC/NPTEL Courses for 04 credits (02 courses @ 2 credits each) are compulsory in the domain of Electrical and Electronics Engineering


**POOL-4**

**Electric Vehicle Technology:** (any four of the following subjects which are not chosen as professional electives are to be considered for Honors Degree)

S. No.	Subject Code	Subject	Cat. Code	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	R20EEHN16	Electric Vehicle Mechanics and Control	PC	3	1	0	30	70	100	4
2	R20EEHN17	Electric Vehicle Dynamics	PC	3	1	0	30	70	100	4
3	R20EEHN18	Battery Technologies for Electric Vehicles	PC	3	1	0	30	70	100	4
4	R20EEHN19	Charging Infrastructure for EVs	PC	3	1	0	30	70	100	4
5	R20EEHN20	Hybrid Electric Vehicles	PC	3	1	0	30	70	100	4

In addition to any of the four subjects, MOOC/NPTEL Courses for 04 credits (02 courses @ 2 credits each) are compulsory in the domain of Electrical and Electronics Engineering



  
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LIST OF OPEN ELECTIVES OFFERED BY ALL DEPARTMENTS

OPEN ELECTIVE-I

S.No.	Open Elective-I Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	C
1	Disaster Management	CE	R20CC1OE01	3	0	0	3
2	Green Technology	CE	R20CC1OE02	3	0	0	3
3	Micro Electro Mechanical System	EEE	R20CC1OE03	3	0	0	3
4	Fundamentals of Electrical Engineering	EEE	R20CC1OE04	3	0	0	3
5	Rapid Prototyping & 3D Printing (Other than ME)	ME	R20CC2OE05	3	0	0	3
6	Operations Research	ME	R20CC2OE06	3	0	0	3
7	Principles of Signals, Systems & Communications (Other than ECE)	ECE	R20CC1OE08	3	0	0	3
8	Medical Electronics	ECE	R20CC1OE08	3	0	0	3
9	DBMS (Other Than CSE)	CSE	R20CC1OE09	3	0	0	3
10	Web Development Using Mean Stack Tech	CSE	R20CC1OE11	3	0	0	3
11	Front End UI and Frame Work	IT	R20CC1OE10	3	0	0	3
12	Web Development Using Mean Stack Tech	IT	R20CC1OE12	3	0	0	3
13	Financial Institutions, Markets and Services	MBA	R20CC1OE13	3	0	0	3
14	Human Resource Practices	MBA	R20CC1OE14	3	0	0	3
15	OOP Through JAVA	AI	R20CC1OE15	3	0	0	3
16	Computer Organization	AI	R20CC1OE16	3	0	0	3

**OPEN ELECTIVE-II**

S.No.	Open Elective-II Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	C
1	Remote Sensing And GIS	CE	R20CC2OE01	3	0	0	3
2	Traffic Safety	CE	R20CC2OE02	3	0	0	3
3	Hybrid Electric Vehicle	EEE	R20CC2OE03	3	0	0	3
4	Energy Audit and Conservation	EEE	R20CC2OE04	3	0	0	3
5	Industrial Engineering & Management (Other than ME)	ME	R20CC2OE05	3	0	0	3
6	Industrial Robotics (Other than ME)	ME	R20CC2OE06	3	0	0	3
7	Fundamentals of Image Processing (Other than ECE)	ECE	R20CC2OE07	3	0	0	3
8	Global Positioning System(GPS)	ECE	R20CC2OE08	3	0	0	3
9	Artificial Intelligence	CSE	R20CC2OE09	3	0	0	3
10	OOPS through JAVA	CSE	R20CC2OE10	3	0	0	3
11	Introduction to AI	IT	R20CC2OE11	3	0	0	3
12	OOP Through JAVA	IT	R20CC2OE12	3	0	0	3
13	Digital Marketing	MBA	R20CC2OE13	3	0	0	3
14	Personal Finance Planning	MBA	R20CC2OE14	3	0	0	3
15	Database Management Systems	AI	R20CC2OE15	3	0	0	3
16	Cloud Computing	AI	R20CC2OE16	3	0	0	3





OPEN ELECTIVE-III

S.No.	Open Elective-III Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	
1	Railway, Airport & Harbour Engineering	CE	R20CC3OE01	3	0	0	3
2	Low Cost Housing	CE	R20CC3OE02	3	0	0	3
3	Concept of Smart Grid Technology	EEE	R20CC3OE03	3	0	0	3
4	Industrial Automation	EEE	R20CC3OE04	3	0	0	3
5	Automotive Vehicles	ME	R20CC3OE05	3	0	0	3
6	Nano Technology	ME	R20CC3OE06	3	0	0	3
7	Introduction to Micro Processors & Micro Controllers(Other than ECE)	ECE	R20CC3OE07	3	0	0	3
8	Nano Electronics	ECE	R20CC3OE08	3	0	0	3
9	Cloud Computing	CSE	R20CC3OE09	3	0	0	3
10	Block Chain Technologies	CSE	R20CC3OE10	3	0	0	3
11	Digital Marketing	IT	R20CC3OE11	3	0	0	3
12	Augmented Reality	IT	R20CC3OE12	3	0	0	3
13	Performance Management	MBA	R20CC3OE13	3	0	0	3
14	Services Marketing	MBA	R20CC3OE14	3	0	0	3
15	Block Chain Technologies	AI	R20CC3OE15	3	0	0	3
16	Human Computer Interaction	AI	R20CC3OE16	3	0	0	3

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OPEN ELECTIVE-IV

S.No.	Open Elective-IV Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	
1	Environmental Pollution & Control	CE	R20CC4OE01	3	0	0	3
2	Construction Technology and Management	CE	R20CC4OE02	3	0	0	3
3	Non-Conventional Energy Resources	EEE	R20CC4OE03	3	0	0	3
4	Electrical Safety	EEE	R20CC4OE04	3	0	0	3
5	Pneumatics & Hydraulic Automation	ME	R20CC4OE05	3	0	0	3
6	Mechatronics	ME	R20CC4OE06	3	0	0	3
7	Introduction to Embedded Systems (Other than ECE)	ECE	R20CC4OE07	3	0	0	3
8	Embedded and Real time Operating System	ECE	R20CC4OE08	3	0	0	3
9	Cyber Security	CSE	R20CC4OE09	3	0	0	3
10	Ethical Hacking	CSE	R20CC4OE010	3	0	0	3
11	Ethical Hacking	IT	R20CC4OE011	3	0	0	3
12	E-Commerce	IT	R20CC4OE012	3	0	0	3
13	Quality Management	MBA	R20CC4OE013	3	0	0	3
14	Logistics and Supply Chain Management	MBA	R20CC4OE014	3	0	0	3
15	DevOps	AI	R20CC4OE015	3	0	0	3
16	E-Commerce	AI	R20CC4OE016	3	0	0	3

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DEPARTMENT OF MECHANICAL ENGINEERING


I B.TECH- I SEMESTER

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Engineering Chemistry	R20CC1103	BS	30	70	100	3	0	0	3
2	Linear Algebra and Calculus	R20CC1102	BS	30	70	100	2	1	0	3
3	Technical and Communicative English-I	R20CC1101	HS	30	70	100	3	0	0	3
4	Engineering Mechanics	R20CC1107	ES	30	70	100	2	1	0	3
5	Problem Solving using Python	R20ME1106	ES	30	70	100	3	0	0	3
6	Soft skills and Communication Skills Lab-1	R20CC11L1	HS	15	35	50	0	0	3	1.5
7	Engineering Chemistry Lab	R20CC11L5	BS	15	35	50	0	0	3	1.5
8	Problem Solving using Python Lab	R20ME11L3	ES	15	35	50	0	0	3	1.5
<b>Total</b>										<b>19.5</b>

I B.TECH - II SEMESTER

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Differential Equations and Vector Calculus	R20CC1201	BS	30	70	100	2	1	0	3
2	Engineering Physics	R20CC1203	BS	30	70	100	3	0	0	3
3	Engineering Drawing	R20CC1207	ES	30	70	100	1	0	4	3
4	Elements of Electrical and Electronics Engg.	R20ME1214	ES	30	70	100	3	0	0	3
5	Material Science and Metallurgy	R20ME1211	ES	30	70	100	3	0	0	3
6	Elements of Electrical and Electronics Engg. Lab	R20CC12L7	ES	15	35	50	0	0	3	1.5
7	Engineering Physics Lab	R20CC12L5	BS	15	35	50	0	0	3	1.5
8	Engineering Workshop	R20CC12L4	ES	15	35	50	0	0	3	1.5
9	Constitution of India (MC)	R20CC12MC2	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>19.5</b>



  
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DEPARTMENT OF MECHANICAL ENGINEERING

**II B.TECH – I SEMESTER**

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Numerical Methods and Transformations	R20CC2101	BS	30	70	100	2	1	0	3
2	Fluid Mechanics and Hydraulic Machinery	R20ME2102	PC	30	70	100	2	1	0	3
3	Metrology and Instrumentation	R20ME2103	PC	30	70	100	3	0	0	3
4	Thermodynamics	R20ME2104	PC	30	70	100	2	1	0	3
5	Mechanics of Solids	R20ME2105	PC	30	70	100	2	1	0	3
6	FMHM Lab	R20ME21L1	PC	15	35	50	0	0	3	1.5
7	MOS and Metallurgy Lab	R20ME21L2	PC	15	35	50	0	0	3	1.5
8	Metrology and Instrumentation Lab	R20ME21L3	PC	15	35	50	0	0	3	1.5
9	Solid Modelling	R20ME21SC1	SC	-	50	50	0	0	4	2
10	Environmental Studies	R20CC21MC1	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>

**II B.TECH– II SEMESTER**

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Applied Thermodynamics	R20ME2204	ES	30	70	100	2	1	0	3
2	Complex Variables Probability and Statistics	R20CC2202	BS	30	70	100	2	1	0	3
3	Kinematics of Machinery	R20ME2205	PC	30	70	100	3	0	0	3
4	Manufacturing Technology	R20ME2203	PC	30	70	100	3	0	0	3
5	Technical and Communicative English –II	R20CC2201	HS	30	70	100	3	0	0	3
6	Machine Drawing Lab	R20ME22L1	PC	15	35	50	0	0	3	1.5
7	Applied Thermodynamics Lab	R20ME22L2	PC	15	35	50	0	0	3	1.5
8	Manufacturing Technology Lab	R20ME22L3	PC	15	35	50	0	0	3	1.5
9	Computer Aided Engineering Practice	R20ME22SC2	SC	-	50	50	0	0	4	2
<b>Total</b>										<b>21.5</b>
10	Honors/Minors Course	-	HC	30	70	100	4	0	0	4





  
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III B.TECH – I SEMESTER

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Artificial Intelligence and Machine Learning	R20ME3101	PC	30	70	100	3	0	0	3
2	Heat Power Engineering	R20ME3102	PC	30	70	100	2	1	0	3
3	Design of Machine Elements-I	R20ME3103	PC	30	70	100	2	1	0	3
4	<b>Open Elective Course/Job Oriented Elective -I</b>		OE	30	70	100	3	0	0	3
	RPT &3D Printing (Other than ME)	R20CC1OE06								
	Operations Research	R20CC1OE07								
5	<b>Professional Elective Course -I</b>		PC	30	70	100	3	0	0	3
	Automobile Engineering	R20ME3105								
	Refrigeration & Air Conditioning	R20ME3106								
	Metal Cutting & Machine Tools	R20ME3107								
	Work Study	R20ME3108								
6	Artificial Intelligence and Machine Learning Lab	R20ME31L1	PC	15	35	50	0	0	3	1.5
7	Heat power Engineering Lab	R20ME31L2	PC	15	35	50	0	0	3	1.5
8	Robotics & 3D Printing Lab	R20ME31SC3	SC	-	50	50	0	0	4	2
9	PE&HV	R20CC31MC01	MC				2	0	0	0
10	Internship/ Community Service Project	R20CC31IN	SI	-	50	50	0	0	3	1.5
<b>Total</b>										<b>21.5</b>
11	Honors / Minors Course	-	HC	30	70	100	4	0	0	4




  
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III B.TECH – II SEMESTER

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Design of Machine Elements-II	R20ME3201	PC	30	70	100	2	1	0	3
2	Heat Transfer	R20ME3202	PC	30	70	100	2	1	0	3
3	Dynamics of Machinery	R20ME3203	PC	30	70	100	2	1	0	3
4	<b>Professional Elective Course -II</b>									
	Advanced Mechanics of Solids	R20ME3204	PE	30	70	100	3	0	0	3
	Nonconventional Sources of energy	R20ME3205								
	Quality concepts in Design	R20ME3206								
	Robotics & Applications	R20ME3207								
5	<b>Open Elective Course/Job Oriented Elective - II</b>		OE	30	70	100	3	0	0	3
	Industrial Engineering & Management (Other than ME)	R20CC2OE05								
	Industrial Robotics (Other than ME)	R20CC2OE06								
6	Heat Transfer Lab	R20ME32L1	PC	15	35	50	0	0	3	1.5
7	Machine Tools & Machine Dynamics Lab	R20ME32L2	PC	15	35	50	0	0	3	1.5
8	Pneumatics & HVAC Lab	R20ME32L3	PC	15	35	50	0	0	3	1.5
9	English for Employability Skills	R20CC32SC1	SC	-	50	50	0	0	4	2
10	Essence of Indian Traditional Knowledge	R20CC32MC1	MC				2	0	0	0
<b>Total</b>										<b>21.5</b>
11	Honors / Minors Course		HC	30	70	100	4	0	0	4



  
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## IV B.TECH – I SEMESTER

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	<b>Professional Elective Course-III</b>		PE	30	70	100	3	0	0	3
	Digital Manufacturing	R20ME4102								
	Design for Manufacturing	R20ME4103								
	Power Plant Engineering	R20ME4104								
	Optimization Techniques	R20ME4105								
	Total Quality Management	R20ME4106								
2	<b>Professional Elective Course-IV</b>		PE	30	70	100	3	0	0	3
	Finite Element Method	R20ME4107								
	Experimental Stress Analysis	R20ME4108								
	Solar Energy Systems	R20ME4109								
	Big Data Analytics	R20ME4110								
	Automation in Manufacturing	R20ME4111								
3	<b>Professional Elective Course-V</b>		PE	30	70	100	3	0	0	3
	Industrial Engineering & Management	R20ME4112								
	Mechanical Vibrations	R20ME4113								
	Waste Heat Recovery Systems	R20ME4114								
	Production Planning and Control	R20ME4115								
	Electric & Hybrid Vehicles	R20ME4116								
4	<b>Open Elective Course/Job Oriented Elective –III</b>		OE	30	70	100	3	0	0	3
	Automotive Vehicles	R20CC3OE05								
	Nano Technology	R20CC3OE06								
5	<b>Open Elective Course/Job Oriented Elective -IV</b>		OE	30	70	100	3	0	0	3
	Pneumatics & Hydraulic Automation	R20CC4OE05								
	Mechatronics	R20CC4OE06								
6	<b>Humanity &amp; Social Service Elective</b>		HSSE	30	70	100	3	0	0	3



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DEPARTMENT OF MECHANICAL ENGINEERING

	1. Business Management Concepts for Engineering	R20CC4101									
	2. Entrepreneurship & Innovation	R20CC4117									
7	Mechatronics & Simulation Lab	R20ME41SC4	SC	-	50	50	0	0	4		2
8	Internship/ Community Service Project	R20CC41IN	SI	-	50	50	0	0	0		1.5
9	MOOCS Course	R20CC41MC	MC				0	0	0		1.5
<b>Total</b>											<b>23</b>
10	Honors / Minor Courses (MOOCS)		HC	30	70	100	4	0	0		4

IV B.TECH- II SEMESTER

S. No	Subject	Course Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Major Project & Internship	R20CC42PW	PR				0	0	0	12
<b>Total</b>										<b>12</b>
<b>Credits Grand Total</b>										<b>160</b>



  
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**LIST OF HONORS**

1. The subjects opted for Honors should be advanced type which are not covered in regular curriculum.
2. Students has to acquire 16 credits with minimum one subject from each pool.
3. Concerned BoS can add or delete the subjects as per the decision of the board.
4. Pre requisites to be defined by the board for each course.
5. Compulsory MOOC / NPTEL Courses for 04 credits (02 courses@ 2 credits each)

**POOL - 1**  
**AUTOMOTIVE DESIGN**

S. No	Subject	Sub Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Automobile Engine Design	R20MEHN01	PC	30	70	100	4	0	0	4
2	Automotive Transmission	R20MEHN02	PC	30	70	100	4	0	0	4
3	Autotronics and Safety	R20MEHN03	PC	30	70	100	4	0	0	4
4	Alternative Energy Sources for Automobiles	R20MEHN04	PC	30	70	100	4	0	0	4

**POOL-2**  
**ROBOTICS AND MECHATRONICS**

S. No	Subject	Sub Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Robotics Modelling & Analysis	R20MEHN05	PC	30	70	100	4	0	0	4
2	Modelling and Analysis of Dynamic Systems	R20MEHN06	PC	30	70	100	4	0	0	4
3	Theory and Design of Control Systems	R20MEHN07	PC	30	70	100	4	0	0	4
4	Smart Materials for Mechatronic applications	R20MEHN08	PC	30	70	100	4	0	0	4



  
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**POOL- 3**

**PRODUCT DESIGN AND DEVELOPMENT**

S. No	Subject	Sub Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Advanced Mechanical Vibrations	R20MEHN09	PC	30	70	100	4	0	0	4
2	Product Design	R20MEHN10	PC	30	70	100	4	0	0	4
3	Flexible Manufacturing systems	R20MEHN11	PC	30	70	100	4	0	0	4
4	Rapid Prototyping	R20MEHN12	PC	30	70	100	4	0	0	4

**POOL 4**

**THERMAL SCIENCE AND ENGINEERING**

S. No	Subject	Sub Code	Cat. Code	Internal Marks	External Marks	Total Marks	L	T	P	Credits
1	Advanced Thermodynamics	R20MEHN13	PC	30	70	100	4	0	0	4
2	Advanced Heat Transfer	R20MEHN14	PC	30	70	100	4	0	0	4
3	Gas turbines and Jet Propulsion	R20MEHN15	PC	30	70	100	4	0	0	4
4	Computational Fluid Dynamics	R20MEHN16	PC	30	70	100	4	0	0	4



  
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LIST OF OPEN ELECTIVES OFFERED BY ALL DEPARTMENTS

OPEN ELECTIVE-I

S.No.	Open Elective-I Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	C
1	Disaster Management	CE	R20CC1OE01	3	0	0	3
2	Green Technology	CE	R20CC1OE02	3	0	0	3
3	Micro Electro Mechanical System	EEE	R20CC1OE03	3	0	0	3
4	Fundamentals of Electrical Engineering	EEE	R20CC1OE04	3	0	0	3
5	Rapid Prototyping & 3D Printing (Other than ME)	ME	R20CC2OE05	3	0	0	3
6	Operations Research	ME	R20CC2OE06	3	0	0	3
7	Principles of Signals, Systems & Communications (Other than ECE)	ECE	R20CC1OE08	3	0	0	3
8	Medical Electronics	ECE	R20CC1OE08	3	0	0	3
9	DBMS (Other Than CSE)	CSE	R20CC1OE09	3	0	0	3
10	Web Development Using Mean Stack Tech	CSE	R20CC1OE11	3	0	0	3
11	Front End UI and Frame Work	IT	R20CC1OE10	3	0	0	3
12	Web Development Using Mean Stack Tech	IT	R20CC1OE12	3	0	0	3
13	Financial Institutions, Markets and Services	MBA	R20CC1OE13	3	0	0	3
14	Human Resource Practices	MBA	R20CC1OE14	3	0	0	3
15	OOP Through JAVA	AI	R20CC1OE15	3	0	0	3
16	Computer Organization	AI	R20CC1OE16	3	0	0	3

**OPEN ELECTIVE-II**

S.No.	Open Elective-II Subject Title	Department Offering the Subject	Sub Code	No. of periods per week			No. of Credits
				L	T	P	
1	Remote Sensing And GIS	CE	R20CC2OE01	3	0	0	3
2	Traffic Safety	CE	R20CC2OE02	3	0	0	3
3	Hybrid Electric Vehicle	EEE	R20CC2OE03	3	0	0	3
4	Energy Audit and Conservation	EEE	R20CC2OE04	3	0	0	3
5	Industrial Engineering & Management (Other than ME)	ME	R20CC2OE05	3	0	0	3
6	Industrial Robotics (Other than ME)	ME	R20CC2OE06	3	0	0	3
7	Fundamentals of Image Processing (Other than ECE)	ECE	R20CC2OE07	3	0	0	3
8	Global Positioning System(GPS)	ECE	R20CC2OE08	3	0	0	3
9	Artificial Intelligence	CSE	R20CC2OE09	3	0	0	3
10	OOPS through JAVA	CSE	R20CC2OE10	3	0	0	3
11	Introduction to AI	IT	R20CC2OE11	3	0	0	3
12	OOP Through JAVA	IT	R20CC2OE12	3	0	0	3
13	Digital Marketing	MBA	R20CC2OE13	3	0	0	3
14	Personal Finance Planning	MBA	R20CC2OE14	3	0	0	3
15	Database Management Systems	AI	R20CC2OE15	3	0	0	3
16	Cloud Computing	AI	R20CC2OE16	3	0	0	3





OPEN ELECTIVE-III

S.No.	Open Elective-III Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	C
1	Railway, Airport & Harbour Engineering	CE	R20CC3OE01	3	0	0	3
2	Low Cost Housing	CE	R20CC3OE02	3	0	0	3
3	Concept of Smart Grid Technology	EEE	R20CC3OE03	3	0	0	3
4	Industrial Automation	EEE	R20CC3OE04	3	0	0	3
5	Automotive Vehicles	ME	R20CC3OE05	3	0	0	3
6	Nano Technology	ME	R20CC3OE06	3	0	0	3
7	Introduction to Micro Processors & Micro Controllers(Other than ECE)	ECE	R20CC3OE07	3	0	0	3
8	Nano Electronics	ECE	R20CC3OE08	3	0	0	3
9	Cloud Computing	CSE	R20CC3OE09	3	0	0	3
10	Block Chain Technologies	CSE	R20CC3OE10	3	0	0	3
11	Digital Marketing	IT	R20CC3OE11	3	0	0	3
12	Augmented Reality	IT	R20CC3OE12	3	0	0	3
13	Performance Management	MBA	R20CC3OE13	3	0	0	3
14	Services Marketing	MBA	R20CC3OE14	3	0	0	3
15	Block Chain Technologies	AI	R20CC3OE15	3	0	0	3
16	Human Computer Interaction	AI	R20CC3OE16	3	0	0	3





OPEN ELECTIVE-IV

S.No.	Open Elective-IV Subject Title	Department Offering the Subject	Sub Code	No.of periods per week			No.of Credits
				L	T	P	
1	Environmental Pollution & Control	CE	R20CC4OE01	3	0	0	3
2	Construction Technology and Management	CE	R20CC4OE02	3	0	0	3
3	Non-Conventional Energy Resources	EEE	R20CC4OE03	3	0	0	3
4	Electrical Safety	EEE	R20CC4OE04	3	0	0	3
5	Pneumatics & Hydraulic Automation	ME	R20CC4OE05	3	0	0	3
6	Mechatronics	ME	R20CC4OE06	3	0	0	3
7	Introduction to Embedded Systems (Other than ECE)	ECE	R20CC4OE07	3	0	0	3
8	Embedded and Real time Operating System	ECE	R20CC4OE08	3	0	0	3
9	Cyber Security	CSE	R20CC4OE09	3	0	0	3
10	Ethical Hacking	CSE	R20CC4OE010	3	0	0	3
11	Ethical Hacking	IT	R20CC4OE011	3	0	0	3
12	E-Commerce	IT	R20CC4OE012	3	0	0	3
13	Quality Management	MBA	R20CC4OE013	3	0	0	3
14	Logistics and Supply Chain Management	MBA	R20CC4OE014	3	0	0	3
15	DevOps	AI	R20CC4OE015	3	0	0	3
16	E-Commerce	AI	R20CC4OE016	3	0	0	3



**I B.TECH., I SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDIT S
1	Linear Algebra and Calculus	R20CC1102	BS	2	1	0	30	70	100	3
2	Engineering Chemistry	R20CC1103	BS	3	0	0	30	70	100	3
3	Technical and Communicative English-I	R20CC1101	HS	3	0	0	30	70	100	3
4	Engineering Graphics	R20EC1108	ES	1	0	4	30	70	100	3
5	Problem solving using C	R20CC1105	ES	3	0	0	30	70	100	3
6	Soft Skills and Communication Skills Lab-I	R20CC11L1	HS	0	0	3	15	35	50	1.5
7	Engineering Chemistry Lab	R20CC11L5	BS	0	0	3	15	35	50	1.5
8	Problem solving using C Lab	R20CC11L2	ES	0	0	3	15	35	50	1.5
<b>Total</b>				<b>12</b>	<b>1</b>	<b>13</b>	<b>195</b>	<b>455</b>	<b>650</b>	<b>19.5</b>

**I B.TECH., II SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Differential Equations and Vector Calculus	R20CC1201	BS	2	1	0	30	70	100	3
2	Applied Physics	R20CC1205	BS	3	0	0	30	70	100	3
3	Problem Solving using Python	R20EC1217	ES	3	0	0	30	70	100	3
4	Network Analysis	R20EC1215	ES	3	0	0	30	70	100	3
5	Data Structures	R20CC1210	ES	3	0	0	30	70	100	3
6	Data Structures Lab	R20CC12L11	ES	0	0	3	15	35	50	1.5
7	Applied Physics Lab	R20CC12L10	BS	0	0	3	15	35	50	1.5
8	Problem Solving using Python Lab	R20EC12L1	ES	0	0	3	15	35	50	1.5
9	Constitution of India (Zero Credit Course)	R20CC12MC2	MC	2	0	0	-	-	-	0
<b>Total</b>				<b>16</b>	<b>1</b>	<b>9</b>	<b>195</b>	<b>455</b>	<b>650</b>	<b>19.5</b>



  
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**II B.TECH. – I SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Numerical Methods and Transformations	R20CC2101	BS	2	1	0	30	70	100	3
2	Electronic Devices and Circuits	R20EC2102	PC	3	0	0	30	70	100	3
3	Signals and Systems	R20EC2103	PC	2	1	0	30	70	100	3
4	Switching Theory and Logic Design	R20EC2104	PC	3	0	0	30	70	100	3
5	Linear Control Systems	R20EC2105	PC	3	0	0	30	70	100	3
6	Electronic Devices and Circuits Lab	R20EC21L1	PC	0	0	3	15	35	50	1.5
7	Signals and Systems Lab	R20EC21L2	PC	0	0	3	15	35	50	1.5
8	Digital Logic Design Lab	R20EC21L3	PC	0	0	3	15	35	50	1.5
9	Design of Systems using Arduino and Raspberry Pi Lab	R20EC21SC1	SC	0	0	4	-	50	50	2
10	Environmental Studies (Non-Credit Course)	R20CC21MC1	MC	2	0	0	-	-	-	0
<b>Total</b>				<b>15</b>	<b>2</b>	<b>13</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>

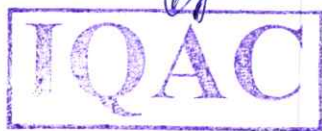


  
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**II B.TECH. – II SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Internet of Things	R20EC2202	ES	3	0	0	30	70	100	3
2	Analog and Digital Communications	R20EC2203	PC	3	0	0	30	70	100	3
3	Electronic Circuits and Pulse Circuits	R20EC2204	PC	3	0	0	30	70	100	3
4	Electromagnetic Waves and Transmission Lines	R20EC2205	PC	3	0	0	30	70	100	3
5	Technical and Communicative English-II	R20CC2201	HS	3	0	0	30	70	100	3
6	Internet of Things Lab	R20EC22L1	ES	0	0	3	15	35	50	1.5
7	Analog and Digital Communications Lab	R20EC22L2	PC	0	0	3	15	35	50	1.5
8	Electronic Circuits and Pulse Circuits Lab	R20EC22L3	PC	0	0	3	15	35	50	1.5
9	Design and Simulation of Electronic Circuits	R20EC22SC1	SC	0	0	4	-	50	50	2
<b>Total</b>				<b>15</b>	<b>0</b>	<b>13</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>
<b>Honors / Minor course</b>				<b>4</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
10	Summer Internship / Community Service Project (Mandatory)	<b>To be evaluated in III B.Tech. – I Semester</b>								




  
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**III B.TECH. - I SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Linear & Digital IC Applications	R20EC3101	PC	3	0	0	30	70	100	3
2	Antennas and Wave Propagation	R20EC3102	PC	3	0	0	30	70	100	3
3	Digital Signal Processing	R20EC3103	PC	3	0	0	30	70	100	3
4	Open Elective - I		OE	3	0	0	30	70	100	3
	i. Principles of Signals, Systems & Communications (Other than ECE)	R20EC3104								
	ii. Introduction to Data Science	R20EC3105								
5	Professional Elective-I:		PE	3	0	0	30	70	100	3
	i. Electronic Measurements and Instrumentation	R20EC3106								
	ii. Data Communication and Computer Networks	R20EC3107								
	iii. Statistical Methods in AI	R20EC3108								
	iv. Signals and Transform Techniques	R20EC3109								
6	DSP Lab	R20EC31L1	PC	0	0	3	15	35	50	1.5
7	LDICA Lab	R20EC31L2	PC	0	0	3	15	35	50	1.5
8	Embedded Systems and Robotics Lab	R20EC31SC3	SC	1	0	2	-	50	50	2
9	Professional Ethics and Human Values	R20CC31MC01	MC	2	0	0	-	-	-	0
10	Summer Internship/Community Service Project	R20CC31IN	PR	0	0	0	-	50	50	1.5
<b>Total</b>				<b>17</b>	<b>0</b>	<b>10</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>
<b>Honors/Minor course</b>				<b>4</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>




  
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**III B.TECH., - II SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Micro wave and Optical communications	R20EC3201	PC	3	1	0	30	70	100	3
2	VLSI Design	R20EC3202	PC	3	0	0	30	70	100	3
3	Microprocessors and Microcontrollers	R20EC3203	PC	3	0	0	30	70	100	3
4	Professional Elective - II:									
	i. Data Acquisition and Transmission	R20EC3204								
	ii. Satellite Communications	R20EC3205	PE	3	0	0	30	70	100	3
	iii. Introduction to Machine Learning	R20EC3206								
	iv. Digital Image Processing	R20EC3207								
5	Open Elective - II									
	i. Fundamentals of Image Processing (Other than ECE)	R20CC20E07	OE	3	0	0	30	70	100	3
	ii. Global Positioning System (GPS)	R20CC20E08								
6	MP&MC Lab	R20EC32L1	PC	0	0	3	15	35	50	1.5
7	VLSI Lab	R20EC32L2	PC	0	0	3	15	35	50	1.5
8	MW&OC Lab	R20EC32L3	PC	0	0	3	15	35	50	1.5
9	English Employability Skills	R20CC32SC1	SC	1	0	2	0	50	50	2
10	Essence of Indian Traditional Knowledge	R20CC32MC1	MC	2	0	0	-	-	-	0
	<b>Total</b>			<b>17</b>	<b>1</b>	<b>13</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>21.5</b>
	<b>Honors/Minor course</b>			<b>4</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>

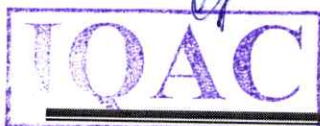


  
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**IV B.TECH., - I SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Professional Elective - III:		PE	3	0	0	30	70	100	3
	i. PC based Instrumentation	R20EC4101								
	ii. Cellular and Mobile Communication	R20EC4102								
	iii. Introduction to Deep Learning	R20EC4103								
	iv. Speech Processing	R20EC4104								
2	Professional Elective - IV:		PE	3	0	0	30	70	100	3
	i. Bio Medical Instrumentation	R20EC4105								
	ii. Radar Systems	R20EC4106								
	iii. Soft Computing Techniques	R20EC4107								
	iv. DSP Architectures	R20EC4108								
3	Professional Elective - V:		PE	3	0	0	30	70	100	3
	i. Analytical Instrumentation	R20EC4109								
	ii. Advanced communication Technologies	R20EC4110								
	iii. Edge Computing	R20EC4111								
	iv. Multimedia Signal Processing	R20EC4112								
4	Open Elective - III		OE	3	0	0	30	70	100	3
	i. Introduction to Micro Processors & Micro Controllers (Other than ECE)	R20CC3OE07								
	ii. Nano Electronics	R20CC3OE08								
5	Open Elective - IV:		OE	3	0	0	30	70	100	3
	i. Introduction to Embedded Systems (Other than ECE)	R20CC4OE07								
	ii. Embedded and Real time Operating System	R20CC4OE08								



6	Humanities and Social Science Elective: i. Business Management Concepts for Engineers	R20CC4101	HSSE	3	0	0	30	70	100	3
	ii. Entrepreneurship and Innovation	R20CC4117								
7	Python Programming for Deep Learning/Mobile App Development	R20EC41SC1	SC	1	0	2	0	50	50	2
8	Internship/Community Service Project	R20CC41IN	PR	0	0	0	-	50	50	1.5
9	MOOCS	R20CC41MC	PE	-	-	-	-	-	-	1.5
	<b>Total</b>			<b>17</b>	<b>0</b>	<b>6</b>	<b>195</b>	<b>505</b>	<b>700</b>	<b>23</b>
	<b>Honors/Minor course</b>			<b>4</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>

**IV B.TECH. - II SEMESTER**

S.No.	SUBJECT	SUBJECT CODE	Cat. Code	L	T	P	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	CREDITS
1	Internship and Project Work	R20CC42PW	PR	0	0	0	60	140	200	12




  
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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### R20 COURSE STRUCTURE I B.TECH - I SEMESTER

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDIT S
1	R20CC1101	Technical and Communicative English - I	HS	30	70	100	3	0	0	3
2	R20CC1102	Linear Algebra and Calculus	BS	30	70	100	2	1	0	3
3	R20CC1104	Applied Physics	BS	30	70	100	3	0	0	3
4	R20CC1105	Problem Solving Using C	ES	30	70	100	3	0	0	3
5	R20CC11L1	Soft Skills and Communication Skills Lab - I	HS	15	35	50	0	0	3	1.5
6	R20CC11L2	Problem Solving Using C Lab	ES	15	35	50	0	0	3	1.5
7	R20CC11L4	Applied Physics Lab	BS	15	35	50	0	0	3	1.5
8	R20CS11L8	LINUX Programming Lab	ES	30	70	100	0	1	4	3
<b>TOTAL</b>										<b>19.5</b>



  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**R20 COURSE STRUCTURE  
I B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1202	Numerical Methods and Statistics	BS	30	70	100	2	1	0	3
2	R20CC1204	Engineering Chemistry	BS	30	70	100	3	0	0	3
3	R20CC1206	Problem Solving Using Python	ES	30	70	100	3	0	0	3
4	R20CC1208	Electronic Devices and Logic Design	ES	30	70	100	3	0	0	3
5	R20CC12L2	Engineering Chemistry Lab	BS	15	35	50	0	0	3	1.5
6	R20CC12L3	R Programming Lab	ES	15	35	50	0	0	3	1.5
7	R20CC12L12	Problem Solving Using Python Lab	ES	15	35	50	0	0	3	1.5
8	R20CS12L13	CSE Workshop	ES	30	70	100	0	1	4	3
9	R20CC12MC1	Environmental Studies (Zero Credit Course)	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>19.5</b>




  
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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### R20 COURSE STRUCTURE II B.TECH - I SEMESTER

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2102	Mathematical Foundations of Computer Science	BS	30	70	100	2	1	0	3
2	R20CC2103	OOPS through Java	PC	30	70	100	3	0	0	3
3	R20CC2104	Data Structures	PC	30	70	100	3	0	0	3
4	R20CI2101	Computer Organization	PC	30	70	100	3	0	0	3
5	R20CC2105	Front End Web Technologies	PC	30	70	100	3	0	0	3
6	R20CC21L1	Data Structures Lab	PC	15	35	50	0	0	3	1.5
7	R20CC21L2	OOPS through Java Lab	PC	15	35	50	0	0	3	1.5
8	R20CC21L3	Front End Web Technologies Lab	PC	15	35	50	0	0	3	1.5
9	R20CC21SC1	Data Science Lab	SC	-	50	50	0	0	4	2
10	R20CC21MC2	Constitution of India (Non Credit Course)	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										21.5



  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**R20 COURSE STRUCTURE**

**II B.TECH – II SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDI TS
1	R20CC2201	Technical and Communicative English -II	HS	30	70	100	3	0	0	3
2	R20CC2203	Database Management Systems	PC	30	70	100	3	0	0	3
3	R20CS2202	Formal Languages and Automata Theory	PC	30	70	100	3	0	0	3
4	R20CC2204	Software Engineering	PC	30	70	100	3	0	0	3
5	<b>Open Elective –I</b>		OE	30	70	100	3	0	0	3
6	R20CC22L1	Database Management Systems Lab	PC	15	35	50	0	0	3	1.5
7	R20CS22L3	Software Engineering and UML Lab	PC	15	35	50	0	0	3	1.5
8	R20CC22L2	Mobile Application Development Lab	PC	15	35	50	0	0	3	1.5
9	R20CS22SC1	Artificial Intelligence	SC	-	50	50	0	0	4	2
<b>TOTAL</b>										<b>21.5</b>
10	Honor / Minor Course			30	70	100	4	0	0	4
<b>Summer Internship / Community Service Project</b>					<b>To be evaluate in III-I</b>					



  
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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**R20 COURSE STRUCTURE  
III B.TECH – I SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC3103	Design and Analysis of Algorithms	PC	30	70	100	3	0	0	3
2	R20CC3104	Computer Networks	PC	30	70	100	3	0	0	3
3	R20CS3105	Compiler Design	PC	30	70	100	3	0	0	3
4	R20CC3101	Operating Systems	PC	30	70	100	3	0	0	3
5	R20CC3102	<b>Professional Elective – I</b> 1. Data Warehousing and Data Mining 2. Computer Graphics 3. Software Testing Methodologies 4. Distributed Systems	PE	30	70	100	3	0	0	3
	R20CC3106									
	R20CC3107									
	R20CS3108									
6	R20CS31L3	DAA and CD Lab	PC	15	35	50	0	0	3	1.5
7	R20CC31L2	CN and OS Lab	PC	15	35	50	0	0	3	1.5
8	R20CC31SC1	English Employability Skills	SC	-	50	50	0	0	4	2
9	R20CC31IN	Summer Internship / Community Service Project	PR	-	50	50	0	0	0	1.5
10	R20CC31MC02	Essence of Indian Traditional Knowledge	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										21.5
11	<b>Honors / Minor Course</b>			30	70	100	4	0	0	4



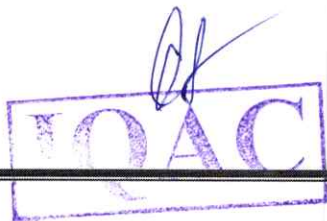
  
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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### R20 COURSE STRUCTURE III B.TECH – II SEMESTER

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC3204	Machine Learning	PC	30	70	100	3	0	0	3
2	R20CC3205	Advanced Java and Web Technologies	PC	30	70	100	3	0	0	3
3	R20CC3201	Cryptography and Network Security	PC	30	70	100	3	0	0	3
4	R20CC3206 R20CC3202 R20CC3207 R20CS3203	<b>Professional Elective – II</b> 1. Big Data Analytics 2. Mobile Computing 3. Design Patterns 4. High Performance Computing	PE	30	70	100	3	0	0	3
5	Open Elective – II		OE	30	70	100	3	0	0	3
6	R20CC32L1	Advanced Java and Web Technologies Lab	PC	15	35	50	0	0	3	1.5
7	R20CC32L2	Machine Learning Lab	PC	15	35	50	0	0	3	1.5
8	R20CC32L3	Software Lab	ES	15	35	50	0	0	3	1.5
9	R20CC32SC4	Internet of Things	SC	-	50	50	0	0	4	2
10	R20CC32MC2	Professional Ethics and Human Values	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										21.5
11	<b>Honors / Minor Course</b>			30	70	100	4	0	0	4



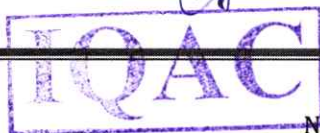
  
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**R20 COURSE STRUCTURE  
IV B.TECH – I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CS4107 R20CS4108 R20CC4103 R20CS4109	<b>Professional Elective – III</b> 1. Cyber Security 2. Mobile Adhoc and Sensor Networks 3. Service Oriented Architecture 4. Web and Micro Services	PE	30	70	100	3	0	0	3
2	R20CC4110 R20CC4111 R20CS4112 R20CC4104	<b>Professional Elective – IV</b> 1. Deep Learning 2. DevOps 3. Inter-Networking With Tcp/Ip 4. E- Commerce	PE	30	70	100	3	0	0	3
3	R20CS4113 R20CC4106 R20CS4114 R20CC4105 R20CC4102	<b>Professional Elective – V</b> 1. Social Media Analytics 2. Natural Language Processing 3. Software Defined Networks 4. Software Project Management 5. Human Computer Interaction	PE	30	70	100	3	0	0	3
4	<b>Open Elective – III</b>		OE	30	70	100	3	0	0	3
5	<b>Open Elective – IV</b>		OE	30	70	100	3	0	0	3
6	R20CC4101 R20CC4117	1. Business Management Concepts for Engineers 2. Entrepreneurship and Innovation	HS	30	70	100	3	0	0	3
7	R20CC41SC1	Agile with SCRUM	SC	-	50	50	0	0	4	2
8	R20CC41IN	Summer Internship / Community Service Project	PR	-	50	50	0	0	0	1.5
9	R20CC41MC	MOOCS								1.5
<b>TOTAL</b>										<b>23</b>



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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**R20 COURSE STRUCTURE  
IV B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC42PW	Major Project & Internship	PR	60	140	200	-	-	-	12
TOTAL										12



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**LIST OF HONORS**

1. The subjects opted for Honors should be advanced type which are not covered in regular curriculum.
2. Students has to acquire 16 credits with minimum one subject from each pool.
3. Concerned BoS can add or delete the subjects as per the decision of the board.
4. Pre requisites to be defined by the board for each course.
5. Compulsory MOOC / NPTEL Courses for 04 credits (02 courses@ 2 credits each)

**POOL – 1**

**DATA SCIENCE AND ADVANCED SOFTWARE ENGINEERING**

S.No.	HONOR Subject Title	Sub Code	No.of periods per week			No.of Credits
			L	T	P	C
1	Data Analytics and Visualization	R20CSHN02	4	0	0	4
2	DevOps	R20CSHN01	4	0	0	4
3	Deep Learning	R20CSHN03	4	0	0	4
4	Agile with Scrum	R20CSHN04	4	0	0	4
5	Computer Vision	R20CSHN05	4	0	0	4
6	Natural Language Processing	R20CSHN06	4	0	0	4

**POOL – 2**

**ADVANCED SOFTWARE ENGINEERING**

S.No.	HONOR Subject Title	Sub Code	No.of periods per week			No.of Credits
			L	T	P	C
1	DevOps	R20CSHN01	4	0	0	4
2	Agile with Scrum	R20CSHN04	4	0	0	4
3	Software Quality Assurance and Testing	R20CSHN07	4	0	0	4
4	Software Version Control	R20CSHN08	4	0	0	4



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**POOL – 3**

**CYBER SECURITY**


S.No.	HONOR Subject Title	Sub Code	No.of periods per week			No.of Credits
			L	T	P	C
1	Digital Forensics	R20CSHN09	4	0	0	4
2	Cyber Laws	R20CSHN10	4	0	0	4
3	Crypto Currency	R20CSHN11	4	0	0	4
4	Ethical Hacking	R20CSHN12	4	0	0	4

**POOL – 4**

**CLOUD COMPUTING AND VIRTUALIZATION TECHNOLOGY**

S.No.	HONOR Subject Title	Sub Code	No.of periods per week.			No.of Credits
			L	T	P	C
1	Introduction to IT Infrastructure Landscape	R20CSHN13	4	0	0	4
2	Cloud Computing Virtualization	R20CSHN14	4	0	0	4
3	Cloud Computing Architecture	R20CSHN15	4	0	0	4
4	Cloud Computing Security & Management	R20CSHN16	4	0	0	4



  
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# DEPARTMENT OF INFORMATION TECHNOLOGY

## R20 COURSE STRUCTURE

### I B.TECH – II SEMESTER

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1202	Numerical Methods and Statistics	BS	30	70	100	2	1	0	3
2	R20CC1204	Engineering Chemistry	BS	30	70	100	3	0	0	3
3	R20CC1206	Problem Solving Using Python	ES	30	70	100	3	0	0	3
4	R20CC1208	Electronic Devices and Logic Design	ES	30	70	100	3	0	0	3
5	R20CC12L2	Engineering Chemistry Lab	BS	15	35	50	0	0	3	1.5
6	R20CC12L3	R Programming Lab	ES	15	35	50	0	0	3	1.5
7	R20CC12L8	LINUX Programming	ES	15	35	50	0	0	3	1.5
8	R20CC12L12	Problem Solving Using Python Lab	ES	30	70	100	0	0	6	3
9	R20CCMC1	Environmental Studies	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>19.5</b>



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**DEPARTMENT OF INFORMATION TECHNOLOGY**

**R20 COURSE STRUCTURE**

**II B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2102	Mathematical Foundations of Computer Science	BS	30	70	100	2	1	0	3
2	R20CC2103	OOPs through Java	PC	30	70	100	3	0	0	3
3	R20CC2104	Data Structures	PC	30	70	100	3	0	0	3
4	R20CI2101	Computer Organization	PC	30	70	100	3	0	0	3
5	R20CC2105	Front End Web Technologies	PC	30	70	100	3	0	0	3
6	R20CC21L1	Data Structures Lab	PC	15	35	50	0	0	3	1.5
7	R20CC21L2	OOPs through Java Lab	PC	15	35	50	0	0	3	1.5
8	R20CC21L3	Front End Web Technologies Lab	ES	15	35	50	0	0	3	1.5
9	R20CC21SC1	Data Science Tools	SOC	-	50	50	1	0	2	2
10	R20CCMC2	Constitution of India	MC	-	-	-	2	0	0	0
										<b>21.5</b>



  
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# DEPARTMENT OF INFORMATION TECHNOLOGY

## R20 COURSE STRUCTURE

### II B.TECH – II SEMESTER

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2201	Technical and Communicative English -II	HS	30	70	100	3	0	0	3
2	R20CC2203	Database Management Systems	PC	30	70	100	3	0	0	3
3	R20CC2204	Software Engineering	PC	30	70	100	3	0	0	3
4	R20IT2202	Design Analysis of Algorithms	PC	30	70	100	3	0	0	3
5	R20IT2205	Computer Networks	OE	30	70	100	3	0	0	3
6	R20CC22L1	Database Management Systems Lab	PC	15	35	50	0	0	3	1.5
7	R20CC22L2	Mobile Application Development Lab	PC	15	35	50	0	0	3	1.5
8	R20IT22L3	SE and UML Lab	PC	15	35	50	0	0	3	1.5
9	R20CC22SC2	Artificial Intelligence Tools	SOC	-	50	50	1	0	2	2
<b>TOTAL</b>										<b>21.5</b>



  
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# DEPARTMENT OF INFORMATION TECHNOLOGY

## R20 COURSE STRUCTURE

### III B.TECH – I SEMESTER

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1		Operating Systems	PC	30	70	100	3	0	0	3
2		Automata and Compiler Design	PC	30	70	100	3	0	0	3
3		Advanced Web Technologies	PC	30	70	100	3	0	0	3
4		<b>Open Elective-1</b>	PC	30	70	100	3	0	0	3
5		<b>Professional Elective – I</b> 1.Data Warehousing and Data Mining 2.Computer Graphics 3.Software Testing Methodologies 4.NoSQL Database Systems	PE	30	70	100	3	0	0	3
6		Advanced Web Technologies Lab	PC	15	35	50	0	0	3	1.5
7		Software Lab-1 (WDMS)	PC	15	35	50	0	0	3	1.5
8		English Employability Skills	SOC	-	50	50	1	0	2	2
9		Summer Internship/Practical Training/Mini Project/ Community Service Project	PR	-	50	50	0	0	0	1.5
10		Essence of Indian Traditional Knowledge	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>21.5</b>

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**R20 COURSE STRUCTURE**

**III B.TECH – II SEMESTER**


S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1		Machine Learning	PC	30	70	100	3	0	0	3
2		Agile Methodologies	PC	30	70	100	3	0	0	3
3		Cryptography and Network Security	PC	30	70	100	3	0	0	3
4		<b>Professional Elective – II</b> 1. Big Data Analytics 2. Mobile Computing 3. Design Patterns	PE	30	70	100	3	0	0	3
5		<b>Open Elective – II</b>	OE	30	70	100	3	0	0	3
6		Machine Learning Lab	PC	15	35	50	0	0	3	1.5
7		DevOps Lab	PC	15	35	50	0	0	3	1.5
8		Software Lab-2	ES	15	35	50	0	0	3	1.5
9		IOT	SOC	-	50	50	1	0	2	2
10		PE and HV	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>21.5</b>

# DEPARTMENT OF INFORMATION TECHNOLOGY

## R20 COURSE STRUCTURE IV B.TECH – I SEMESTER

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1		<b>Professional Elective – III</b> 1. Deep Learning 2. Natural Language Processing 3. Service oriented Architecture	PE	30	70	100	3	0	0	3
2		<b>Professional Elective – IV</b> 1. Block Chain Technologies 2. DevOps 3. Medical Image Data Processing	PE	30	70	100	3	0	0	3
3		<b>Professional Elective – V</b> 1. Data Visualization Techniques 2. Biometric Security 3. Human Computer Interaction	PE	30	70	100	3	0	0	3
4		<b>Open Elective – III</b>	OE	30	70	100	3	0	0	3
5		<b>Open Elective – IV</b>	OE	30	70	100	3	0	0	3
6		Business Management Concepts for Engineers/Entrepreneurship and Innovation	HS	30	70	100	3	0	0	3
7		Agile with SCRUM	SOC	-	50	50	1	0	2	2
8		Industrial/Research Internship/ Mini Project/ Community Service Project	PR	-	50	50	0	0	0	3
<b>TOTAL</b>										<b>23</b>



  
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R20 COURSE STRUCTURE

IV B.TECH – II SEMESTER

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1		Major Project	PR	60	140	200	-	-	-	12
<b>TOTAL</b>										




  
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**DEPARTMENT OF CSE (AI)**

**R20 COURSE STRUCTURE – CSE (AI)  
I B.TECH – I SEMESTER**

S.N O	SUBJECT CODE	SUBJECT	Cat. Cod e	INTERNA L MARKS	EXTER NAL MARKS	TOTAL MARK S	L	T	P	CRE DITS
1	R20CC1102	Linear Algebra and Calculus	BS	30	70	100	2	1		3
2	R20CC1104	Engineering Physics	BS	30	70	100	3	0	0	3
3	R20CC1101	Technical and Communicative English - I	PC	30	70	100	3	0	0	3
4	R20CC1105	Problem Solving Using C	ES	30	70	100	3	0	0	3
5	R20AI11L7	CSE Workshop	ES	30	70	100	1	0	4	3
6	R20CC11L1	Soft Skills and Communication Skills Lab	HS	15	35	50	0	0	3	1.5
7	R20CC11L4	Engineering Physics Lab	BS	15	35	50	0	0	3	1.5
8	R20CC11L2	Problem Solving Using C Lab	PC	15	35	50	0	0	3	1.5
<b>Total</b>										<b>19.5</b>



  
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**DEPARTMENT OF CSE (AI)**

**R20 COURSE STRUCTURE – CSE (AI)  
I B.TECH – II SEMESTER**

S.N O.	SUBJECT CODE	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CRE DITS
1	R20CC1202	Numerical Methods and Statistics	BS	30	70	100	2	1	0	3
2	R20CC1204	Engineering Chemistry	BS	30	70	100	3	0	0	3
3	R20CC1206	Problem Solving Using Python	ES	30	70	100	3	0	0	3
4	R20CC1208	Electronic Devices and Logic Design	ES	30	70	100	3	0	0	3
5	R20CC12L8	LINUX Programming Lab	ES	30	70	100	1	0	4	3
6	R20CC12L12	Problem Solving Using Python Lab	ES	15	35	50	0	0	3	1.5
7	R20CC12L2	Engineering Chemistry Lab	BS	15	35	50	0	0	3	1.5
8	R20CC12L3	R Programming Lab	PC	15	35	50	0	0	3	1.5
9	R20CCMC1	Environmental Studies	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>19.5</b>



  
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**DEPARTMENT OF CSE (AI)**

**R20 COURSE STRUCTURE – CSE (AI)  
II B.TECH – I SEMESTER**

S.N O.	SUBJECT CODE	SUBJECT	CAT. CODE	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CRE DIT S
1	R20CC210 2	Mathematical Foundations of Computer Science	BS	30	70	100	3	0	0	3
2	R20CC210 3	OOPs through Java	PC	30	70	100	3	0	0	3
3	R20CC210 4	Data Structures	PC	30	70	100	3	0	0	3
4	R20AI210 1	Data Science	PC	30	70	100	3	0	0	3
5	R20CC210 5	Front End Web Technologies	PC	30	70	100	3	0	0	3
6	R20CC21L 1	Data Structures Lab	PC	15	35	50	0	0	3	1.5
7	R20CC21L 2	OOPs through Java Lab	PC	15	35	50	0	0	3	1.5
8	R20CC21L 3	Front End Web Technologies Lab	PC	15	35	50	0	0	3	1.5
9	R20CC21S C1	Data Science Tools	SOC	-	50	50	1	0	2	2
10	R20CC21 MC2	Constitution of India /NCC /NSS	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>



  
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**DEPARTMENT OF CSE (AI)**

**R20 COURSE STRUCTURE – CSE (AI)  
II B.TECH. – II SEMESTER**

S.N O.	SUBJECT CODE	SUBJECT	CAT. CODE	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CRE DITS
1	R20CC2203	Database Management Systems	PC	30	70	100	3	0	0	3
2	R20AI2202	Automata and Compiler Design	ES	30	70	100	3	0	0	3
3	R20CC2204	Software Engineering	PC	30	70	100	3	0	0	3
4	R20AI2205	Introduction to Artificial Intelligence	PC	30	70	100	3	0	0	3
5	R20CC2201	Technical and Communicative English -II	HS	30	70	100	3	0	0	3
6	R20CC22L1	Data Base Management Systems Lab	PC	15	35	50	0	0	3	1.5
7	R20AI22L3	Artificial Intelligence Lab	PC	15	35	50	0	0	3	1.5
8	R20CC22L2	Mobile Applications Development Lab	PC	15	35	50	0	0	3	1.5
9	R20AI22SC1	IOT	SOC	-	50	50	1	0	2	2
<b>Total</b>										<b>21.5</b>

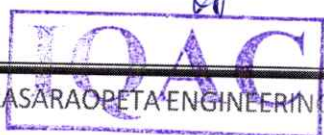


  
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DEPARTMENT OF CSE (AI)

R20 COURSE STRUCTURE – CSE (AI)  
III B.TECH – I SEMESTER

S.N O.	SUBJECT CODE	SUBJECT	CA T. CO DE	INTE RNAL MAR KS	EXTE RNAL MARK S	TOTA L MARK S	L	T	P	CRE DITS
1	R20CC3101	Operating Systems	PC	30	70	100	3	0	0	3
2	R20CC3104	Computer Networks	PC	30	70	100	3	0	0	3
3	R20AI3105	Machine Learning	PC	30	70	100	3	0	0	3
4		<b>Open Elective-I</b>	OE	30	70	100	2	0	2	3
5	R20CC3102 R20CC3103 R20CC3106	<b>Professional Elective-I</b> 1. Data Warehousing and Data Mining. 2. Design and Analysis of Algorithms 3. Computer Graphics	PE	30	70	100	3	0	0	3
6	R20CC31L2	CN & OS Lab (Software Lab-1)	PC	15	35	50	0	0	3	1.5
7	R20AI31L3	Machine Learning Lab	PC	15	35	50	0	0	3	1.5
8	R20CC31L1	English Employability Skills	SOC	-	50	50	1	0	2	2
9	R20CC31IN	Internship / Community Service Project	PR	-	50	50	0	0	0	1.5
10	R20CC31MC 2	Essence of Indian Traditional Knowledge	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>



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R20 COURSE STRUCTURE – CSE (AI)  
III B.TECH – II SEMESTER

S.N O.	SUBJECT CODE	SUBJECT	CAT. CODE	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20AI3204	Deep Learning	PC	30	70	100	3	0	0	3
2	R20AI3206	Natural Language Processing	PC	30	70	100	3	0	0	3
3	R20CC3205	Advanced Java and Web Technologies	PC	30	70	100	3	0	0	3
4		<b>Open Elective-II</b>	OE	30	70	100	2	0	2	3
5	R20CC3201 R20CC3202 R20AI3203	<b>Professional Elective-II</b> 1. Cryptography & Network Security 2. Mobile Computing 3. High Speed Networks	PE	30	70	100	3	0	0	3
6	R20CC32L1	AJWT LAB	PC	15	35	50	0	0	3	1.5
7	R20AI32L2	Deep Learning Lab	PC	15	35	50	0	0	3	1.5
8	R20AI32L3	Natural Language Processing Lab	PC	15	35	50	0	0	3	1.5
9	R20AI32L4	Design Thinking and Innovation	SOC	-	50	50	1	0	2	2
10	R20CC32M C2	Professional Ethics & Human Values	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>



  
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R20 COURSE STRUCTURE – CSE (AI)  
IV B.TECH – I SEMESTER

S.N O.	SUBJECT CODE	SUBJECT	CAT . COD E	INTER NAL MARK S	EXTE RNAL MARK S	TOT AL MAR KS	L	T	P	CR EDI TS
1	R20AI4103	<b>Professional Elective-III</b> 1. Sentiment Analysis 2. Computer Vision & Perception 3. Artificial Neural Networks	PE	30	70	100	3	0	0	3
	R20AI4106									
	R20AI4107									
2	R20AI4108	<b>Professional Elective-IV</b> 1. Reinforcement Learning 2. Software Project Management 3. Human Computer Interaction	PE	30	70	100	3	0	0	3
	R20CC4105									
	R20CC4102									
3	R20CC4104	<b>Professional Elective-V</b> 1. E-Commerce 2. Humans and Intelligent Machines 3. Speech Processing	PE	30	70	100	3	0	0	3
	R20AI4109									
	R20AI4110									
4		<b>Open Elective-III</b>	OE	30	70	100	2	0	2	3
5		<b>Open Elective-IV</b>	OE	30	70	100	2	0	2	3
6	R20CC4101	<b>Humanities and Social Science Electives:</b> 1. Business Management Concepts for Engineers 2. Entrepreneurship and Innovation	HS SE	30	70	100	3	0	0	3
	R20CC4117									
7	R20CC41L1	Agile with Scrum	SOC	-	50	50	1	0	2	2
8	R20CC41IN	Internship / Community Service Project	PR	-	50	50	0	0	0	1.5
9	R20CC41MC	MOOCs	PC	-	-	-	-	-	-	1.5
<b>Total</b>										<b>23</b>

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R20 COURSE STRUCTURE – CSE (AI)  
IV B.TECH – II SEMESTER

S.N O.	SUBJECT CODE	SUBJECT	Cat. Code	INTERNA L MARKS	EXTER NAL MARKS	TOTAL MARK S	L	T	P	CRE DITS
1	R20CC42P W	INTERNSHIP AND PROJECT WORK	PR	60	140	200	0	0	0	12
<b>Total</b>										<b>12</b>



  
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**R20 COURSE STRUCTURE**

**I B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1101	Technical & Communicative English-I	HS	30	70	100	3	0	0	3
2	R20CC1102	Linear Algebra & Calculus	BS	30	70	100	2	1	0	3
3	R20CC1103	Engineering Chemistry	BS	30	70	100	3	0	0	3
4	R20CC1105	Problem Solving Using C	ES	30	70	100	3	0	0	3
5	R20CC1111	Electronic Devices and Logic Design	ES	30	70	100	3	0	0	3
6	R20CC11L1	Soft Skills and Communication Skills Lab	HS	15	35	50	0	0	3	1.5
6	R20CC11L2	Problem Solving Using C Lab	ES	15	35	50	0	0	3	1.5
7	R20CC11L5	Engineering Chemistry Lab	BS	15	35	50	0	0	3	1.5
9	R20CC11MC1	Environmental Studies	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>19.5</b>



**R20 COURSE STRUCTURE**

**I B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1201	Differential Equations & Vector Calculus	BS	30	70	100	2	1	0	3
2	R20CC1205	Applied Physics	BS	30	70	100	3	0	0	3
3	R20CC1206	Problem Solving Using PYTHON	ES	30	70	100	3	0	0	3
4	R20CC1218	Technical and Communicative English-II	ES	30	70	100	3	0	0	3
5	R20CC12L10	Applied Physics Lab	BS	15	35	50	0	0	3	1.5
6	R20CC12L12	Problem Solving using PYTHON Lab	ES	15	35	50	0	0	3	1.5
7	R20CC12L15	IT Workshop	ES	15	35	50	0	0	3	1.5
8	R20CC12L16	UNIX Programming Lab	ES	15	35	50	0	0	3	1.5
9	R20CC12L14	Engineering Graphics	ES	15	35	50	0	0	3	1.5
<b>TOTAL</b>										<b>19.5</b>



  
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**R20 COURSE STRUCTURE**

**II B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2106	Probability & Statistics	BS	30	70	100	2	1	0	3
2	R20CC2103	OOPs through Java	PC	30	70	100	3	0	0	3
3	R20CC2104	Data Structures	PC	30	70	100	3	0	0	3
4	R20CI2101	Computer Organization	PC	30	70	100	3	0	0	3
5	R20AC2105	Software Engineering	PC	30	70	100	3	0	0	3
6	R20CC21L1	Data Structures Lab	PC	15	35	50	0	0	3	1.5
7	R20CC21L2	OOPs through Java Lab	PC	15	35	50	0	0	3	1.5
8	R20AC21L3	Software Engineering and UML Lab	PC	15	35	50	0	0	3	1.5
9	R20CC21SC1	Data Science Lab	SOC	-	50	50	0	0	4	2
10	R20CC21MC2	Constitution of India	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>



  
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**R20 COURSE STRUCTURE**

**II B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2211	Mathematical Foundations of Computer Science	BS	30	70	100	2	1	0	3
2	R20CC2203	Database Management Systems	PC	30	70	100	3	0	0	3
3	R20CC2210	Numerical Methods & Transformations	BS	30	70	100	3	0	0	3
4	R20AM2205	Artificial Intelligence	PC	30	70	100	3	0	0	3
5	R20AC2204	Operating Systems	PC	30	70	100	3	0	0	3
6	R20CC22L1	Database Management Systems Lab	PC	15	35	50	0	0	3	1.5
7	R20AM22L3	Operating Systems Lab	PC	15	35	50	0	0	3	1.5
8	R20AC22L4	Front End Web Technologies Lab	PC	15	35	50	0	0	3	1.5
9	R20CC22SC3	Mobile Application Development Lab	SOC	-	50	50	0	0	4	2
<b>TOTAL</b>										<b>21.5</b>
10	Honors/Minors Course			30	70	100	4	0	0	4
Summer Internship / Community Service Project					To be evaluated in III/I					




  
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**R20 COURSE STRUCTURE**

**I B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1101	Technical & Communicative English-I	HS	30	70	100	3	0	0	3
2	R20CC1102	Linear Algebra & Calculus	BS	30	70	100	2	1	0	3
3	R20CC1104	Applied Physics	BS	30	70	100	3	0	0	3
4	R20CC1105	Problem Solving Using C	ES	30	70	100	3	0	0	3
5	R20CC1111	Electronic Devices and Logic Design	ES	30	70	100	3	0	0	3
6	R20CC11L1	Soft Skills and Communication Skills Lab	HS	15	35	50	0	0	3	1.5
7	R20CC11L2	Problem Solving Using C Lab	ES	15	35	50	0	0	3	1.5
8	R20CC11L4	Applied Physics Lab	BS	15	35	50	0	0	3	1.5
9	R20CC11MC1	Environmental Studies	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>19.5</b>




  
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**R20 COURSE STRUCTURE**

**I B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1201	Differential Equations & Vector Calculus	BS	30	70	100	2	1	0	3
2	R20CC1204	Engineering Chemistry	BS	30	70	100	3	0	0	3
3	R20CC1206	Problem Solving Using PYTHON	ES	30	70	100	3	0	0	3
4	R20CC1218	Technical and Communicative English-II	BS	30	70	100	3	0	0	3
5	R20CC12L2	Engineering Chemistry Lab	BS	15	35	50	0	0	3	1.5
6	R20CC12L12	Problem Solving using PYTHON Lab	ES	15	35	50	0	0	3	1.5
7	R20CC12L15	IT Workshop	ES	15	35	50	0	0	3	1.5
8	R20CC12L16	Unix Programming Lab	ES	15	35	50	0	0	3	1.5
9	R20CC12L14	Engineering Graphics	ES	15	35	50	0	0	3	1.5
<b>TOTAL</b>										<b>19.5</b>



  
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**R20 COURSE STRUCTURE**

**II B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2106	Probability & Statistics	BS	30	70	100	2	1	0	3
2	R20CC2103	OOPs through Java	PC	30	70	100	3	0	0	3
3	R20CC2104	Data Structures	PC	30	70	100	3	0	0	3
4	R20CI2101	Computer Organization	PC	30	70	100	3	0	0	3
5	R20AC2105	Software Engineering	PC	30	70	100	3	0	0	3
6	R20CC21L1	Data Structures Lab	PC	15	35	50	0	0	3	1.5
7	R20CC21L2	OOPs through Java Lab	PC	15	35	50	0	0	3	1.5
8	R20AC21L3	Software Engineering and UML Lab	PC	15	35	50	0	0	3	1.5
9	R20CC21SC1	Data Science Lab	SOC	-	50	50	0	0	4	2
10	R20CC21MC2	Constitution of India	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>



  
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**R20 COURSE STRUCTURE**

**II B.TECH – II SEMESTER**


S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2211	Mathematical Foundations of Computer Science	BS	30	70	100	3	0	0	3
2	R20CC2203	Database Management Systems	PC	30	70	100	3	0	0	3
3	R20CC2210	Numerical Methods & Transformations	BS	30	70	100	3	0	0	3
4	R20IT2205	Computer Networks	PC	30	70	100	3	0	0	3
5	R20AC2204	Operating Systems	PC	30	70	100	3	0	0	3
6	R20CC22L1	Database Management Systems Lab	PC	30	70	100	0	0	3	1.5
7	R20CY22L3	Computer Networks & Operating Systems Lab	PC	15	35	50	0	0	3	1.5
8	R20AC22L4	Front End Web Technologies Lab	PC	15	35	50	0	0	3	1.5
9	R20CC22SC3	Mobile Application Development Lab	SOC	-	50	50	0	0	4	2
<b>TOTAL</b>										<b>21.5</b>
10	Honors / Minors Course			30	70	100	4	0	0	4
Summer Internship / Community Service Project					To be evaluated in III/I					

**R20 COURSE STRUCTURE**

**I B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1101	Technical & Communicative English-I	HS	30	70	100	3	0	0	3
2	R20CC1102	Linear Algebra & Calculus	BS	30	70	100	2	1	0	3
3	R20CC1103	Engineering Chemistry	BS	30	70	100	3	0	0	3
4	R20CC1105	Problem Solving Using C	ES	30	70	100	3	0	0	3
5	R20CC1111	Electronic Devices and Logic Design	ES	30	70	100	3	0	0	3
6	R20CC11L1	Soft Skills and Communication Skills Lab	HS	15	35	50	0	0	3	1.5
6	R20CC11L2	Problem Solving Using C Lab	ES	15	35	50	0	0	3	1.5
7	R20CC11L5	Engineering Chemistry Lab	BS	15	35	50	0	0	3	1.5
9	R20CC11MC1	Environmental Studies	MC	-	-	-	2	0	0	0
<b>TOTAL</b>										<b>19.5</b>



  
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**R20 COURSE STRUCTURE**

**I B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC1201	Differential Equations & Vector Calculus	BS	30	70	100	2	1	0	3
2	R20CC1205	Applied Physics	BS	30	70	100	3	0	0	3
3	R20CC1206	Problem Solving Using PYTHON	ES	30	70	100	3	0	0	3
4	R20CC1218	Technical and Communicative English-II	ES	30	70	100	3	0	0	3
5	R20CC12L10	Applied Physics Lab	BS	15	35	50	0	0	3	1.5
6	R20CC12L12	Problem Solving using PYTHON Lab	ES	15	35	50	0	0	3	1.5
7	R20CC12L15	IT Workshop	ES	15	35	50	0	0	3	1.5
8	R20CC12L16	UNIX Programming Lab	ES	15	35	50	0	0	3	1.5
9	R20CC12L14	Engineering Graphics	ES	15	35	50	0	0	3	1.5
<b>TOTAL</b>										<b>19.5</b>



  
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**R20 COURSE STRUCTURE**

**II B.TECH - I SEMESTER**

S.No	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2106	Probability & Statistics	BS	30	70	100	2	1	0	3
2	R20CC2103	OOPs through Java	PC	30	70	100	3	0	0	3
3	R20CC2104	Data Structures	PC	30	70	100	3	0	0	3
4	R20CI2101	Computer Organization	PC	30	70	100	3	0	0	3
5	R20DS2105	Database Management Systems	PC	30	70	100	3	0	0	3
6	R20CC21L1	Data Structures Lab	PC	15	35	50	0	0	3	1.5
7	R20CC21L2	OOPs through Java Lab	PC	15	35	50	0	0	3	1.5
8	R20DS21L3	Database Management Systems Lab	PC	15	35	50	0	0	3	1.5
9	R20CC21L3	Front End Web Technologies Lab	SOC	-	50	50	0	0	4	2
10	R20CC21MC2	Constitution of India	MC	-	-	-	2	0	0	0
<b>Total</b>										<b>21.5</b>




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**R20 COURSE STRUCTURE**

**II B.TECH – II SEMESTER**

S.No.	Subject Code	SUBJECT	Cat. Code	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS	L	T	P	CREDITS
1	R20CC2211	Mathematical Foundations of Computer Science	BS	30	70	100	3	0	0	3
2	R20DS2203	Data Warehousing and Data Mining	PC	30	70	100	3	0	0	3
3	R20CC2210	Numerical Methods & Transformations	BS	30	70	100	3	0	0	3
4	R20CC2204	Software Engineering	PC	30	70	100	3	0	0	3
5	R20DS2205	Data Science with R Programming	PC	30	70	100	3	0	0	3
6	R20DS22L1	Data Warehousing and Data Mining Lab	PC	30	70	100	0	0	3	1.5
7	R20CS22L3	Software Engineering and UML Lab	PC	15	35	50	0	0	3	1.5
8	R20DS22L4	Data Science with R Programming Lab	PC	15	35	50	0	0	3	1.5
9	R20CC22SC3	Mobile Application Development Lab	SOC	-	50	50	0	0	4	2
<b>TOTAL</b>										<b>21.5</b>
10	Honors / Minors Course			30	70	100	4	0	0	4
Summer Internship / Community Service Project					To be evaluated in III/I					



  
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**DEPARTMENT OF MBA**

**R19 MBA**

**COURSE STRUCTURE**


**I MBA- I SEMESTER**

S.No	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	19MBA1TH01	Management Theory & Organizational Behaviour	4	0	-	40	60	100	4
2	19MBA1TH02	Economics for Managers	4	0	-	40	60	100	4
3	19MBA1TH03	Accounting for Managers	4	0	-	40	60	100	4
4	19MBA1TH04	Managerial Communication & Soft Skills	4	0	-	40	60	100	4
5	19MBA1TH05	Business Environment	4	0	-	40	60	100	4
6	19MBA1TH06	Quantitative Analysis for Business Decisions	4	0	-	40	60	100	4
7	19MBA1LB01	IT for Managers-I	-	-	4	40	60	100	2
<b>TOTAL</b>			24	0	4	280	420	700	26

**I MBA- II SEMESTER**

S.No	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	19MBA2TH01	Financial Management	4	0	-	40	60	100	4
2	19MBA2TH02	Human Resource Management	4	0	-	40	60	100	4
3	19MBA2TH03	Marketing Management	4	0	-	40	60	100	4
4	19MBA2TH04	Production and Operations Management	4	0	-	40	60	100	4
5	19MBA2TH05	Business Research Methodology	4	0	-	40	60	100	4
6	19MBA2TH06	Business Laws	4	0	-	40	60	100	4
7	19MBA2LB01	IT for Managers-II	-	-	4	40	60	100	2
8	19MBA2MP01	Mini Project	-	-	-	100	-	100	2
<b>TOTAL</b>			24	0	4	380	420	850	28



  
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**Dual Electives:**

The Specializations will be offered in the areas of Marketing, Finance, Human Resource Management (HRM) and Systems. The students should choose any **Two** of the specializations in the beginning of the third semester of MBA. The students cannot change specializations which are selected in the first week of third semester and the same combination should continue in the fourth semester. In each specialization the student have to choose two elective papers in third and fourth semesters. The specializations and electives will be offered subjected to a minimum of 20 students.

**II MBA- III SEMESTER**

S.No	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	19MBA3TH01	Strategic Management	4	0	-	40	60	100	4
2	19MBA3TH02	Business Ethics & Corporate Governance	4	0	-	40	60	100	4
3	19MBA3TH03	Business Analytics	4	0	-	40	60	100	4
4		Elective-I (SPL-I)	4	0	-	40	60	100	4
5		Elective-II (SPL-I)	4	0	-	40	60	100	4
6		Elective-III (SPL-II)	4	0	-	40	60	100	4
7		Elective-IV (SPL-II)	4	0	-	40	60	100	4
8	19MBA3MC01	Community Services (MC)	-	-	-	-	-	-	-
<b>TOTAL</b>			<b>28</b>	<b>0</b>	<b>0</b>	<b>280</b>	<b>420</b>	<b>700</b>	<b>28</b>

**II MBA- IV SEMESTER**

S.No	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
1	19MBA4TH01	Logistics and Supply Chain Management	4	0	-	40	60	100	4
2	19MBA4TH02	Entrepreneurship Development	4	0	-	40	60	100	4
3		Elective-V (SPL-I)	4	0	-	40	60	100	4
4		Elective-VI (SPL-I)	4	0	-	40	60	100	4
5		Elective-VII (SPL-II)	4	0	-	40	60	100	4
6		Elective-VIII (SPL-II)	4	0	-	40	60	100	4
7	19MBA4PW01	Major Project/ Comprehensive Viva-Voce	-	-	-	-	-	-	8
<b>TOTAL</b>			<b>24</b>	<b>0</b>	<b>0</b>	<b>240</b>	<b>360</b>	<b>600</b>	<b>32</b>





**DEPARTMENT OF MBA**


**FINANCE ELECTIVES**

Sem	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
III	19MBA3THF1	Investment and Portfolio Management	4	0	-	40	60	100	4
III	19MBA3THF2	Corporate Taxation	4	0	-	40	60	100	4
III	19MBA3THF3	Banking & Insurance	4	0	-	40	60	100	4
III	19MBA3THF4	Personal Financial Planning	4	0	-	40	60	100	4
IV	19MBA4THF1	Financial Risk Management & Derivatives	4	0	-	40	60	100	4
IV	19MBA4THF2	Financial Institutions & Services	4	0	-	40	60	100	4
IV	19MBA4THF3	International Financial Management	4	0	-	40	60	100	4
IV	19MBA4THF4	Strategic Investment and Financial Decisions	4	0	-	40	60	100	4

**HRM ELECTIVES**

Sem	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
III	19MBA3THH1	Management of IR	4	0	-	40	60	100	4
III	19MBA3THH2	Compensation and Reward Management	4	0	-	40	60	100	4
III	19MBA3THH3	Performance Management	4	0	-	40	60	100	4
III	19MBA3THH4	Employee Engagement & Retention Management	4	0	-	40	60	100	4
IV	19MBA4THH1	International HRM	4	0	-	40	60	100	4
IV	19MBA4THH2	Leadership	4	0	-	40	60	100	4
IV	19MBA4THH3	Human Resource Development	4	0	-	40	60	100	4
IV	19MBA4THH4	Industrial Jurisprudence & Labour Legislations	4	0	-	40	60	100	4



  
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**MARKETING ELECTIVES**

Sem	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
III	19MBA3THM1	Customer Relationship Management & CB	4	0	-	40	60	100	4
III	19MBA3THM2	Event Management	4	0	-	40	60	100	4
III	19MBA3THM3	Retail Marketing	4	0	-	40	60	100	4
III	19MBA3THM4	Rural Marketing	4	0	-	40	60	100	4
IV	19MBA4THM1	Services Marketing	4	0	-	40	60	100	4
IV	19MBA4THM2	Digital Marketing	4	0	-	40	60	100	4
IV	19MBA4THM3	Brand Management	4	0	-	40	60	100	4
IV	19MBA4THM4	Advertising Management	4	0	-	40	60	100	4

**SYSTEMS ELECTIVES**

Sem	Course Code	Subject	L	T	P	Internal Marks	External Marks	Total Marks	Credits
III	19MBA3THS1	Decision Support System	4	0	-	40	60	100	4
III	19MBA3THS2	Data warehousing & Data Mining	4	0	-	40	60	100	4
III	19MBA3THS3	Software Project Management	4	0	-	40	60	100	4
III	19MBA3THS4	E- Business	4	0	-	40	60	100	4
IV	19MBA4THS1	Business Intelligence	4	0	-	40	60	100	4
IV	19MBA4THS2	Enterprise Resource Planning	4	0	-	40	60	100	4
IV	19MBA4THS3	Information Systems Audit	4	0	-	40	60	100	4
IV	19MBA4THS4	Cyber Laws & Security	4	0	-	40	60	100	4



  
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**DEPARTMENT OF MCA**

**I SEMESTER**

S. No.	Course Code	Course Name	Cat	L	T	P	Credits
1	R20MCA101	C Programming and Data Structures	PC	3	1	0	4
2	R20MCA102	Computer Organization	PC	3	0	0	3
3	R20MCA103	Database Management Systems	PC	3	0	0	3
4	R20MCA104	Operating Systems	PC	3	0	0	3
5	R20MCA105	Mathematical and Statistical Foundations	BS&H	3	0	0	3
6	R20MCA1L1	Data Base Management Systems Lab	PC	0	0	4	2
7	R20MCA1L2	C Programming and Data Structures Lab	PC	0	0	4	2
8	R20MCA1L3	Operating Systems and Linux Lab	PC	0	0	4	2
Total				15	1	12	22




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**DEPARTMENT OF MCA**

**II SEMESTER**

S. No.	Course Code	Course Name	Cat	L	T	P	Credits
1	R20MCA201	Computer Networks	PC	3	0	0	3
2	R20MCA202	Object oriented Programming using JAVA	PC	3	0	0	3
3	R20MCA203	Software Engineering	PC	3	0	0	3
4	R20MCA204	Design and Analysis of Algorithm	PC	3	0	0	3
5	<b>Program Elective-1</b>		PC / PE	3	0	0	3
	R20MCA205	1. Artificial Intelligence					
	R20MCA206	2. Advanced Unix Programming					
	R20MCA207	3. Data Warehousing and Data mining					
	R20MCA2MC	4. MOOCs-1 (NPTEL/SWAYAM/ COURSERA) Any recommended course					
6	R20MCA2L1	Object Oriented Programming using JAVA Lab	PC	0	0	4	2
7	R20MCA2L2	Statistical Programming with R Lab	PC	0	0	4	2
8	R20MCA2L3	Employability Skills Lab	BS&H	0	0	4	1
		<b>Total</b>		15	0	12	20



  
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**DEPARTMENT OF MCA**

**III SEMESTER**

S. No.	Course Code	Course Name	Cat	L	T	P	Credits
1	R20MCA301	Machine Learning with Python	PC	3	0	0	3
2	R20MCA302	Web Technologies	PC	3	0	0	3
3	R20MCA303	Network Security and Cryptography	PC	3	0	0	3
4	<b>Program Elective-2</b>		PE	3	0	0	3
	R20MCA304	Cloud Computing					
	R20MCA305	Digital Image Processing					
	R20MCA306	Internet of Things					
	R20MCA307	Unified Modeling Languages					
R20MCA3MC	MOOCs-2 (NPTEL/SWAYAM/ COURSERA) Any recommended course						
5	R20MCA308	Human Resource Management	MS	3	0	0	3
6	R20MCA3L1	Web Technologies Lab	PC	0	0	4	2
7	R20MCA3L2	Machine Learning with Python Lab	PC	0	0	4	2
8	R20MCA3L3	Network Security, Cryptography & UML Lab	PC	0	0	4	2
9	R20MCA3MNC	Employability Skills-2	AC	1	0	0	0
10	R20MCA3MP	Internship / Industry Oriented Mini Project	PW				1
<b>Total</b>				16	0	12	22




  
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**IV SEMESTER**

S. No.	Course Code	Course Name	Cat	L	T	P	Credits
1	<b>Program Elective-3</b>		PE	3	0	0	3
	R20MCA401	Block Chain technologies					
	R20MCA402	Design Patterns					
	R20MCA403	E-Commerce					
	R20MCA4MC1	MOOCs-3 (NPTEL/SWAYAM/ COURSERA) 1. Full Stack Technologies 2. Any recommended course					
2	<b>Program Elective-4</b>		PE	3	0	0	3
	R20MCA404	Big Data Analytics					
	R20MCA405	Cyber Security					
	R20MCA406	Human Computer Interaction					
	R20MCA4MC2	MOOCs-4 (NPTEL/SWAYAM) 1. Data Science 2. Any recommended course					
3		Project Work/ Dissertation- R20MCA4PW	PW	0	0	0	10
			<b>Total</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>16</b>



  
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