Department of Chemical Engineering (R-16)
Scheme of Instruction and Examinations

I Year I Semester

S. No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 101 Engineering Mathematics – I	3+1	-	3	40	60	3	BS
2	CH 102 Engineering Physics (common to all branches)	4	-	3	40	60	3	BS
3	CH 103 Inorganic Chemistry	4	-	3	40	60	3	BS
4	CH 104 Environmental Studies	4	-	3	40	60	3	ES
5	CH 105 Applied Mechanics& Mechanical Engineering	4	-	3	40	60	3	ES
6	CH 106 Basic Electrical and Electronics Engineering	4	-	3	40	60	3	BS
7	CH 151 Physics Laboratory	-	3	3	40	60	2	BS
8	CH 152 Workshop Practice	-	3	3	40	60	2	HS
9	CH 153 Communication Skills Lab.	-	3	3	40	60	2	ES
Total		23+1	9	-	360	540	24	

I Year II Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 107 Engineering Mathematics – II	3+1	-	3	40	60	3	BS
2	CH 108 Material Science	4	-	3	40	60	3	BS
3	CH 109 Physical Chemistry	4	-	3	40	60	3	ES
4	CH 110 English for Communication (common to all branches)	4	-	3	40	60	3	HS
5	CH 111 Problem Solving with C (common to all branches)	4	-	3	40	60	3	ES
6	CH 112 Introduction to Chemical Engineering	3+1	-	3	40	60	3	PC
7	CH 154 Chemistry Laboratory	-	3	3	40	60	2	BS
8	CH 155 C-Programming Lab.	-	3	3	40	60	2	ES
9	CH 156 Engineering Graphics Lab.	2	4	3	40	60	2	ES
Total		24+2	10	-	360	540	24	

II Year I Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 201 Probability &Transforms	3+1	-	3	40	60	3	HS
2	CH 202 Organic Chemistry	4	-	3	40	60	3	BS
3	CH 203 ChemicalProcess Calculations	4	-	3	40	60	3	PC
4	CH 204 Momentum Transfer	3+1	-	3	40	60	3	PC
5	CH 205 MechanicalOperations	4	-	3	40	60	3	PC
6	CH 206 Material Technology	4	-	3	40	60	3	PC
7	CH 251 Momentum Transfer Lab.	-	3	3	40	60	2	PC
8	CH 252 Basic Electrical and Electronics Engineering Lab.	-	3	3	40	60	2	ES
9	CH 253 Professional Communication Skills Lab	-	3	3	40	60	2	HS
Total		22+2	9	-	360	540	24	

Enrolmentof NCC / NSO / NSS programme will be initiated from the date of commencement of class work for II Year I Semester.

Subjects, which are offered in both I and II Semesters:

CH206: Material Technology
CH212: Professional Ethics & Human Values

II Year II Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 207 Partial Differential Equations and Numerical Methods	3+1	-	3	40	60	3	HS
2	CH 208 ProcessHeatTransfer	3+1	-	3	40	60	3	PC
3	CH 209 ChemicalEngineering Thermodynamics-I	4	-	3	40	60	3	PC
4	CH 210 Inorganic Chemical Technology	4	-	3	40	60	3	PC
5	CH 211 Process Instrumentation and Instrumental Methods of Analysis	4	-	3	40	60	3	PC
6	CH 212 Professional Ethics & Human Values	4	-	3	40	60	3	HS
7	CH 254 Organic Chemistry Lab	-	3	3	40	60	2	BS
8	CH 255 Mechanical Operations Lab.	-	3	3	40	60	2	PC
9	CH 256 Computational Programming Lab.	-	3	3	40	60	2	PC
Total		22+2	9	-	360	540	24	

Enrollment of Internship / Industrial Training / Certification Coursewill be initiated from theend of II Year II Semester.

Subjects, which are offered in both I and II Semesters:

CH206: Material Technology
CH212: Professional Ethics & Human Values

III YearI Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 301 MassTransferOperations-I	3+1	-	3	40	60	3	PC
2	CH 302 Chemical Reaction Engineering-I	4	-	3	40	60	3	PC
3	CH 303 Chemical Engineering Thermodynamics-II	4	-	3	40	60	3	PC
4	CH 304 Organic Chemical Technology	4	-	3	40	60	3	PC
5	CH 305 IndustrialPollutionControl	4	-	3	40	60	3	PC
6	CH 306 Elective - 1	4	-	3	40	60	3	PE
7	CH 351 Process Heat Transfer Lab.	-	3	3	40	60	2	PC
8	CH 352 Mass Transfer Operations Lab.-I	-	3	3	40	60	2	PC
9	CH 353 Chemical Technology Lab.	-	3	3	40	60	2	PC
Total		23+1	9	-	360	540	24	

Enrolment of MOOCS course will be initiated from the date of commencement of class work for III Year I Semester.

Subjects, which are offered in both I and II Semesters:

CH305 : Industrial Pollution Control
Elective-I
CH 306(A) Computer Simulators
CH 306(B) General Pharmacy
CH 306(C) Petroleum Exploration
CH 306(D) Electrochemical Engineering
CH311 : Industrial Hazards and Safety Analysis

Elective-II
CH 312(A) Computational Fluid Dynamics
CH 312(B) Pre-formulation Studies including Stability Studies
CH 312(C) Petroleum well Logging and Technology
CH 312(D) Fluidization Engineering

III Year II Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 307 MassTransfer Operations-II	3+1	-	3	40	60	3	PC
2	CH 308 ChemicalReaction Engineering-II	4	-	3	40	60	3	PC
3	CH 309 ProcessDynamics& Control	3+1	-	3	40	60	3	PC
4	CH 310 Process Economics and Plant Design	4	-	3	40	60	3	PC
5	CH 311 Industrial Hazards and Safety Analysis	4	-	3	40	60	3	PC
6	CH 312 Elective-II	4	-	3	40	60	3	PE
7	CH 354 PollutionControl Lab.	-	3	3	40	60	2	PC
8	CH 355 ChemicalReaction Engineering Lab.	-	3	3	40	60	2	PC
9	CH 356 Mass Transfer Operations Lab.-II	-	3	3	40	60	2	PC
Total		22+2	9	-	360	540	24	

NCC / NSO / NSS certificate must be submitted on or before the last instruction day of III Year II Semester, otherwise his / her Semester End Examination results will not be declared.

Subjects, which are offered in both I and II Semesters:

CH305 : Industrial Pollution Control
Elective-I
CH 306(A) Computer Simulators
CH 306(B) General Pharmacy
CH 306(C) Petroleum Exploration
CH 306(D) Electrochemical Engineering

CH311 : Industrial Hazards and Safety Analysis
Elective-II
CH 312(A) Computational Fluid Dynamics
CH 312(B) Pre-formulation Studies including Stability Studies
CH 312(C) Petroleum well Logging and Technology
CH 312(D) Fluidization Engineering

IV Year I Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 401 TransportPhenomena	3+1	-	3	40	60	3	PC
2	CH 402 ChemicalProcess EquipmentDesign	3+1	-	3	40	60	3	PC
3	CH 403MOOCS*	--	--	--	--	--	--	PC
4	CH 404* Elective-III(Open Elective)	4	-	3	40	60	3	OE
5	CH 405 Process Modelling and Simulation	4	-	3	40	60	3	PC
6	CH 406Elective-IV	4	-	--	40	60	3	PE
7	CH 451 Mini project//Term paper	-	3	3	100	--	2	PC
8	CH 452 Computer Applications in Chemical Engineering Lab.	--	3	3	40	60	2	PC
9	CH 453 Instrumentation & ProcessControl Lab.	-	3	3	40	60	2	PC
Total		18+2	9	--	380	420	21	

* MOOCS Certificate must be submitted on or before the last instruction day of IV Year I semester,otherwise his / her Semester End Examination results will not be declared.

Internship/Industrial Training/Certification Course completion certificate must besubmitted on or before the last instruction day of IV Year I Semester, otherwise his / herSemester End Examination results will not be declared.

Subjects, which are offered in both I and II Semesters:

CH 405: Process Modelling and Simulation

Elective-IV

CH 406(A) Computer Aided Process Engineering
CH 406(B) Industrial Pharmacy
CH 406(C) Natural Gas Production and its applications
CH 406(D) Nanotechnology

Elective-V

CH 409(A) Computer Aided Design
CH 409(B) Quality Control of Pharmaceutical Dosage Forms
CH 409(C) Petroleum Refining
CH 409(D) Advanced Separation Techniques

Elective VI

CH 410(A) Micro Process & Electronic Programming
CH 410(B) Validation and Documentation of Pharmaceuticals
CH 410(C) Petrochemical Technology
CH410(D) Biochemical Engineering

IV Year II Semester

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practicals	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	CH 407 Industrial Management	4	-	3	40	60	3	ES
2	CH 408 Optimization of Chemical Process	3+1	-	3	40	60	3	PC
3	CH 409 Elective-V	4	-	3	40	60	3	PE
4	CH 410 Elective-VI	4	-	3	40	60	3	PE
5	CH 454 Computer Aided Process Equipment Design Lab.	-	3	3	40	60	2	PC
6	CH 455 Project Work	-	9	3	40	60	10	PC
Total		15+1	12	-	240	360	24	

Subjects, which are offered in both I and II Semesters:

CH 405: Process Modelling and Simulation
Elective-IV
CH 406(A) Computer Aided Process Engineering
CH 406(B) Industrial Pharmacy
CH 406(C) Natural Gas Production and its applications
CH 406(D) Nanotechnology
Elective-V
CH 409(A) Computer Aided Design
CH 409(B) Quality Control of Pharmaceutical Dosage Forms
CH 409(C) Petroleum Refining
CH 409(D) Advanced Separation Techniques
Elective VI
CH 410(A) Micro Process & Electronic Programming
CH 410(B) Validation and Documentation of Pharmaceuticals
CH 410(C) Petrochemical Technology
CH410(D) Biochemical Engineering

***Open Electives (elective III) offered by other departments**

1. **CE 404(A) Basic Surveying**
2. **CE 404(B) Building Materials & Estimation**
3. **CS 404(A) Jaya Programming**
4. **CS 404(B) Data Base Management Systems**
5. **EC 404(A) Applied Electronics**
6. **EC 404(B) Basic Communication**
7. **EE 404(A) Non-Conventional Energy Sources**
8. **EE 404(B) Utilization of Electrical Energy**
9. **IT 404(A) Web Technologies**
10. **IT 404(B) Software Engineering**
11. **ME 404(A) Robotics**
12. **ME 404(B) Operations Research**

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-522019

(Autonomous)

(w.e.f. the batch of students admitted during the academic year 2018-19)

4-year Curriculum structure

Undergraduate B.Tech. Degree in Chemical Engineering

Total credits :: 160

I. **Induction Program:**

Induction program (mandatory)	**3 weeks duration**
Induction program for students to be offered right at the start of the first year	• Physical activity • Creative Arts • Universal Human Values • Literary • Proficiency Modules • Lectures by Eminent People • Visits to local Areas • Familiarization to Dept./Branch & Innovations

II. Semester-wise structure of curriculum

Course Code	**Definition**	**Suggested code in the syllabus**
BS	Basic Science course	BS
HS	Humanities, Social Sciences including	HS
ES	Engineering Science course	ES
PCC	Professional Core Course	PC
PEC	Professional Elective Course	PE
OEC	Open Elective Course	OE
MC	Mandatory Course	MC
SI	Summer Internship	SI
P	Project	PR

B.Tech. Chemical Engineering

Semester I (First Year)

S. No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	BS	CH 111	Mathematics – I	3	1	-	3	40	60	4
2.	BS	CH 112	Engineering Physics	3	1	-	3	40	60	4
3.	HS	CH 113	English for Communication Skills	2	-	-	3	40	60	2
4.	BS	CH 151	Physics Laboratory	-	-	3	3	40	60	1.5
5.	HS	CH 152	English Language Communication Skills Lab.	-	-	2	3	40	60	1
6.	ES	CH 153	Engineering Graphics & Design Lab.	1	-	4	3	40	60	3
7.	MC	MC 001	Constitution of India	2	-	-	-	100	-	-
8.	MC	MC 003	Essence of Indian Traditional Knowledge	2	-	-	-	100	-	-
			Total	13	2	9	-	440	360	15.5

B.Tech. Chemical Engineering

Semester II (First Year)

S.No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	BS	CH 121	Mathematics – II	3	1	-	3	40	60	4
2.	BS	CH 122	Chemistry - I	3	1	-	3	40	60	4
3.	ES	CH 123	Programming for Problem Solving	3	-	-	3	40	60	3
4.	ES	CH 124	Basic Electrical Engineering	3	1	-	3	40	60	4
5.	BS	CH 161	Chemistry Laboratory	-	-	3	3	40	60	1.5
6.	ES	CH 162	Programming for Problem Solving Lab	-	-	4	3	40	60	2
7.	ES	CH 163	Workshop Practice Lab	1	-	4	3	40	60	3
8.	ES	CH 164	Basic Electrical Engineering Lab	-	-	2	3	40	60	1
9	MC	MC002	Environmental Science	2	-	-	-	100	-	-
10	HS	CHV 01	English Competency Development Program	2	-	-	-	100	-	-
			Total	17	3	13	-	520	480	22.5

B.Tech. Chemical Engineering

Semester III (Second Year)

S.No.	Category	Code No. &	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	BS	CH 211	Mathematics III (Probability and Statistics)	3	-	-	3	40	60	3
2.	BS	CH 212	Life Sciences for Engineers	2	-	-	3	40	60	2
3.	BS	CH 213	Physical and Organic Chemistry	3	-	-	3	40	60	3
4.	PC	CH 214	Material & Energy Balance Computations	3	-	-	3	40	60	3
5.	PC	CH 215	Momentum Transfer	3	-	-	3	40	60	3
6.	PC	CH 216	Mechanical Operations	3	-	-	3	40	60	3
7.	BS	CH 251	Organic Chemistry Lab	-	-	3	3	40	60	1.5
8.	PC	CH 252	Momentum Transfer Lab	-	-	2	3	40	60	1.5
9.	MC	MC 004	Design Thinking & Product Innovation	2	-	-		100	-	-
			Total	19		5	-	420	480	20.0

B.Tech. Chemical Engineering

Semester IV (Second Year)

S. No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	PC	CH 221	Numerical Methods in Chemical Engineering	3	-	-	3	40	60	3
2.	PC	CH 222	Chemical Engineering Thermodynamics - I	3	-	-	3	40	60	3
3.	PC	CH 223	Material Technology	3	-	-	3	40	60	3
4.	PC	CH 224	Industrial Instrumentation & Instrumental methods of analysis	3	-	-	3	40	60	3
5.	PC	CH 225	Process Heat Transfer	3	-	-	3	40	60	3
6.	OE	CH 226	Open Elective-I	3	-	-	3	40	60	3
7.	PC	CH 261	Computational Programming Lab.	-	-	3	3	40	60	1.5
8.	PC	CH 262	Mechanical Operations Lab.	-	-	3	3	40	60	1.5
9.	PC	CH 263	Process Heat Transfer Lab.	-	-	3	3	40	60	1.5
			Total	18	-	9	-	360	540	22.5

B.Tech. Chemical Engineering

Semester V (Third Year)

S.No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	PC	CH 311	Mass Transfer-I	3	-	-	3	40	60	3
2.	PC	CH 312	Chemical Engineering Thermodynamics-II	3	-	-	3	40	60	3
3.	PC	CH 313	Chemical Reaction Engineering-I	3	-	-	3	40	60	3
4.	PC	CH 314	Professional Elective - I	3	-	-	3	40	60	3
5.	OE	CH 315	Open Elective - II	3	0	2	3	40	60	3
6.	HS	CH 351	Communicative English Lab	1	-	2	3	40	60	2
7.	PC	CH 352	Mass Transfer-I Lab.	-	-	2	3	40	60	1.5
8.	PC	CH 353	Pollution Control Laboratory	-	-	2	3	40	60	1.5
			Total	16	0	8		320	480	20.0

B.Tech. Chemical Engineering

Semester VI (Third Year)

S.No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	PC	CH 321	Mass Transfer Operations-II	3	-	-	3	40	60	3
2.	PC	CH 322	Process Dynamics & Control	3	-	-	3	40	60	3
3.	PC	CH 323	Chemical Reaction Engineering-II	3	-	-	3	40	60	3
4.	PC	CH 324	Outlines of Chemical Process Industries	3	-	-	3	40	60	3
5.	PE	CH 325	Professional Elective-II	3	-	-	3	40	60	3
6.	OE	CH 326	Open Elective-III	3	-	-	3	40	60	3
7.	PC	CH 361	Chemical Tech Lab	-	-	2	3	40	60	1.5
8.	PC	CH 362	Mass Transfer Operations-II Lab	-	-	2	3	40	60	1.5
9.	PC	CH 363	Chemical Reaction Engineering Lab	-	-	2	3	40	60	1.5
			Total	18	-	6	-	360	540	22.5

B.Tech. Chemical Engineering

Semester VII (Fourth Year)

S.No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	HS	CH 411	Process Economics & Industrial Management	3	-	-	3	40	60	3
2.	PC	CH 412	Transport Phenomena	3	-	-	3	40	60	3
3.	PC	CH413	Chemical Engineering Plant Design	3	-	-	3	40	60	3
4.	PC	CH 414	Process Modeling and Simulation	3	-	-	3	40	60	3
5.	PE	CH415	Professional Elective - III	3	-	-	3	40	60	3
6.	PE	CH 416	Professional Elective-IV	3	-	-	3	40	60	3
7.	PR	CH 451	Mini Project	-	-	3	-	100	-	4
8.	PC	CH 452	Process Dynamics and Control lab	-	-	2	3	40	60	1.5
9.	PC	CH 453	Computer Aided Process Design and Simulation lab	-	-	2	3	40	60	1.5
10.	SI		Summer Internship	-	-	-	-	100	-	2
			Total	18		7		520	480	26.0

B.Tech. Chemical Engineering

Semester VIII (Fourth Year)

S.No.	Category	Code No.	Subject	Scheme of Instruction periods per week			Scheme of Examination			
				Lecture	Tutorial	Practical	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits
1.	PE	CH 421	Professional Elective-V (MOOC)	3	-	--	3	40	60	3
2.	OE	CH 422	Open Elective-IV (MOOC)	3	-	--	3	40	60	3
3.	PR	CH 461	Project	9	-	-	3	40	60	10
			Total	15	-	-	-	120	180	15

Electives

S.No.		**Professional Core Electives (6 courses to be offered)**
1.	CHEL01	Petroleum Exploration well Logging
2.	CHEL02	Petroleum Refinery Engineering
3.	CHEL03	Petrochemical Technology
4.	CHEL04	Introduction To Pharmaceutics And Quality Assurance
5.	CHEL05	Industrial Pharmacy
6.	CHEL06	Validation And Documentation Of Pharmaceuticals
7.	CHEL07	Computer Simulators
8.	CHEL08	Computer Aided Process Engineering
9.	CHEL09	Computer Aided Design
10.	CHEL10	Electrochemical Engineering
11.	CHEL11	Industrial Hazards and Safety Analysis.
12.	CHEL12	Fluidization Engineering
13.	CHEL13	Process Instrumentation and Instrumental Methods of Analysis
14.	CHEL14	Polymer Science and Engineering
15.	CHEL15	Optimization of Chemical Process
16.	CHEL16	Bio-Chemical Engg.
17.	CHEL17	Nanoscience and Nanotechnology
18.	CHEL18	Advanced Separation Processes
19.	CHEL19	Environmental Engineering

Open Electives

S.No.		Professional Open Electives (4 courses to be offered for other braches)
1)	CHOL01	Energy Engineering
2)	CHOL02	Biofuels
3)		Polymer Science and Engineering
4)		

OPEN ELECTIVE COURSES	
1	Thermal and Fluid Engineering 3
2	Nano Technology and surface engineering -ME
3	Interpersonal Communication -Civil
4	ICT for Development-civil

DEPARTMENT OF CIVIL ENGINEERING

B.TECH CIVIL ENGINEERING

Pogram curriculum grouping based on course components

Course Component	Curriculum Content (% of total number of credits program)	Total number of contact hours	Total number of credits
Basic Science (BS)	25 (13.22%)	33	25
Engineering Science (ES)	18 (9.52%)	27	18
Humanities and Social Science (HS)	10 (5.29%)	14	10
Program Core (PC)	118 (62.43%)	155	118
Program Elective (PE)	15 (7.94%)	24	15
Open Elective (OE)	3 (1.59%)	4	3
Total number of Credits	189		

R.V.R. & J.C. COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-522 019 (AUTONOMOUS)

(w.e.f. the batch of students admitted during the academic year 2016-17)

B.TECH CIVIL ENGINEERING

I YEAR I SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction			Scheme of Examination			Category Code
		Periods per week			Maximum Marks		Credits	
		L	T	P	SES	EXT		
1	CE-101 Differential Equations	3	1	-	40	60	3	BS
2	CE-102 Engineering Physics	4	-	-	40	60	3	BS
3	CE-103 Applied Chemistry	4	-	-	40	60	3	BS
4	CE-104 English for Communication	4	-	-	40	60	3	ES
5	CE-105 Problem Solving with C	4	-	-	40	60	3	ES
6	CE-106 Engineering Mechanics	4	-	-	40	60	3	ES
7	CE-151 Engineering Chemistry Lab	-	-	3	40	60	2	BS
8	CE-152 C Programming lab	-	-	6	40	60	2	HS
9	CE-153 Engineering Graphics Lab	-	-	3	40	60	2	ES
	TOTAL	23	1	12	360	540	24	

I YEAR II SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction			Scheme of Examination			Category Code
		Periods per week			Maximum Marks		Credits	
		L	T	P	SES	EXT		
1	CE-107 Calculus	3	1	-	40	60	3	BS
2	CE-108 Physics of Materials	4	-	-	40	60	3	BS
3	CE-109 Chemistry of Engineering Materials	4	-	-	40	60	3	BS
4	CE-110 Environmental Studies	4	-	-	40	60	3	HS
5	CE-111 Engineering Drawing	2	-	4	40	60	3	ES
6	CE-112 Solid Mechanics - I	4	-	-	40	60	3	PC
7	CE-154 Physics lab	-	-	3	40	60	2	BS
8	CE-155 English Communication Skills Lab	-	-	3	40	60	2	ES
9	CE-156 Workshop Practice	-	-	3	40	60	2	ES
	TOTAL	21	1	13	360	540	24	

II YEAR I SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction			Scheme of Examination			Category Code
		Periods per week			Maximum Marks		Credits	
		L	T	P	SES	EXT		
1	CE-201 Computational Techniques & Statistical Methods	3	1	-	40	60	3	BS
2	CE-202 Surveying - I	4	-	-	40	60	3	PC
3	CE-203 Fluid Mechanics	4	-	-	40	60	3	PC
4	CE-204 Solid Mechanics - II	4	-	-	40	60	3	PC
5	CE-205 Building Materials, Planning and Construction	4	-	-	40	60	3	PC
6	CE-206 * Engineering Geology	4	-	-	40	60	3	PC
7	CE-251 Material Testing Lab	-	-	3	40	60	2	PC
8	CE-252 Building Drawing Lab	-	-	3	40	60	2	PC
9	CE-253 Surveying Field Work - I Lab	-	-	3	40	60	2	PC
	TOTAL	23	1	9	360	540	24	

The following Course can also be registered in this Semester in addition to the above or inplace of CE-206

CE-212 : Data Structures through C++

II YEAR II SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction Periods per week L	T	P	Scheme of Examination Maximum Marks SES	EXT	Credits	Category Code
1	CE-207 Professional Ethics and Human Values	4	-	-	40	60	3	HS
2	CE-208 Surveying - II	4	-	-	40	60	3	PC
3	CE-209 Hydraulics & Hydraulic Machines	4	-	-	40	60	3	PC
4	CE-210 Structural Analysis - I	4	-	-	40	60	3	PC
5	CE-211 Environmental Engineering-I	4	-	-	40	60	3	PC
6	CE-212 * Data Structures through C++	4	1	-	40	60	3	PC
7	CE-254 Engineering Geology lab		-	3	40	60	2	PC
8	CE-255 Hydraulics & Hydraulic Machines Lab	-	-	3	40	60	2	PC
9	CE-256 Environmental Engineering Lab	-	-	3	40	60	2	PC
	TOTAL	24	1	9	360	540	24	

The following Course can also be registered in this Semester in addition to the above or inplace of CE-212

CE-206 : Engineering Geology

III YEAR I SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction Periods per week L	T	P	Scheme of Examination Maximum Marks SES	EXT	Credits	Category Code
1	CE-301 Geo Technical Engineering - I	4	-	-	40	60	3	PC
2	CE-302 Water Resources Engineering	- I4	-	-	40	60	3	PC
3	CE-303 Railway, Airport & Harbor Engineering	4	-	-	40	60	3	PC
4	CE-304 Design of Concrete Structures	4	-	-	40	60	3	PC
5	CE-305 * Concrete Technology	4	-	-	40	60	3	PC
6	CE-306 * Structural Analysis - II	4	-	-	40	60	3	PC
7	CE-351 Surveying Field Work - II	-	-	3	40	60	2	PC
8	CE-352 Geo-Technical Engineering Lab	-	-	3	40	60	2	PC
9	CE-353 Professional Communication Skills Lab	-	-	3	40	60	2	HS
	TOTAL	24	-	9	360	540	24	

Any one of the following Courses can also be registered in this Semester in addition to the above or inplace of CE-305 / CE-306

CE-311 : Environmental Engineering - II

CE-312 : Construction Technology and Management

III YEAR II SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction			Scheme of Examination			Category Code
		Periods per week			Maximum Marks		Credits	
		L	T	P	SES	EXT		
1	CE-307 Geo-Technical Engineering-II	4	-	-	40	60	3	PC
2	CE-308 Water Resources Engineering - II	4	-	-	40	60	3	PC
3	CE-309 Highway Engineering	4	-	-	40	60	3	PC
4	CE-310 Design of Steel Structures	4	-	-	40	60	3	PC
5	CE-311 * Environmental Engineering-II	4	-	-	40	60	3	PC
6	CE-312 * Construction Technology and Management	4	-	-	40	60	3	PC
7	CE-354 Concrete Technology Lab	-	-	3	40	60	2	PC
8	CE-355 Computer Programming in Civil Engineering	-	-	3	40	60	2	PC
9	CE-356 Highway Engineering Lab	-	-	3	40	60	2	PC
	TOTAL	24	-	9	360	540	24	

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of CE-311 / CE-312

CE-305 : Concrete Technology

CE-306 : Structural Analysis - II

IV YEAR I SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction			Scheme of Examination			Category Code
		Periods per week			Maximum Marks		Credits	
		L	T	P	SES	EXT		
1	CE-401 Bridge Engineering	4	-	-	40	60	3	PC
2	CE-402 Quantity Surveying	4	-	-	40	60	3	PC
3	CE-403 MOOCS+	-	-	-	-	-	-	OE
4	CE-404* ELECTIVE - I (Open Elective)	4	-	-	40	60	3	OE
5	CE-405* ELECTIVE - II	4	-	-	40	60	3	PE
6	CE-406* ELECTIVE - III	4	-	-	40	60	3	PE
7	CE-451 Mini Project / Term Paper	-	-	3	100	-	2	PC
8	CE-452 Quantity Surveying and Project Management	-	-	3	40	60	2	PC
9	CE-453 CAD - Analysis, Design of Structures Lab	-	-	3	40	60	2	PC
	TOTAL	20	-	9	380	420	21	

+ MOOCS Certificate must be submitted on or before the last instruction day of IV/IV B.Tech. I Semester

Elective - I (Open Elective)

CE-404/A	Basic Surveying	CE-404/B	Building Materials & Estimation

Open Elective Subjects offered by other departments

CH-404/A	Energy Engineering	CH-404/B	Bio Fuels
CS-404/A	JAVA Programming	CS-404/B	Database Management Systems
EC-404/A	Applied Electronics	EC-404/B	Basic Communication
EE-404/A	Non-Conventional Energy Sources	EE-404/B	Utilization of Electrical Energy
IT-404/A	Software Engineering	IT-404/B	Web Technologies
ME-404/A	Robotics	ME-404/B	Operations Research

Elective - II

CE-405/A	Economics and Management Accounting for Engineers	CE-405/B	Advanced Surveying
CE-405/C	Urban Transportation Planning	CE-405/D	Environmental Impact Analysis

Elective - III

CE-406/A	Pre-stressed Concrete	CE-406/B	Water Resources Systems Analysis
CE-406/C	Remote Sensing and GIS	CE-406/D	Ground water development and Management

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of CE-405 / CE-406

CE-409/A	Design and Drawing of Hydraulic Structures	CE-410/A	Repair and Rehabilitation of Structures
CE-409/B	Pavement Analysis and Design	CE-410/B	Design of Tall Buildings
CE-409/C	Advanced Design of Steel Structures	CE-410/C	Advanced Environmental Engineering
CE-409/D	Retaining Structures	CE-410/D	Ground Improvement Techniques

IV YEAR II SEMESTER **COURSE STRUCTURE**

S. No.	Course Details Code No. & Subject Name	Scheme of Instruction Periods per week			Scheme of Examination Maximum Marks		Credits	Category Code
		L	T	P	SES	EXT		
1	CE-407 Advanced Design of Concrete Structures	4	-	-	40	60	3	PC
2	CE-408* ELECTIVE - IV	4	-	-	40	60	3	PE
3	CE-409* ELECTIVE - V	4	-	-	40	60	3	PE
4	CE-410* ELECTIVE - VI	4	-	-	40	60	3	PE
5	CE-454 Computer Aided Detailing of Structures Lab	-	-	3	40	60	2	PC
6	CE-455 Project and Viva - Voce	-	-	6	40	60	10	PC
	TOTAL	16	0	9	240	360	24	

Elective - IV z

CE-408/A Earthquake Resistant Design of Structures
CE-408/B Advanced Foundation Engineering
CE-408/C Disaster Management
CE-408/D Fiber Reinforced Concrete

Elective - V

CE-409/A Design and Drawing of Hydraulic Structures
CE-409/B Pavement Analysis and Design
CE-409/C Advanced Design of Steel Structures
CE-409/D Retaining Structures

Elective - VI

CE-410/A Repair and Rehabilitation of Structures
CE-410/B Design of Tall Buildings
CE-410/C Advanced Environmental Engineering
CE-410/D Ground Improvement Techniques

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of CE-409 /CE- 410

CE-405/A Economics and Management Accounting for Engineers
CE-405/B Advanced Surveying
CE-405/C Urban Transportation Planning
CE-405/D Environmental Impact Analysis
CE-406/A Pre-stressed Concrete
CE-406/B Water Resources Systems Analysis
CE-406/C Remote Sensing and GIS
CE-406/D Ground water development and Management

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COURSE STRUCTURE AND SCHEME OF EVALUATION
M.Tech. (Structural Engg.)

I Semester

S. No	Subject Code & Title	Periods per week		Maximum Marks			Credits
		L	P	Int.	Ext.	Total	
1.	MCE /SE/511 Theory of Elasticity and Plasticity	4		40	60	100	4
2.	MCE/SE/512 Dynamics of structures	4		40	60	100	4
3.	MCE/SE/513 Matrix methods of structural analysis	4		40	60	100	4
4.	Elective - I	4		40	60	100	4
5.	Elective - II	4		40	60	100	4
6.	Elective -III	4		40	60	100	4
7.	MCE/SE/551 Structural Engineering Laboratory		3	40	60	100	2
8.	MCE/SE/552 Seminar		1	100	-	100	2
		24	3	380	420	800	28

L: Lecture, P: Practical

Duration of Internal Examination : 2 Hours

Duration of External Examination : 3 Hours

II Semester

S. No	Subject Title	Periods per week		Maximum Marks			Credits
		L	P	Int.	Ext.	Total	
1.	MCE/SE/514 Finite Element Analysis of Structures	4		40	60	100	4
2.	MCE/SE/515 Stability of Structures	4		40	60	100	4
3.	MCE/SE/516 Theory of Plates and Shells	4		40	60	100	4
4.	Elective - IV	4		40	60	100	4
5.	Elective - V	4		40	60	100	4
6.	Elective - VI	4		40	60	100	4
7.	MCE/SE/553 Computer Aided Design Laboratory		3	40	60	100	2
8.	MCE/SE/554 Seminar		1	100	-	100	2
		24	4	380	420	800	28

L: Lecture, P: Practical

Duration of Internal Examination : 2 Hours

Duration of External Examination : 3 Hours

III Semester

S.No.	Subject Code & Title	Maximum Marks (Internal)	Credits
1	MCE/SE/711 Internship	100	2
2	MCE/SE/712 Project (Phase-I)	100	6

IV Semester

S.No.	Subject Code & Title	Maximum Marks Int.	Ext (Viva-voce)	Credits
1	MCE/SE/713 Project (Phase-II)	50	150	16

ELECTIVE SUBJECTS

MCE/SE/611	Advanced Theory and Design of RCC Structures
MCE/SE/612	Design of reinforced concrete foundations
MCE/SE/613	Structural optimization
MCE/SE/614	Fracture Mechanics of concrete
MCE/SE/615	Fibre Reinforced Plastic Composites
MCE/SE/616	Experimental stress analysis and Motion measurement
MCE/SE/617	Health monitoring of structures
MCE/SE/618	Design of Tall Buildings
MCE/SE/619	Advanced Foundation Engineering
MCE/SE/620	Earthquake Resistant Design of Structures
MCE/SE/621	Disaster Management
MCE/SE/622	Ground Improvement Techniques
MCE/SE/623	Advanced Design of Steel Structures
MCE/SE/624	Composite Construction
MCE/SE/625	Design of Prestressed Concrete Structures
MCE/SE/626	Repair and Rehabilitation of Structures
MCE/SE/627	Advanced Bridge Engineering
MCE/SE/628	Fibre reinforced concrete

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PROGRAMME STRUCTURE AND SCHEME OF EVALUATION
M.Tech. (Structural Engineering)

I Semester

S. No	Subject Code & Title	Periods per week		Maximum Marks			Credits
		L	P	Int.	Ext.	Total	
1.	SE 511 Theory of Elasticity and Plasticity	4		40	60	100	4
2.	SE 512 Dynamics of structures	4		40	60	100	4
3.	SE 513 Matrix methods of structural analysis	4		40	60	100	4
4.	Elective - I	4		40	60	100	4
5.	Elective - II	4		40	60	100	4
6.	Elective -III	4		40	60	100	4
7.	SE 551 Structural Engineering Laboratory		3	40	60	100	2
8.	~~MSE~~/SE 552 Seminar		3	100	-	100	2
		24	6	380	360	800	28

L: Lecture, P: Practical

Duration of Internal Examination : 2 Hours Duration of External Examination : 3 Hours

II Semester

S. No	Subject Title	Periods per week		Maximum Marks			Credits
		L	P	Int.	Ext.	Total	
1.	SE 521 Finite Element Analysis of Structures	4		40	60	100	4
2.	SE 522 Stability of Structures	4		40	60	100	4
3.	SE 523 Theory of Plates and Shells	4		40	60	100	4
4.	Elective - IV	4		40	60	100	4
5.	Elective - V	4		40	60	100	4
6.	Elective - VI	4		40	60	100	4
7.	SE 561 Computer Aided Design Laboratory		3	40	60	100	2
8.	SE 562 Seminar		3	100	-	100	2
		24	6	380	360	800	28

L: Lecture, P: Practical

Duration of Internal Examination : 2 Hours Duration of External Examination : 3 Hours

III Semester

S.No.	Subject Code & Title	Maximum Marks (Internal)	Credits
1	SE 611 MOOCS	-	2
2	SE 651 Internship	100	2
3	SE 652 Dissertation (Phase-I)	100	4

IV Semester

S.No.	Subject Code & Title	Maximum Marks Internal	External (Viva-voce)	Credits
1	SE 661 Dissertation (Phase-II)	40	80	10

ELECTIVE SUBJECTS

SE 571	Advanced Theory and Design of RCC Structures
SE 572	Design of reinforced concrete foundations
SE 573	Structural optimization
SE 574	Fracture Mechanics of concrete
SE 575	Fibre Reinforced Plastic Composites
SE 576	Experimental stress analysis and Motion measurement
SE 577	Health monitoring of structures
SE 578	Design of Tall Buildings
SE 579	Advanced Foundation Engineering
SE 580	Earthquake Resistant Design of Structures
SE 581	Disaster Management
SE 582	Ground Improvement Techniques
SE 583	Advanced Design of Steel Structures
SE 584	Composite Construction
SE 585	Design of Prestressed Concrete Structures
SE 586	Repair and Rehabilitation of Structures
SE 587	Advanced Bridge Engineering
SE 588	Fibre reinforced concrete
SE 589	Precast Concrete Structures
SE 590	Formwork for concrete structures

Semester I [First Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 111	Mathematics-I	3	1	-	40	60	4	BS
2	CE 112	Engineering Physics	3	1	-	40	60	4	BS
3	CE113	English for Communication Skills	2	-	-	40	60	2	HS
4	CE 151	Physics Lab	-	-	3	40	60	1.5	BS
5	CEE152	English Language Communication Skills Lab	-	-	2	40	60	1	HS
6	CE 153	Work Shop Practice Lab	1	-	4	40	60	3	ES
7	MC 000	Three weeks Orientation Program	-	-	-	-	-	-	-
8	CEVO1	English Competency Development Program	2	-	-	100	-	-	-
		TOTAL	11	2	9	340	360	15.5	TPW=22

Semester II [First Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 121	Mathematics-II	3	1	-	40	60	4	BS
2	CE 122	Engineering Chemistry	3	1	-	40	60	4	BS
3	CE123	Programming For Problem Solving	3	-	-	40	60	3	ES
4	CE 124	Basic Mechanical Engineering	3	-		40	60	3	ES
5	CE 125	Engineering Mechanics	3	-		40	60	3	ES
6	CE161	Chemistry Lab		-	3	40	60	1.5	BS
7	CE 162	Programming For Problem Solving Lab	-	-	4	40	60	2	ES
8	CE 163	Engineering Graphics & Design Lab	1	-	4	40	60	3	ES
		TOTAL	15	2	11	320	480	22.5	TPW=28

Semester III [Second Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 211	Surveying	3	1	-	40	60	4	BS
2	CE 212	Solid Mechanics-I	3	1	-	40	60	4	PC
3	CE 213	Fluid Mechanics	3	1	-	40	60	4	PC
4	CE 214	Engineering Geology	3	-	-	40	60	3	PC
5	CE 215	Buiding Materials and Construction	2	1	-	40	60	3	PC
6	MC004	Biology For Engineers	2	-	-	100	0	0	BS
7	CE 251	Strength of Materials Lab	-	-	2	40	60	1	PC
8	CE 252	Engineering Geology Lab	-	-	2	40	60	1	PC
9	CE 253	Computer Aided Civil Engineering Drawing	-	-	2	40	60	1	PC
10	CE 254	Technical Communication Lab	-	-	2	40	60	1	PC
		TOTAL	16	4	8	460	540	22	TPW=28

Semester IV [Second Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 221	Mathematics III	3	0	-	40	60	3	PC
2	CE 222	Solid Mechanics II	3	1	-	40	60	4	PC
3	CE 223	Concrete Technology	4	-	-	40	60	4	PC
4	CE 224	Hydraulics & Hydraulic Machines	3	1	-	40	60	4	PC
5	CE 225	Basic Electrical Engineering	2	-	-	40	60	2	ES
6	CE226	OEL01	3			40	60	3	ES
7	CE 261	Concrete Technology Lab	-	2	40	60	1	PC	
8	CE 262	Fluid Mechanics Lab	-	-	2	40	60	1	PC
9	CE 263	Surveying Field Work			2	40	60	1	ES
10	CE 264	Basic Electrical Engineering Lab	-	-	2	40	60	1	HS
TOTAL			18	4	46	420	541	23	TPW=28

Semester V [Third Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 311	Structural Analysis	2	1		40	60	3	PC
2	CE 312	Soil Mechanics	3			40	60	3	PC
3	CE 313	Hydrology & Irrigation Engineering	2	1		40	60	3	PC
4	CE 314	Environmental Engineering	3			40	60	3	PC
5	CE 315	Design of Steel Structural elements	2	1		40	60	3	PC
6	CE 316	CEEL01	3			40	60	3	PC
7	CE 317	OEL02	3			40	60	2	ES
8	MC005	Organisational Behaviour	2			100			MC
9	CE 351	Soil Mechanics Lab			2	40	60	1	PC
10	CE 352	Environmental Engineering Lab			2	40	60	1	PC
TOTAL			20	3	4	460	540	22	TPW=27

Semester VI[Third Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 321	Highway Engineering	3			40	60	3	PC
2	CE 322	Foundation engineering	3			40	60	3	PC
3	CE 323	Irrigation Structures	3			40	60	3	PC
4	CE 324	Waste Water Engineering	3			40	60	3	PC
5	CE 325	Design of Steel Structures	3			40	60	3	PC
6	CE 326	CEEL02	3			40	60	3	PC
7	CE 327	OEL03	3			40	60	3	ES
8	CEV02	Disaster Management	2			100			ES
9	CE 361	Highway Engineering Lab			2	40	60	1	PC
10	CE 362	Computer Aided Design & Detailing Lab			2	40	60	1	PC
TOTAL			23	0	4	460	540	23	TPW=27

d by student as MOOCS - student may complete them in I Sem of IV year

Semester VII [Fourth Year] *

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 411	Construction Management	3			40	60	3	PC
2	CE 412	Estimation & Costing	3			40	60	3	PC
3	CE 413	CEEL03	3			40	60	3	PC
4	CE 414	CEEL04	3			40	60	3	PC
5	CE 415	OEL04	3			40	60	3	ES
6	MC001	Constitution of India	2			100		0	HS
7	CEV03	Professional Ethics	2			100		0	ES
8	CE 452	Quantity Estimation & Project Management Lab	2		2	40	60	1	PC
9	CE 453	Project Phase -I			6	40	60	3	PC
TOTAL			21	0	8	480	420	19	TPW=29

Semester VIII [Fourth Year]

S.No	Course Details		Scheme of instruction			Scheme of Evaluation			Category Code
	Code No	Subject Name	Periods Per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	CE 421	CEEL05	3			40	60	3	HS
2	CE 422	CEEL06	3			40	60	3	PC
3	CE 461	Project Phase-II			12	40	60	6	PC
TOTAL			6	0	12	120	180	12	TPW=18

If a student opt for MOOCS- Approval from BOS Chairman is mandatory for that course. Same course can not be repeated by the candidate. Final pass certificate from the competent authority must be submitted before the relavent semester end examinations

S.No	Course Code	Elective Choice	Course Title
1	CE 316	CEEL01A	Design of RC Structural elements
		CEEL01B	Green Buildings
		CEEL01C	Geometric Design of Highways
		CEEL01D	Modern Construction Materials
S.No	Course Code	Elective Choice	Course Title
2	CE 326	CEEL02A	Design of Reinforced Concrete Structures
		CEEL02B	Repair & Rehabilitation of Structures
		CEEL02C	Pavement Materials
		CEEL02D	Earth Retaining Structures
S.No	Course Code	Elective Choice	Course Title
3	CE 413	CEEL03A	Advanced Structural Analysis
		CEEL03B	Solid & Hazardous Waste Management
		CEEL03C	Surface Hydrology
		CEEL03D	Finite Element Method
S.No	Course Code	Elective Choice	Course Title
4	CE 414	CEEL04A	Railway, Airport and Harbour Engineering
		CEEL04B	Bridge Engineering
		CEEL04C	Air & Noise Pollution Control
		CEEL04D	Water Resources System Analysis
S.No	Course Code	Elective Choice	Course Title
5	CE 421	CEEL05A	Earthquake resistent design of Structres
		CEEL05B	Prestressed Concrete
		CEEL05C	Construction Equipment
		CEEL05D	MOOCS*
S.No	Course Code	Elective Choice	Course Title
6	CE 422	CEEL06A	Advanced Environmental Engineering
		CEEL06B	Ground Improvement Techniques
		CEEL06C	Geo Synthetics
		CEEL06D	MOOKS*

by our dept

CEOL01	Strength of Materials & Fluidmechanics
CEOL02	Basic Syrveying
CEOL03	Building Materials & Construction
CEOL04	Effective Mind Management

from other departments

1. Data structures
2. DBMS
3. Python programming
4. Operational Research
5. History of Science and Engineering
6. Energy Science Engineering
7. Basic Electronics
8. Engineering Economics
9. Environmental Sceince

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19

(Autonomous)

Computer Science & Engineering

Curriculum Components for B.Tech. Programme

(w.e.f. the Academic year 2016-2017)

Course Component	Curriculum Content (% of total number of credits program)	Total number of contact hours	Total number of credits
Basic Science (BS)	14.81	38	28
Engineering Science (ES)	9.52	28	18
Humanities and Social Science (HS)	8.47	22	16
Program Core (PC)	50.26	146	95
Program Elective (PE)	8.99	20	17
Open Elective (OE)	1.59	4	3
Term paper / Mini project & Project (PR)	6.35	10	12
Total number of Credits			189

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19 *(Autonomous)*

(w.e.f. the academic year 2016-2017)

B.Tech., Computer Science & Engineering

I / IV B.Tech. I Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 101	Differential Equations & Transforms	4	-	40	60	3	BS
2	CS/CE/ CHE/EC/ EE/IT/ME 102	Engineering Physics	4	-	40	60	3	BS
3	CS/CE/EC/ EE/IT/ME 103	Applied Chemistry	4	-	40	60	3	BS
4	CS/CHE/ EC/IT 104	Environmental Studies	4	-	40	60	3	HS
5	CS/CE/EE/ IT/ME 105	Problem Solving with C	4+1	-	40	60	3	PC
6	CS/IT 106	Mechanics For Engineers	4	-	40	60	3	ES
7	CS 151	Physics Lab	-	3	40	60	2	BS
8	CS 152	C-Programming Lab	-	3	40	60	2	PC
9	CS 153	Communication Skills Lab	-	3	40	60	2	HS
TOTAL			24+1	9	360	540	24	

I / IV B.Tech. II Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 107	Matrix Algebra & Numerical Analysis	4	-	40	60	3	BS
2	CS/EC/ EE/IT 108	Electronic & Electrical Engineering Materials	4	-	40	60	3	BS
3	CS/CE/EC/ EE/IT/ME 109	Chemistry for Engineering Materials	4	-	40	60	3	BS
4	CS/CHE/ EC/IT 110	English for Communication	4	-	40	60	3	HS
5	CS/IT 111	Object Oriented Programming	4+1	-	40	60	3	PC
6	CS/IT 112	Professional Ethics & Human Values	4	-	40	60	3	HS
7	CS 154	Chemistry Lab	-	3	40	60	2	BS
8	CS 155	Object Oriented Programming Lab	-	3	40	60	2	PC
9	CS 156	Engineering Graphics Lab	2	4	40	60	2	ES
TOTAL			26+1	10	360	540	24	

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II / IV B.Tech. I Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 201	Probability-Statistics & Random Processes	4	-	40	60	3	BS
2	CS/IT 202	Basic Electrical & Electronics Engineering	4	-	40	60	3	ES
3	CS/IT 203	Digital Logic Design	4	-	40	60	3	ES
4	CS/IT 204	Data Structures	4+1	-	40	60	3	PC
5	CS/IT 205	Computer Organization	4	-	40	60	3	PC
6	CS/IT 206*	Discrete Mathematical Structures	4+1	-	40	60	3	PC
7	CS 251	Basic Electrical & Electronics Engineering Lab	-	3	40	60	2	ES
8	CS 252	Data Structures Lab	-	3	40	60	2	PC
9	CS 253	Professional Communication Skills Lab	-	3	40	60	2	HS
TOTAL			24+2	9	360	540	24	

Enrollment of NCC/NSO/NSS Program initiates from II/IV B.Tech. I semester.

II / IV B.Tech. II Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 207	Number theory & Algebra	4	-	40	60	3	BS
2	CS/IT 208	Microprocessors & Interfacing	4	-	40	60	3	ES
3	CS/IT 209	Theory of Computation	4	-	40	60	3	PC
4	CS/IT 210	Database Management Systems	4+1	-	40	60	3	PC
5	CS/IT 211	Java Programming	4+1	-	40	60	3	PC
6	CS/IT 212*	Operating Systems	4	-	40	60	3	PC
7	CS 254	Microprocessors & Interfacing Lab	-	3	40	60	2	ES
8	CS 255	Database Management Systems Lab	-	3	40	60	2	PC
9	CS 256	Java Programming Lab	-	3	40	60	2	PC
TOTAL			24+2	9	360	540	24	

Enrollment of Internship / Industrial training / Certification course initiates from II/IV B.Tech. II semester

*Subjects offered in both I & II Semesters:
CS 206 : Discrete Mathematical Structures
CS 212 : Operating Systems

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III/IV B.Tech. I Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 301	Computer Networks	4	-	40	60	3	PC
2	CS/IT 302	Web Technologies	4	-	40	60	3	PC
3	CS/IT 303	Design & Analysis of Algorithms	4	-	40	60	3	PC
4	CS/IT 304	Unix Programming	4	-	40	60	3	PC
5	CS/IT 305*	Compiler Design	4+1	-	40	60	3	PC
6	CS/IT 306*	Software Engineering	4+1	-	40	60	3	PC
7	CS 351	Web Technologies Lab	-	3	40	60	2	PC
8	CS 352	Design & Analysis of Algorithms Lab	-	3	40	60	2	PC
9	CS 353	Unix Programming Lab	-	3	40	60	2	PC
TOTAL			24+2	9	360	540	24	

Enrollment of MOOCs course initiates from III/IV B.Tech. I Semester

III / IV B.Tech. II Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 307	Network Programming	4+1	-	40	60	3	PC
2	CS/IT 308	Data Engineering	4+1	-	40	60	3	PC
3	CS/IT 309	Object Oriented Analysis & Design	4	-	40	60	3	PC
4	CS/IT 310	Cryptography & Network Security	4	-	40	60	3	PC
5	CS/IT 311*	Elective-I	4	-	40	60	3	PE
6	CS/IT 312*	Elective-II	4	-	40	60	3	PE
7	CS 354	Network Programming Lab	-	3	40	60	2	PC
8	CS 355	Data Engineering Lab	-	3	40	60	2	PC
9	CS 356	OOAD Lab	-	3	40	60	2	PC
TOTAL			24+2	9	360	540	24	

NCC/NSO/NSS Program certificate submission closes on last instruction day of III/IV B.Tech. II Semester

*Subjects offered in both I & II Semesters:
CS 305 : Complier Design
CS 306 : Software Engineering
CS 311 : Elective – I
CS 312 : Elective – II

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IV / IV B.Tech. I Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 401	Distributed Systems	4	-	40	60	3	PC
2	CS/IT 402	Web Services	4+1	-	40	60	3	PC
3	CS/IT 403	MOOCS*	-	-	-	-	-	OE
4	CS/IT 404	Elective-III (Open Elective)	4	-	40	60	3	OE
5	CS 405*	Wireless Networks	4	-	40	60	3	PC
6	CS/IT 406*	Elective-IV	4+1	-	40	60	3	PE
7	CS 451	Term Paper / Mini Project	-	4	100	--	2	PR
8	CS 452	Web Services Lab	--	3	40	60	2	PC
9	CS 453	Elective-IV Lab	-	3	40	60	2	PE
TOTAL			20+2	10	380	420	21	

MOOCs course completion certificate submission closes on last instruction day of IV/IV B.Tech. I semester
Internship / Industrial training / Certification course certificate submission closes on last instruction day of IV/IV B.Tech. I semester

IV / IV B.Tech. II Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			CATEGORY CODE
			THEORY + TUTORIAL	LAB	INTERNAL MARKS	SEM END EXAM MARKS	CREDITS	
1	CS/IT 407	Industrial Engineering & Management	4	-	40	60	3	HS
2	CS 408	Internet of Things	4	-	40	60	3	PC
3	CS/IT 409*	Elective-V	4	-	40	60	3	PE
4	CS/IT 410*	Elective-VI	4	-	40	60	3	PE
5	CS 454	Internet of Things Lab	-	3	40	60	2	PC
6	CS 455	Project Work	-	6	40	60	10	PR
TOTAL			16	9	360	540	24	

*Subjects offered in both I & II Semesters:

CS 405 : Wireless Networks
CS 406 : Elective – IV
CS 409 : Elective – V
CS 410 : Elective – VI

List of Electives:

Elective-I

CS 311 : (A) Artificial Intelligence (CS/IT)
(B) Principles of Programming Languages (CS/IT)
(C) Software Testing Methodologies
(D) Multimedia Computing

Elective-II

CS 312 : (A) Embedded Systems (CS/IT)
(B) Advanced Databases (CS/IT)
(C) Advanced Data Structures
(D) Advanced Computer Architecture

Elective-III

(*Open Elective*)

ChE 404 (A) : Energy Engineering
(B) : Bio-Fuels

CE 404 (A) : Basic Surveying
(B) : Building Materials & Estimation

EC 404 (A) : Applied Electronics
(B) : Basic Communication

EE 404 (A) : Non-conventional Energy Sources
(B) : Utilization of Electrical Energy

ME 404 (A) : Robotics
(B) : Operations Research

Elective-IV

CS 406 : (A) Open Source Systems (CS/IT)
(B) .NET Technologies (CS/IT)
(C) Cyber Security
(D) Data Analytics

Elective-V

CS 409 : (A) Parallel Algorithms (CS/IT)
(B) Digital Image Processing (CS/IT)
(C) ARM Processor
(D) Big Data Analytics / IRS*

Elective-VI

CS 410 : (A) Machine Learning (CS/IT)
(B) Semantic Web (CS/IT)
(C) Secure Software Engineering
(D) Cloud Computing / IRS*

IRS – Industry Recommended Subject

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19(Autonomous)
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M.Tech., Computer Science & Engineering

I / IIM.Tech. I Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			TOTAL
			THEORY	LAB	INTERNAL MARKS	SEMESTER END EXAM MARKS	CREDITS	
1	CS511	Advanced Data Structures & Algorithms	4		40	60	4	100
2	CS512	Multi-Core Architectures & Programming	4		40	60	4	100
3	CS513	Data Science	4		40	60	4	100
4	CS5XX	ELECTIVE-I	4		40	60	4	100
6	CS5XX	ELECTIVE-II	4		40	60	4	100
7	CS5XX	ELECTIVE-III	4		40	60	4	100
8	CS551	Advanced Data Structures Lab		3	40	60	2	100
8	CS552	Data Science Lab		3	40	60	2	100
TOTAL			**24**	**6**	**320**	**480**	**28**	**800**

I / IIM.Tech. II Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			TOTAL
			THEORY	LAB	INTERNAL MARKS	SEMESTER END EXAM MARKS	CREDITS	
1	CS521	Machine Learning	4		40	60	4	100
2	CS522	Cloud Computing	4		40	60	4	100
3	CS523	Internet of Things	4		40	60	4	100
4	CS5XX	Elective-IV	4		40	60	4	100
5	CS5XX	Elective-V	4		40	60	4	100
6	CS5XX	Elective-VI	4		40	60	4	100
7	CS561	Machine Learning Lab		3	40	60	2	100
8	CS562	Internet of Things Lab		3	40	60	2	100
TOTAL			24	6	320	480	28	800

II / IIM.Tech. III Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			TOTAL
			THEORY	LAB	INTERNAL MARKS	SEMESTER END EXAM MARKS	CREDITS	
1	CS611	MOOCS	-	-	-	-	2	-
2	CS651	INTERNSHIP	-	-	100	-	2	100
3	CS652	PROJECT REVIEW	-	-	100	-	4	100
TOTAL					200		8	200

II / IIM.Tech. IV Semester:

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK		SCHEME OF EXAMINATION			TOTAL
			THEORY	LAB	INTERNAL MARKS	SEMESTER END EXAM MARKS	CREDITS	
2	CS661	Project Work	-	-	40	60	10	100
TOTAL					40	60	10	100

TOTAL MARKS: 1900 **TOTAL: 74 Credits**

M.Tech (Computer Science & Engineering)

List of Electives

Elective	Code	Subject Name
Elective Courses for I Semester M.Tech(CSE)		
Three Electives need to be selected of which at least one elective should be LBD Course.	CS 571	Artificial Intelligence & Agent Technologies
	CS 572	Natural Language Processing
	CS 573	Advanced Databases
	CS 574	Distributed Computing
	CS 575	Wireless Networks & Mobile Computing
	CS 576	Agile Software Methodologies
	CS 577	Information Security
	CS 578	Design Thinking and Innovation
	CS 579	Network Technologies
	CS 580	Ethical Hacking & Computer Forensics(LBD)
	CS 581	Scripting Languages (LBD)
	CS 582	Mobile Application Development (LBD)
Elective Courses for II Semester M.Tech(CSE)		
Three Electives need to be selected of which at least one elective should be LBD Course.	CS 585	Soft Computing
	CS 586	Human Computer Interaction
	CS 587	Social Network & Semantic Web
	CS 588	Multimedia Computing
	CS 589	Software Project Management
	CS 590	Software Defined Networks
	CS 591	Advanced Data Mining
	CS 592	Gaming Engineering
	CS 593	Cyber Security
	CS 594	Software Testing & Quality Assurance (LBD)
	CS 595	Internet Technologies and Web Services (LBD)
	CS 596	Visual Programming (LBD)

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19

(Autonomous)

(w.e.f. the academic year 2018-2019)

B.Tech., Computer Science & Engineering

Semester I (First Year)

S.No.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 111	Mathematics – I	3	1	-	40	60	4	BS
2	CS/IT 112	Engineering Physics	3	1	-	40	60	4	BS
3	CS/IT/EC 113	Basic Electrical Engineering	3	1	-	40	60	4	ES
4	CS V002	Introduction to Computing	2	-	2	100	-	-	VC
5	CS/IT 151	Physics Lab	-	-	3	40	60	1.5	BS
6	CS/IT/EC 152	Basic Electrical Engineering Lab	-	-	2	40	60	1	ES
7	CS/IT/CH/EC 153	Engineering Graphics and Design Lab	1	-	4	40	60	3	ES
Total			12	3	11	340	360	17.5	TPW-26

Semester II (First Year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 121	Mathematics – II	3	1	-	40	60	4	BS
2	CS/CE/IT 122	Engineering Chemistry	3	1	-	40	60	4	BS
3	CS/CE/CH/IT/EE/ EC/ME 123	Programming for Problem Solving	3	-	-	40	60	3	ES
4	CS/CH/IT/EC 124	English for Communication Skills	2	-	-	40	60	2	HS
5	MC 002	Environmental Science	2	-	-	100	-	-	MC
6	CS V001	English Competency Development Program	2	-	-	100	-	-	VC
7	CS/CE/IT 161	Chemistry Lab	-	-	3	40	60	1.5	BS
8	CS/CE/CH/IT/EE/ EC/ME 162	Programming for Problem Solving Lab	-	-	4	40	60	2	ES
9	CS/CH/IT/EC 163	Workshop Practice Lab	1	-	4	40	60	3	ES
10	CS/CH/IT/EC 164	English Language Communication Skills Lab	-	-	2	40	60	1	HS
Total			16	2	13	520	480	20.5	TPW-31

Semester III (Second Year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 211	Mathematics – III	3	1	-	40	60	4	BS
2	CS/IT 212	Life Sciences For Engineers	2	-	-	40	60	2	ES
3	CS/IT 213	Digital Electronics	3	-	-	40	60	3	PC
4	CS/IT 214	Discrete Mathematics	3	-	-	40	60	3	PC
5	CS/IT 215	Data Structures	3	-	-	40	60	3	PC
6	CS/IT 216	Object Oriented Programming	3	-	-	40	60	2	PC
7	MC 001	Constitution of India	2	-	-	100	-	-	MC
8	MC 004	Design Thinking and Product Innovation	2	-	-	100	-	-	MC
9	CS/IT 251	Digital Electronics Lab	-	-	2	40	60	1	ES
10	CS/IT 252	Data Structures Lab	-	-	4	40	60	2	PC
11	CS/IT 253	Object Oriented Programming Lab	-	-	2	40	60	1	PC
Total			21	1	8	560	540	22	TPW-30

Semester IV (Second year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 221	Humanities (Elective-I)	3	-	-	40	60	3	HE
2	CS/IT 222	Computer Organization	3	-	-	40	60	3	PC
3	CS/IT 223	Operating Systems	3	-	-	40	60	3	PC
4	CS/IT 224	Database Management Systems	3	-	-	40	60	3	PC
5	CS/IT 225	Formal Languages & Automata Theory	3	-	-	40	60	3	PC
6	CS/IT 226	Open Elective - I	3	-	-	40	60	3	OE
7	MC 003	Essence of Indian Traditional Knowledge	2	-	-	100	-	-	MC
8	CS V003	Programming with Python	3	-	2	100	-	-	VC
9	CS/IT 261	Operating Systems Lab	-	-	4	40	60	2	PC
10	CS/IT 262	Database Management Systems Lab	-	-	4	40	60	2	PC
Total			23	0	10	520	480	22	TPW-33

Semester V (Third year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 311	Computer Networks	3	-	-	40	60	3	PC
2	CS/IT 312	Design & Analysis of Algorithms	3	-	-	40	60	4	PC
3	CS/IT 313	Web Technologies	3	-	-	40	60	3	PC
4	CS/IT 314	Software Engineering	3	-	-	40	60	3	PC
5	CS/IT 315	Professional Elective-I	3	-	-	40	60	3	PE
6.	CS/IT 316	Open Elective - II	3	-	-	40	60	3	OE
7.	CS/IT 351	Design & Analysis of Algorithms Lab	-	-	4	40	60	2	PC
8	CS/IT 352	Web Technologies Lab	-	-	4	40	60	2	PC
9.	CS/IT 353	SE Lab	-	-	4	40	60	1	PC
Total			18	0	12	360	540	24	TPW-30

Semester VI (Third year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 321	Compiler Design	3	-	-	40	60	3	PC
2	CS/IT 322	Data Engineering	3	-	-	40	60	3	PC
3	CS/IT 323	Artificial Intelligence	3	-	-	40	60	3	PC
4	CS/IT 324	Cryptography & Network Security	3	-	-	40	60	3	PC
5	CS/IT 325	Professional Elective-II	3	-	-	40	60	3	PE
6	CS/IT 326	Open Elective – III	3	-	-	40	60	3	OE
7	CS/IT 361	Artificial Intelligence Lab	-	-	4	40	60	2	PC
8	CS/IT 362	Mini Project Lab	-	-	4	40	60	2	PR
9	CS/IT 363	Term Paper	-	-	4	100	-	2	PR
Total			18	0	12	420	480	24	TPW-30

Semester VII (Final year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 411	Humanities (Elective-II)	3	-	-	40	60	3	HE
4	CS/IT 412	Machine Learning	3	-	-	40	60	3	PC
2	CS/IT 413	Neural Networks	3	-	-	40	60	3	PC
3	CS/IT 414	Professional Elective-III	3	-	-	40	60	3	PE
5	CS/IT 415	Professional Elective- IV	3	-	-	40	60	3	PE
6	CS/IT 451	Machine Learning Lab	-	-	2	40	60	1	PC
7	CS/IT 452	Project-I	-	-	4	40	60	2	PR
Total			15	0	6	280	420	18	TPW-21

Semester VIII (Final year)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	CS/IT 421	Professional Elective-V (MOOCS)	3	0	-	40	60	3	PE
2	CS/IT 422	Open Elective-IV(MOOCS)	3	0	-	40	60	3	OE
3	CS/IT 461	Project-II	-	-	12	40	60	6	PR
Total			6	0	12	120	180	12	TPW-18

PROGRAM ELECTIVE COURSES:

CODE NO.	SUBJECT NAME	CODE NO.	SUBJECT NAME
Professional Elective Courses for III/IV B.Tech. Students		Professional Elective Courses for Iv/IV B.Tech. Students	
CSEL01	Unix Programming	CSEL14	Advanced Computer Architecture
CSEL02	Interactive Computer Graphics	CSEL15	Design and Analysis of Parallel Algorithms
CSEL03	Big Data Analytics	CSEL16	.Net Technologies
CSEL04	Embedded Systems	CSEL17	Semantic Web
CSEL05	Open Source systems	CSEL18	Wireless Networks
CSEL06	Digital Image processing	CSEL19	Cloud Computing
CSEL07	Network Programming	CSEL20	Quantum Computing
CSEL08	Mobile Application Development	CSEL21	Natural Language Processing
CSEL09	Internet of Things	CSEL22	Virtual Reality
CSEL10	Object Oriented Analysis and Design(OOAD)	CSEL23	Cyber Security
CSEL11	Distributed Computing	CSEL24	Block Chain Technology
CSEL12	Principles of Programming Languages(PPL)	CSEL25	Multicore Technologies
CSEL13	* Industry Recommended Subject	CSEL26	* Industry Recommended subject
NOTE: Students Are Allowed To Take Professional Electives From 1 To 13 During III/IV B.Tech and 14 To 26 During IV/IV B.Tech Course * To Be Decided Based On Industry Requirements			

Open Elective Courses (Offered by CSE Department):

CODE NO.	SUBJECT NAME	CODE NO.	SUBJECT NAME
CSOL01	Java Programming	CSOL02	RDBMS
CSOL03	Python Programming	CSOL04	Internet Of Things

Value Added Courses

CODE NO.	SUBJECT NAME	CODE NO.	SUBJECT NAME
CS V001	English Competency Development Program	CS V002	Introduction To Computing
CS V003	Programming With Python		

Management Subjects

CODE NO.	SUBJECT NAME	CODE NO.	SUBJECT NAME
HSEL01	Introduction To Industrial Management	HSEL02	Economics For Engineers
HSEL03	Fundamentals Of Management For Engineers	HSEL04	Project Management And Entrepreneurship
HSEL05	Human Resources Behaviour And Organization Behaviour		

REGULATIONS (R-16), SCHEME OF INSTRUCTION, EXAMINATION AND SYLLABI

for

B.TECH. FOUR YEAR DEGREE PROGRAM
(Applicable for the batches admitted from 2016-2017)

ELECTRONICS & COMMUNICATION ENGINEERING

R.V.R. & J.C. COLLEGE OF ENGINEERING

An Autonomous Institute
Accredited by NAAC with 'A' Grade
Approved by AICTE :: Affiliated to Acharya Nagarjuna University

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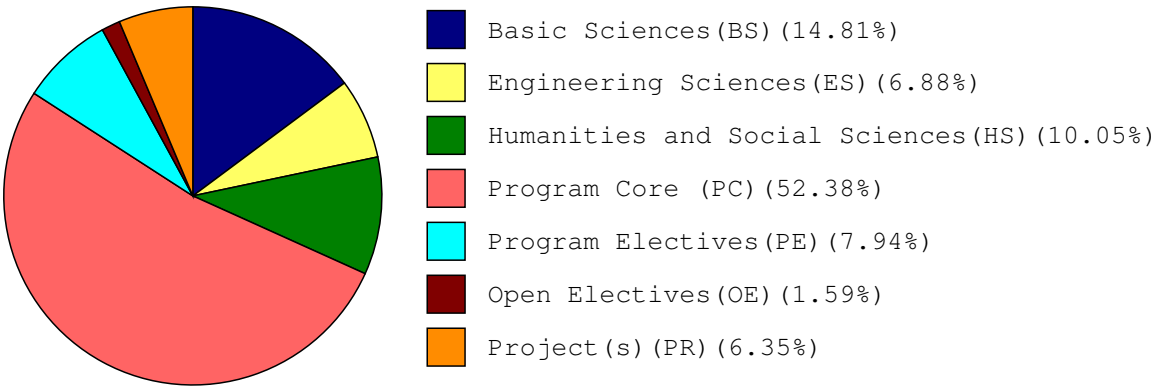
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

B.TECH ELECTRONICS & COMMUNICATION ENGINEERING

Pogram curriculum grouping based on course components

Course Component	Curriculum Content (% of total number of credits program)	Total number of contact hours	Total number of credits
Basic Sciences (BS)	14.81	38	28
Engineering Sciences (ES)	6.88	23	13
Humanities and Social Sciences (HS)	10.05	26	19
Program Core (PC)	52.38	150	99
Program Electives (PE)	7.94	20	15
Open Electives (OE)	1.59	4	3
Project(s) (PR)	6.35	9	12
Total number of Credits			189



B.TECH ELECTRONICS & COMMUNICATION ENGINEERING

(w.e.f. the batch of students admitted from the academic year 2016-2017)

I YEAR I SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC/EE/ME-101	Differential Equations and Statistics	3	1	-	40	60	3	BS
2	EC/CE/ChE/CS/ EE/IT/ME-102	Engineering Physics	4	-	-	40	60	3	BS
3	EC/CE/CS/ EE/IT/ME-103	Applied Chemistry	4	-	-	40	60	3	BS
4	EC/CS/IT-104	Environmental Studies	4	-	-	40	60	3	HS
5	EC-105	Elements of Mechanical Engineering	4	1	-	40	60	3	ES
6	EC-106	Economics for Engineers	4	-	-	40	60	3	HS
7	EC-151	Physics lab	-	-	3	40	60	2	BS
8	EC-152	Engineering Graphics Lab	2	-	4	40	60	2	ES
9	EC-153	Communication Skills lab	-	-	3	40	60	2	HS
		TOTAL	25	2	10	360	540	24	

I YEAR II SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC/EE/ME-107	Calculus and Numerical Methods	3	1	-	40	60	3	BS
2	EC/EE/CS/IT-108	Electronic and Electrical Engineering Materials	4	-	-	40	60	3	BS
3	EC/CE/EE/ CS/IT/ME-109	Chemistry of Engineering Materials	4	-	-	40	60	3	BS
4	EC/ChE/CS/IT-110	English for Communication	4	-	-	40	60	3	HS
5	EC/ChE-111	Problem Solving with C	4	1	-	40	60	3	ES
6	EC-112	Professional Ethics and Human Values	4	-	-	40	60	3	HS
7	EC-154	Chemistry lab	-	-	3	40	60	2	BS
8	EC-155	C Programming Lab	-	-	3	40	60	2	ES
9	EC-156	Electronics Engineering Workshop	-	-	3	40	60	2	PC
		TOTAL	23	2	9	360	540	24	

II YEAR I SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC/EE-201	Transformation Techniques	3	1	-	40	60	3	BS
2	EC/EE-202	Electronic Devices and Circuits	4	-	-	40	60	3	PC
3	EC/EE-203	Digital Logic Design	4	1	-	40	60	3	PC
4	EC-204	Circuit Theory	4	1	-	40	60	3	PC
5	EC-205	Data Structures through C++	4	1	-	40	60	3	PC
6	EC-206	Signals and Systems	4	1	-	40	60	3	PC
7	EC-251	Electronic Devices Lab	-	-	3	40	60	2	PC
8	EC-252	Digital Logic Design Lab	-	-	3	40	60	2	PC
9	EC-253	Data Structures through C++ Lab	-	-	3	40	60	2	PC
		TOTAL	23	5	9	360	540	24	

The following Course can also be registered in this Semester in adition to the above or inplace of 206

EC-212 Electrical Engineering & Measurements

Enrollment of NCC / NSO / NSS programme will be initiated from the date of commencement of class work for II Year I Semester.

II YEAR II SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC/EE-207	Complex and Numerical Analysis	3	1	-	40	60	3	BS
2	EC/EE-208	Electronic Circuit Analysis	4	1	-	40	60	3	PC
3	EC-209	Computer Organisation	4	-	-	40	60	3	PC
4	EC-210	Analog Communication	4	1	-	40	60	3	PC
5	EC-211	Electromagnetic Fields & Transmission Lines	4	1	-	40	60	3	PC
6	EC-212	Electrical Engineering & Measurements	4	-	-	40	60	3	ES
7	EC-254	Signals & Systems lab		-	3	40	60	2	PC
8	EC-255	Electronic Circuits Lab	-	-	3	40	60	2	PC
9	EC-256	Professional Communication Skills Lab	-	-	3	40	60	2	HS
		TOTAL	23	4	9	360	540	24	

The following Course can also be registered in this Semester in adition to the above or inplace of 212

EC-206 Signals and Systems

Enrollment of Internship / Industrial Trainning / Certification Course will be initiated from the end of II Year II Semester.

III YEAR I SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC/EE-301	Pulse and Digital Circuits	4	-	-	40	60	3	PC
2	EC/EE-302	Microprocessors & Microcontrollers	4	1	-	40	60	3	PC
3	EC-303	Linear IC's and its Applications	4	1	-	40	60	3	PC
4	EC-304	Digital Communications	4	1	-	40	60	3	PC
5	EC-305	Control Engineering	4	-	-	40	60	3	PC
6	EC-306	Antennas and Wave Propagation	4	-	-	40	60	3	PC
7	EC-351	Microprocessors & Microcontrollers Lab	-	-	3	40	60	2	PC
8	EC-352	Analog Communication Lab	-	-	3	40	60	2	PC
9	EC-353	Circuit Simulation Lab	-	-	3	40	60	2	PC
		TOTAL	24	3	9	360	540	24	

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of 305 / 306

EC-311A	TV Engineering	EC-312A	Operating Systems
EC-311B	EMC / EMI	EC-312B	Neural Networks
EC-311C	Biomedical Instrumentation	EC-312C	Fuzzy Logic
EC-311D	Telecommunication Switching System	EC-312D	Spread Spectrum Communications

Enrollment of MOOCS course will be initiated from the date of commencement of class work for III Year I Semester.

III YEAR II SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC-307	HDL Programing	4	-	-	40	60	3	PC
2	EC-308	Advanced Microcontrollers	4	-	-	40	60	3	PC
3	EC-309	Computer Networks	4	-	-	40	60	3	PC
4	EC-310	Digital Signal Processing	4	1	-	40	60	3	PC
5	EC-311	ELECTIVE - I	4	-	-	40	60	3	PE
6	EC-312	ELECTIVE - II	4	-	-	40	60	3	PE
7	EC-354	Digital Communication Lab	-	-	3	40	60	2	PC
8	EC-355	Advanced Microcontrollers Lab	-	-	3	40	60	2	PC
9	EC-356	Pulse Circuits & ICs Lab	-	-	3	40	60	2	PC
		TOTAL	24	1	9	360	540	24	

Elective - I : Any one Course can be registered

EC-311A	TV Engineering
EC-311B	EMC / EMI
EC-311C	Biomedical Instrumentation
EC-311D	Telecommunication Switching System

Elective - II : Any one Course can be registered

EC-312A	Operating Systems
EC-312B	Neural Networks
EC-312C	Fuzzy Logic
EC-312D	Spread Spectrum Communications

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of 311 / 312

EC-305	Control Engineering	EC-306	Antennas and Wave Propagation

NCC / NSO / NSS certificate must be submitted on or before the last instruction day of III Year II Semester, otherwise his / her Semester End Examination results will not be declared.

IV YEAR I SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC-401	Microwave Engineering	4	1	-	40	60	3	PC
2	EC-402	VLSI Design	4	1	-	40	60	3	PC
3	EC-403	MOOCS (Open online Course)	-	-	-	-	-	-	OE
4	EC-404	ELECTIVE - III (Open Elective)	4	-	-	40	60	3	OE
5	EC-405	Industrial Management & Entrepreneurship	4	-	-	40	60	3	HS
6	EC-406	ELECTIVE - IV	4	-	-	40	60	3	PE
7	EC-451	Mini Project / Term Paper	-	-	3	100	-	2	PR
8	EC-452	HDL Programing Lab	-	-	3	40	60	2	PC
9	EC-453	Digital Signal Processing Lab	-	-	3	40	60	2	PC
		TOTAL	20	2	9	380	420	21	

Elective - III : Any one of the following Courses can be registered

CE-404A	Basic Surveying	CE-404B	Building Materials & Estimation
ChE-404A	Energy Engineering	ChE-404B	Bio-fuels
CS-404A	Java Programming	CS-404B	Database Management Systems
EE-404A	Non-conventional Energy Sources	EE-404B	Utilization of Electrical Energy
IT-404A	Software Engineering	IT-404B	Web Technologies
ME-404A	Robotics	ME-404B	Operations Research

Elective - IV : Any one of the following Courses can be registered

EC-406A	Digital Image Processing	EC-406B	Fundamentals of Global Positioning System
EC-406C	Advanced Digital Signal Processing	EC-406D	Smart Antennas

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of 405 / 406

EC-409A	Satellite Communication	EC-410A	Wireless Adhoc Networks
EC-409B	Embedded Systems	EC-410B	Real Time Operating System
EC-409C	DSP Processors	EC-410C	Speech Processing
EC-409D	RF System Design	EC-410D	Radar & Navigational Aids

MOOCS course completion certificate must be submitted on or before the last instruction day of IV Year I Semester, otherwise his / her Semester End Examination results will not be declared.

Internship / Industrial Trainning / Certification Course completion certificate must be submitted on or before the last instruction day of IV Year I Semester, otherwise his / her Semester End Examination results will not be declared.

IV YEAR II SEMESTER COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EC-407	Mobile and Cellular Communications	4	-	-	40	60	3	PC
2	EC-408	Optical Communications	4	-	-	40	60	3	PC
3	EC-409	ELECTIVE - V	4	-	-	40	60	3	PE
4	EC-410	ELECTIVE - VI	4	-	-	40	60	3	PE
5	EC-454	Microwave & Optical Communication Lab	-	-	3	40	60	2	PC
6	EC-455	Project and Viva - Voce	-	-	6	40	60	10	PR
		TOTAL	16	0	9	240	360	24	

Elective - V : Any one Course can be registered

EC-409A	Satellite Communication
EC-409B	Embedded Systems
EC-409C	DSP Processors
EC-409D	RF System Design

Elective - VI : Any one Course can be registered

EC-410A	Wireless Adhoc Networks
EC-410B	Real Time Operating System
EC-410C	Speech Processing
EC-410D	Radar & Navigational Aids

Any one of the following Courses can also be registered in this Semester in adition to the above or inplace of 409 / 410

EC-405	Industrial Management & Entrepreneurship
EC-406A	Digital Image Processing
EC-406B	Fundamentals of Global Positioning System
EC-406C	Advanced Digital Signal Processing
EC-406D	Smart Antennas

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

M.TECH COMMUNICATION ENGINEERING & SIGNAL PROCESSING

(w.e.f. the batch of students admitted from the academic year 2017-2018)

COURSE STRUCTURE AND SCHEME OF EXAMINATION

I M.Tech I Semester

S. No	Code No & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1.	SP511 Advanced Digital Communication	4	–	4	40	60	100
2.	SP512 Coding Theory And Techniques	4	–	4	40	60	100
3	SP513 Speech Signal Processing	4	–	4	40	60	100
4.	Elective Subject – 1	4	–	4	40	60	100
5.	Elective Subject – 2	4	–	4	40	60	100
6.	Elective Subject – 3	4	–	4	40	60	100
7.	SP551 Communication Lab	–	3	2	40	60	100
8.	SP552 Seminar	–	3	2	100	–	100
Total		24	6	28	380	420	800

I M.Tech II Semester

S. No	Code No & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1.	SP521 Real Time Signal Processing	4	–	4	40	60	100
2.	SP522 Multirate Systems and Filter Banks	4	–	4	40	60	100
3	SP523 Wireless Communication	4	–	4	40	60	100
4.	Elective Subject–4	4	–	4	40	60	100
5.	Elective Subject–5	4	–	4	40	60	100
6.	Elective Subject–6	4	–	4	40	60	100
7.	SP561 Signal Processing Lab	–	3	2	40	60	100
8.	SP562 Mini Project / Term paper	–	3	2	100	–	100
Total		24	6	28	380	420	800

II M.Tech I Semester

S. No	Code No & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1.	SP611 MOOCS	–	–	2	–	–	–
2.	SP651 Internship	–	–	2	100	–	100
3.	SP652 Dissertation Review	–	–	4	100	–	100
Total		–	–	8	200	–	200

II M.Tech II Semester

S. No	Code No & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1.	SP661 Dissertation	–	–	10	40	60	100

LIST OF ELECTIVE SUBJECTS

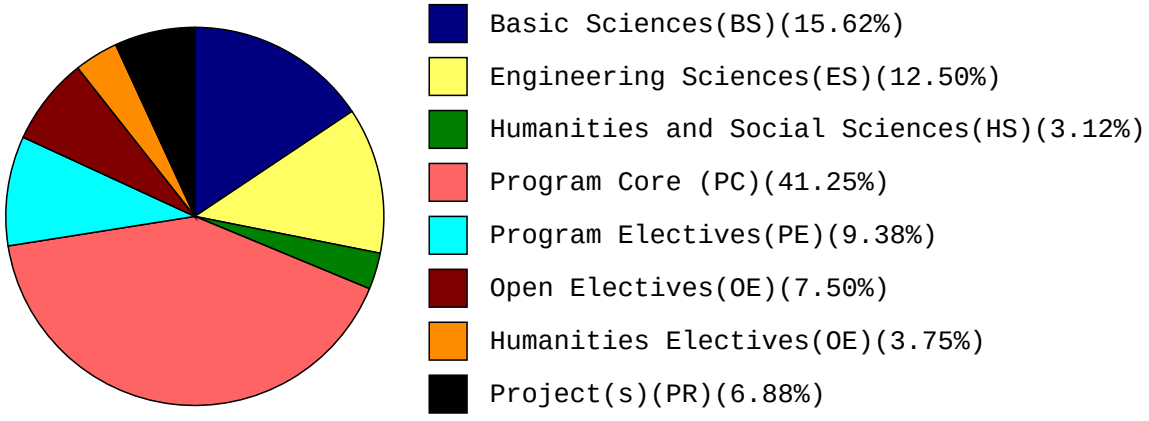
Subject code	Subject Title	Subject Code	Subject Title
SP571	Random Variables & Random Processing	SP581	OFDM for Wireless Communication Systems
SP572	Wavelet Signal Processing	SP582	Global Positioning Systems
SP573	Radar Signal Processing	SP583	Spread Spectrum Communication
SP574	Signal Detection and Estimation Theory	SP584	Data Communications
SP575	Advanced Digital Signal Processing	SP585	Satellite Communication Systems
SP576	Adaptive Signal Processing	SP586	Fibre Optic Communication
SP577	Pattern Recognition	SP587	Embedded Systems
SP578	Video Processing	SP588	Optimization Techniques
SP579	Smart Antennas	SP589	Artificial Neural Networks
SP580	Microwave measurements	SP590	Fuzzy Techniques

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

B.TECH. ELECTRONICS & COMMUNICATION ENGINEERING

Program curriculum grouping based on course components

Course Component	Curriculum Content (% of total number of credits program)	Total number of contact hours	Total number of credits
Basic Sciences (BS)	15.63	28	25
Engineering Sciences (ES)	12.5	28	20
Humanities and Social Sciences (HS)	3.13	7	5
Professional Core (PC)	41.25	77	66
Professional Electives (PE)	9.38	12	15
Open Electives (OE)	7.5	9	12
Humanities Electives (HE)	3.75	6	6
Project(s) (PR)	6.88	22	11
Mandatory Course(s) (MC)	--	10	--
Total number of Credits			160



B.TECH. ELECTRONICS & COMMUNICATION ENGINEERING

(w.e.f. the batch of students admitted from the academic year 2018-2019)

Three Weeks Orientation Programme is Mandatory before starting Semester I [First Year]

Semester I [First Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EC/CE/ME 111	Mathematics-I	3	1	-	40	60	4	BS
2	EC/EE/ME 112	Engineering Chemistry	3	1	-	40	60	4	BS
3	EC/CS/IT 113	Basic Electrical Engineering	3	1	-	40	60	4	ES
4	EC/EE/ME 151	Chemistry Lab	-	-	3	40	60	1.5	BS
5	EC/CS/IT 152	Basic Electrical Engineering Lab	-	-	2	40	60	1	ES
6	EC/CH/CS/IT 153	Engineering Graphics & Design Lab	1	-	4	40	60	3	ES
7	MC 002	Environmental Science	2	-	-	100	-	-	MC
		TOTAL	12	3	9	340	360	17.5	TPW-24

Semester II [First Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EC/CE/ME 121	Mathematics-II	3	1	-	40	60	4	BS
2	EC 122	Engineering Physics	3	1	-	40	60	4	BS
3	EC/CE/CH/CS/ EE/IT/ME 123	Programing for Problem Solving	3	-	-	40	60	3	ES
4	EC/CH/CS/IT 124	English for Communication Skills	2	-	-	40	60	2	HS
5	EC 161	Physics Lab	-	-	3	40	60	1.5	BS
6	EC/CE/CH/CS/ EE/IT/ME 162	Programing for Problem Solving Lab	-	-	4	40	60	2	ES
7	EC/CS/CH/IT 163	Workshop Practice Lab	1	-	4	40	60	3	ES
8	EC/CH/CS/IT 164	English Language Communication Skills Lab	-	-	2	40	60	1	HS
9	MC 001	Constitution of India	2	-	-	100	-	-	MC
10	MC 003	Essence of Indian Traditional Knowledge	2	-	-	100	-	-	MC
		TOTAL	16	2	13	520	480	20.5	TPW-31

Semester III [Second Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EC 211	Mathematics-III	3	1	-	40	60	4	BS
2	EC 212	Electronic Devices	3	1	-	40	60	4	PC
3	EC 213	Signals & Systems	3	-	-	40	60	3	PC
4	EC 214	Circuit Theory	3	-	-	40	60	3	PC
5	EC 215	Electromagnetic Field Theory	3	-	-	40	60	3	PC
6	EC 251	Electronic Devices Lab	-	-	3	40	60	1.5	PC
7	EC 252	Communicative English Lab	1	-	2	40	60	2	HS
		TOTAL	16	2	5	280	420	20.5	TPW-23

Semester IV [Second Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC 221	Basic Civil & Mechanical Engineering	3	-	-	40	60	3	ES
2	EC 222	Life Science for Engineers	2	-	-	40	60	2	BS
3	EC 223	Digital Electronics & Logic Design	3	-	-	40	60	3	PC
4	EC 224	Network Analysis & Transmission Lines	3	-	-	40	60	3	PC
5	EC 225	Analog Circuits	3	1	-	40	60	4	PC
6	EC 226	Open Elective-I	3	-	-	40	60	3	OE
7	EC 261	Basic Civil & Mechanical Engineering Lab	-	-	2	40	60	1	ES
8	EC 262	Signals & Systems lab	-	-	2	40	60	1	PC
9	EC 263	Digital Electronics & Logic Design Lab	-	-	3	40	60	1.5	PC
10	MC 004	Design Thinking & Product Innovation	2	-	2	100	-	-	MC
		TOTAL	19	1	9	460	540	21.5	TPW-29

Semester V (Third Year) COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC 311	Control Systems	3	-	-	40	60	3	PC
2	EC 312	Computer Networks	3	-	-	40	60	3	PC
3	EC 313	Microprocessors & Microcontroller	3	-	-	40	60	3	PC
4	EC 314	Integrated Circuits & Applications	3	-	-	40	60	3	PC
5	EC 315	Professional Elective-I	3	-	-	40	60	3	PE
6	EC 316	Analog Communications	3	1	-	40	60	4	PC
7	EC 351	Analog Circuits Lab	-	-	3	40	60	1.5	PC
8	EC 352	Microprocessors & Microcontroller Lab	-	-	2	40	60	1	PC
9	EC 353	Integrated Circuits & Applications Lab	-	-	3	40	60	1.5	PC
		TOTAL	18	1	8	360	540	23	TPW-27

Semester VI [Third Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	EC 321	Digital Communications	3	-	-	40	60	3	PC
2	EC 322	Digital Signal Processing	3	1	-	40	60	4	PC
3	EC 323	Antennas & Wave Propagation	3	-	-	40	60	3	PC
4	EC 324	Professional Elective-II	3	-	-	40	60	3	PE
5	EC 325	Humanities Elective-I	3	-	-	40	60	3	HE
6	EC 326	Open Elective-II	3	-	-	40	60	3	OE
7	EC 361	Analog & Digital Communications Lab	-	-	2	40	60	1	PC
8	EC 362	Digital Signal Processing Lab	-	-	2	40	60	1	PC
		TOTAL	18	1	4	320	480	21	TPW-23

Semester VII [Fourth Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EC 411	VLSI Design	3	-	-	40	60	3	PC
2	EC 412	Microwave Engineering	3	-	-	40	60	3	PC
3	EC 413	Professional Elective-III	3	-	-	40	60	3	PE
4	EC 414	Professional Elective-IV	3	-	-	40	60	3	PE
5	EC 415	Humanities Elective-II	3	-	-	40	60	3	HE
6	EC 416	Open Elective-III	3	-	-	40	60	3	OE
7	EC 451	Project Stage-I	-	-	4	100	-	2	PR
8	EC 452	Advanced Communications Lab	-	-	2	40	60	1	PC
9	EC 453	Industrial Training / Internship / Certification /Research Projects in National laboratories / Academic Institutions	-	-	4	100	-	2	PR
		TOTAL	18	0	10	480	420	23	TPW-28

Semester VIII [Fourth Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EC 421	Professional Elective-V (MOOCs)	-	-	-	-	100	3	PE
2	EC 422	Open Elective-IV (MOOCs)	-	-	-	-	100	3	OE
3	EC 461	Project Stage-II	-	-	14	40	60	7	PR
		TOTAL	0	0	14	40	260	13	TPW-14

Professional Elective Courses

Code No.	Subject Name	Code No.	Subject Name
ECEL01	Information Theory & Coding	ECEL02	Data Communications & Networking
ECEL03	Optical Communications	ECEL04	Satellite Communications
ECEL05	Cellular & Mobile Communications	ECEL06	Wireless Communications
ECEL07	Computer System Architecture	ECEL08	Real Time Operating Systems
ECEL09	Embedded Systems	ECEL10	SoC Architectures
ECEL11	Digital System Design	ECEL12	Advanced Digital Signal Processing
ECEL13	Analog IC Design	ECEL14	Digital IC Design
ECEL15	Low Power VLSI Design	ECEL16	VLSI Testing & Testability
ECEL17	Soft Computing Techniques	ECEL18	Digital Signal Processors & Architectures
ECEL19	Image Processing	ECEL20	Pattern Recognition
ECEL21	Speech Processing	ECEL22	Electromagnetic Interference & Compatibility
ECEL23	MEMS	ECEL24	Radar & Navigational Aids
ECEL25	Cognitive Radio	ECEL26	RF System Design
ECEL27	Electronic Measurements & Instrumentation	ECEL28	Wireless Sensor Netorks

Value Added Courses

Code No.	Subject Name	Code No.	Subject Name
EC V01	English Competency Development Programme	EC V02	AI Tools, Techniques and Applications
EC V03	Internet of Things (IoT)	EC V04	Graphical System Design-I
EC V05	Graphical System Design-II	EC V06	Graphical System Design-III

Open Elective Courses

Code No.	Subject Name	Code No.	Subject Name
CEOL01	Building Materials and Construction	CEOL02	Solid waste Management
CEOL03	Remote Sensing and GIS	CHOL01	Energy Engineering
CHOL02	Biofuels	CHOL03	Pollution Control
CHOL04	Nanoscience and Nanotechnology	CSOL01	Programming with Java
CSOL02	Relational Database Management Systems	CSOL03	Introduction to Python Programming
CSOL04	Internet of Things	EEOL01	Renewable Energy Sources
EEOL02	Utilization of Electrical Energy	EEOL03	Power Converters
EEOL04	Energy Conservation	EEOL05	Introduction to Electric Vehicles and Storage Systems
ITOL01	Data Structures & Algorithms	ITOL02	Operating Systems
ITOL03	Big Data Analytics	ITOL04	Web Technologies
MEOL01	Automotive Engineering	MEOL02	Robotic Engineering
MEOL03	Introduction to Operations Research	MEOL04	Mechatronics
MEOL05	Applied Mechanics & Mechanical Engineering		

Humanities & Scocial Sciences Elective Courses

Code No.	Subject Name	Code No.	Subject Name
HSEL01	Industrial Management & Entrepreneurship	HSEL02	Economics for Engineers
HSEL03	Introduction to Industrial Management	HSEL04	Project Management & Entrepreneurship
HSEL05	Human Resources & Organisational Behaviour	HSEL06	Ethics & Human Values

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19

(Autonomous)

(w.e.f. the batch of students admitted during the academic year 2016-2017)

B.Tech., - EEE I Year I Semester (1st Semester)

S. No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Sem End Exam.(hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	EE/EC/ME 101 Differential equations and statistics	3+1		3	40	60	3	BS
2	EE/CE/ChE/CS/EC/IT/ ME 102 Engineering Physics	4	-	3	40	60	3	BS
3	EE/CE/CS/EC/IT/ME 103 Applied Chemistry	4	-	3	40	60	3	BS
4	EE/CE/ME 104 English for communication	4	-	3	40	60	3	HS
5	EE/CE/ME 105 Problem solving with C	4+1	-	3	40	60	3	ES
6	EE 106 Professional Ethics & Human values	4	-	3	40	60	3	HS
7	EE/CE/ME 151 Chemistry Lab	-	3	3	40	60	2	BS
8	EE/CE/ME 152 C- Programming Lab	-	3	3	40	60	2	ES
9	EE 153 Workshop Practice Lab	-	3	3	40	60	2	ES
Total		23+2	9	-	360	540	24	

B.Tech., - EEE 1 Year II Semester (2nd Semester)

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Sem end Exam. (hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	EE/EC/ME 107 Calculus and Numerical Methods	3+1	-	3	40	60	3	BS
2	EE/EC/CS/IT 108 Electronic and Electrical Engineering Materials	4	-	3	40	60	3	BS
3	EE/EC/CS/IT/CE/ME 109 Chemistry of Engineering Materials	4	-	3	40	60	3	BS
4	EE/CE/ME 110 Environmental Studies	4	-	3	40	60	3	HS
5	EE 111 Mechanics For Engineers	4+1	-	3	40	60	3	ES
6	EE 112 Introduction to Electrical Engineering	4	-	3	40	60	3	PC
7	EE/CE/ME 154 Physics Lab	-	3	3	40	60	2	BS
8	EE/CE/ME 155 Communication Skills Lab.	-	3	3	40	60	2	HS
9	EE 156 Engineering Graphics Lab	2	4	3	40	60	2	ES
Total		25+2	10	-	360	540	24	

B.Tech., EEE II Year I Semester (3rd Semester)

S. No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	EE/EC 201 Transformation Techniques	4	-	3	40	60	3	BS
2	EE/EC 202 Electronic Devices & Circuits	4	-	3	40	60	3	PC
3	EE/EC 203 Digital Logic Design	4+1	-	3	40	60	3	PC
4	EE 204 Network Theory	4+1	-	3	40	60	3	PC
5	EE 205 DC Machines	4	-	3	40	60	3	PC
6	EE 206* Mechanical Technology	4		3	40	60	3	ES
7	EE 251 Networks & DC machines Lab	-	3	3	40	60	2	PC
8	EE 252 Electronic Devices Lab	-	3	3	40	60	2	PC
9	EE 253 Mechanical Technology Lab	-	3	3	40	60	2	ES
Total		24+2	9	-	360	540	24	

Enrollment of NCC/NSO/NSS will be initiated from the date of commencement of class work for II Year I Semester.

*** Subjects, which are offered in both 1st and 2nd Semesters:**

EE 206: Mechanical Technology
EE 212: Electromagnetic Field Theory

B.Tech., EEE II Year II Semester (4th Semester)

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	EE/EC 207 Complex and Numerical Analysis	4	-	3	40	60	3	BS
2	EE/EC 208 Electronic Circuit Analysis	4	-	3	40	60	3	PC
3	EE 209 Network Analysis & Synthesis	4+1	-	3	40	60	3	PC
4	EE 210 AC Machines	4+1	-	3	40	60	3	PC
5	EE 211 Data Structures using C++	4	-	3	40	60	3	ES
6	EE 212* Electromagnetic Field Theory	4+1	-	3	40	60	3	PC
7	EE 254 AC Machines Lab	-	3	3	40	60	2	PC
8	EE 255 Data Structures Lab	-	3	3	40	60	2	ES
9	EE 256 Professional Communication Skills Lab	-	3	3	40	60	2	HS
Total		24+3	9	-	360	540	24	

- **Internship / Industrial Training / Certification Course:**

Enrollment of Internship / Industrial Training / Certification Course will be initiated from the end of II Year II Semester.

*** Subjects, which are offered in both 1st and 2nd Semesters:**
EE 206: Mechanical Technology
EE 212: Electromagnetic Field Theory

B.Tech., EEE III Year I Semester (5th Semester)

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	EE/EC 301 Pulse and Digital Circuits	4	-	3	40	60	3	PC
2	EE/EC 302 Microprocessors & Microcontrollers	4+1	-	3	40	60	3	PC
3	EE 303 Linear Control Systems	4+1	-	3	40	60	3	PC
4	EE 304 Synchronous & Special Machines	4	-	3	40	60	3	PC
5	EE 305* Generation of Electrical Power	4	-	3	40	60	3	PC
6	EE 306* Transmission & Distribution	4+1	-	3	40	60	3	PC
7	EE 351 Synchronous & Special Machines Lab	-	3	3	40	60	2	PC
8	EE 352 Electronic Circuits Lab	-	3	3	40	60	2	PC
9	EE 353 Microprocessors & Microcontrollers Lab	-	3	3	40	60	2	PC
Total		24+3	9	-	360	540	24	

- Enrollment of MOOCS course will be initiated from the date of commencement of class work for III Year I Semester.

*** Subjects, which are offered in both 1st and 2nd Semesters:**

EE 305: Generation of Electrical Power
EE 306: Transmission& Distribution

Elective I:	**EE 311A:** High Voltage Engineering	**EE 311B:** Operations Research
	EE 311C: Digital Signal Processing	**EE 311D:** Power system Deregulation
Elective II:	**EE 312A:** Electrical Machine Design	**EE 312B:** ANN and Fuzzy Systems
	EE 312C: Renewable Energy Resources	**EE 312D:** Organisational Behavior

B.Tech., EEE III Year II Semester (6th Semester)

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	EE 307 Linear ICs and Applications	4	-	3	40	60	3	PC
2	EE 308 Power system Analysis & Stability	4+1	-	3	40	60	3	PC
3	EE 309 Power Electronics	4	-	3	40	60	3	PC
4	EE 310 Electrical Measurements & Instrumentation	4+1	-	3	40	60	3	PC
5	EE 311* Elective-I	4	-	3	40	60	3	PE
6	EE 312* Elective-II	4	-	3	40	60	3	PE
7	EE 354 Electrical Measurements & Instrumentation Lab	-	3	3	40	60	2	PC
8	EE 355 Control systems Lab	-	3	3	40	60	2	PC
9	EE 356 Electrical Workshop practice Lab	-	3	3	40	60	2	PC
Total		24+2	9	-	360	540	24	

- NCC/NSO/NSS Certificate must be submitted on or before the last instruction day of III Year II Semester otherwise his/her Semester End Examination result will not be declared.

*** Subjects, which are offered in both 1st and 2nd Semesters:**

EE 305: Generation of Electrical Power
EE 306: Transmission& Distribution

Elective I:	**EE 311A:** High Voltage Engineering	**EE 311B:** Operations Research
	EE 311C: Digital Signal Processing	**EE 311D:** Power system Deregulation
Elective II:	**EE 312A:** Electrical Machine Design	**EE 312B:** ANN and Fuzzy Systems
	EE 312C: Renewable Energy Resources	**EE 312D:** Organisational Behavior

B.Tech., EEE IV Year I Semester (7th Semester)

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Sem EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	EE 401 Switch Gear & Protection	4	-	3	40	60	3	PC
2	EE 402 Computer Applications to Power Systems	4+1	-	3	40	60	3	PC
3	EE 403 MOOCS	-	-	-	-	-	0	OE
4	EE 404 Elective-III (Open Elective)	4	-	3	40	60	3	OE
5	EE405* Industrial Management	4	-	3	40	60	3	HS
6	EE 406* Elective-IV	4	-	3	40	60	3	PE
7	EE 451 Mini project / Term Paper	-	3	3	100	--	2	PC
8	EE 452 Power Electronics Lab	--	3	3	40	60	2	PC
9	EE 453 Power Systems Lab	-	3	3	40	60	2	PC
Total		20+1	9	--	380	480	21	

- MOOCS Certificate must be submitted on or before the last instruction day of IV Year I Semester otherwise his/her Semester End Examination result will not be declared.
- Internship / Industrial Training / Certification Course completion certificate must be submitted on or before the last instruction day of IV Year I Semester, otherwise his / her Semester End Examination results will not be declared.

404 : Elective -III (Open Elective)

CE 404A: Basic Surveying
CH 404A: Energy Engineering
CS 404A: JAVA Programming
EC 404A: Applied Electronics
IT 404A: Software Engineering
ME 404A: Robotics

CE 404B: Building Materials & Estimation
CH404B: Bio- Fuels
CS404B: Database Management systems
EC404B: Basic Communication
IT 404B: Web Technologies
ME 404B: Operations Research

*** Subjects, which are offered in both 1st and 2nd Semesters:**

EE 405: Industrial Management

Elective-IV:	**406A:** Industrial Drives	**406B:** Power Plant Instrumentation
	406C: EHV AC Transmission	**406D:** Energy Conservation & Audit
Elective-V:	**409A:** HVDC Transmission	**409B:** Electrical Distribution Systems
	409C: Embedded Systems & VLSI	**409D:** Smart Grids
Elective-VI:	**410A:** FACTS Controllers	**410B:** Digital Control systems
	410C: Computer Networks	**410D**: Industry Open Slot

B.Tech., EEE IV Year II Semester (8th Semester)

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester End Exam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	EE 407 Utilization of Electric Power	4	-	3	40	60	3	PC
2	EE 408 Power System Operation & Control	4	-	3	40	60	3	PC
3	EE 409* Elective-V	4	-	3	40	60	3	PE
4	EE 410* Elective-VI	4	-	3	40	60	3	PE
5	EE 454 Simulation of Electrical systems lab	-	3	3	40	60	2	PC
6	EE 455 Project Work	-	9	3	40	60	10	PC
Total		16	12	-	360	540	24	

*** Subjects, which are offered in both 1st and 2nd Semesters:**

EE 405: Industrial Management

Elective-IV:	**406A:** Industrial Drives	**406 B:** Power Plant Instrumentation
	406C: EHV AC Transmission	**406D:** Energy Conservation & Audit
Elective-V:	**409A:** HVDC Transmission	**409B:** Electrical Distribution Systems
	409C: Embedded Systems & VLSI	**409D:** Smart Grids
Elective-VI:	**410A:** FACTS Controllers	**410B:** Digital Control systems
	410C: Computer Networks	**410D**: Industry Open

RVR&JC College of Engineering (Autonomous)
GUNTUR :: 522019
FOUR SEMESTER M.TECH DEGREE COURSE
IN
POWER SYSTEMS ENGINEERING
CURRICULUM & DETAILED SYLLABI w.e.f. AY 2017-18

S. No.	Course Number	Subject	Periods/ week		Internal marks	End Semester Examination		Credits	
			L+T	P		Duration	Marks		
First Semester									
1.	PS 511	Modern Control Theory	4	--	40	3	60	4	PC
2.	PS512	Advanced Power System Analysis	4	--	40	3	60	4	PC
3.	PS 513	Advanced Power System Protection	4	--	40	3	60	4	PC
4.		Elective – 1	4	--	40	3	60	4	PE
5.		Elective – 2	4	--	40	3	60	4	PE
6.		Elective – 3	4	--	40	3	60	4	PE
7.	PS 551	Power Systems Lab	--	3	40	3	60	2	PC
8.	PS 552	Simulation Lab – I	--	3	100	--	--	2	PC
		TOTAL	24	6	380	--	420	28	
Second Semester									
1.	PS 521	Flexible AC Transmission Systems	4	--	40	3	60	4	PC
2.	PS 522	Power System Stability	4	--	40	3	60	4	PC
3.	PS 523	Real time control of Power Systems	4	--	40	3	60	4	PC
4.		Elective – 4	4	--	40	3	60	4	PE
5.		Elective – 5	4	--	40	3	60	4	PE
6.		Elective – 6	4	--	40	3	60	4	PE
7.	PS 561	Simulation Lab – II	--	3	40	3	60	2	PC
8.	PS 562	Seminar	--	3	100	--	--	2	PC
		TOTAL	24	6	380	--	420	28	
Third Semester									
1.	PS 611	MOOCS (Self Learning)	--	--	--	--	--	2	PE
2.	PS651	Summer Internship Viva	--	--	100	--	--	2	PC
3.	PS 652	Project Presentation	--	--	100	--	--	4	PC
		TOTAL	--	--	200	--	--	8	
Fourth Semester									
1.	PS 661	Project Viva	--	24	40	--	60	10	PC
		TOTAL	--	24	40	--	60	10	

List of electives:

Subject Code	Subject Title	Prerequisite
PS 571	Optimization Techniques	--
PS 572	Power System Planning & Reliability	--
PS 573	Advanced Microprocessors & Micro controllers	--
PS 574	Power Electronic Converters	--
PS 575	Computer Networks	
PS 576	High Voltage Engineering & Insulation	--
PS 577	EHV AC Transmission Systems	High Voltage Engineering & Insulation
PS 578	HVDC Transmission Systems	Power Electronic Converters
PS 579	Power Quality analysis & Improvement	--
PS 580	Digital Control Systems	Modern Control Theory
PS 581	Distribution Systems Planning & Automation	--
PS 582	Smart Grid Design and Analysis	--
PS 583	AI Techniques for PS applications	--
PS 584	Power System Deregulation	--
PS 585	Energy Conservation & Audit	--
PS 586	Renewable energy driven power systems	--
PS 587	Gas Insulated Systems (GIS)	--
PS 588	Distributed Generation & Microgrid	--
PS 589	Advanced Digital signal Processing	--
PS 590	Electrical Transients in Power systems	--

B.TECH ELECTRICAL & ELECTRONICS ENGINEERING

(w.e.f. the batch of students admitted from the academic year 2018-2019)

Three Weeks Orientation Programme is Mandatory before starting SEMESTER I (First Year)

SEMESTER I (First Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE111	Mathematics-I	3	1	-	40	60	4	BSC
2	EE/EC/ ME 112	Engineering Chemistry	3	1	-	40	60	4	BSC
3	EE/CE/ CH/ME 113	English for communication skills	2	-	-	40	60	2	HSMC
4	EE/EC/ ME 151	Chemistry Lab	-	-	3	40	60	1.5	BSC
5	EE/CE/ CH/ME 152	English Language Communication Skills Lab	-	-	2	40	60	1	HSMC
6	EE/CE/ ME 153	Workshop Practice Lab	1	-	4	40	60	3	ESC
7	MC002	Environmental Science	2	-	-	100	-	-	MC
8	EEV01	English competency development program	2	-	-	100	-	-	VC
		TOTAL	13	2	9	440	360	15.5	TPW-24

SEMESTER II (First Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE121	Mathematics-II	3	1	-	40	60	4	BSC
2	EE122	Engineering Physics	3	1	-	40	60	4	BSC
3	EE/CE/ CH/CS / EC/IT/ ME 123	Programming for Problem Solving	3	-	-	40	60	3	ESC
4	EE124	Electrical Circuits	3	1	-	40	60	4	ESC

5	EE161	Physics Lab	-	-	3	40	60	1.5	BSC
6	EE/CE/ CH/CS / EC/IT/ ME 162	Programming for Problem Solving Lab	-	-	4	40	60	2	ESC
7	EE/CE/ ME 163	Engineering Graphics & Design Lab	1	-	4	40	60	3	ESC
8	EE164	Electrical Circuits Lab	-	-	2	40	60	1	ESC
9	MC001	Constitution of India	2	-	-	100	-	-	MC
		TOTAL	15	3	13	420	480	22.5	TPW-31

SEMESTER III (Second Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Category Code
			L	T	P	SES	EXT		
1	EE211	Electrical Circuit Analysis	3	1	-	40	60	4	PCC
2	EE212	Electronic Devices & Circuits	3	-	-	40	60	3	PCC
3	EE213	DC Machines	3	-	-	40	60	3	PCC
4	EE214	Electromagnetic Fields	3	1	-	40	60	4	PCC
5	EE215	Engineering Mechanics	3	1	-	40	60	4	ESC
6	EE216	Digital Electronics	3	-	-	40	60	3	PCC
7	MC008	Biology-I	2	1	-	100	-	-	MC
8	EE251	Electronic Devices & Digital Electronics Lab	-	-	2	40	60	1	PCC
9	EE252	DC Machines Lab	-	-	2	40	60	1	PCC
		TOTAL	20	4	4	420	480	23	TPW-28

SEMESTER IV (Second Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE221	Electronic Circuits	3	-	-	40	60	3	PCC
2	EE222	AC Machines	3	-	-	40	60	3	PCC
3	EE223	Power Electronics	3	-	-	40	60	3	PCC
4	EE224	Electrical Power generation	2	1	-	40	60	3	PCC
5	EE225	Mathematics – III	3	1	-	40	60	4	BSC
6	EE226	Open Elective – I	3	-	-	40	60	3	OEC
7	EE261	AC Machines Lab	-	-	2	40	60	1	PCC
8	EE262	Power Electronics Laboratory	-	-	2	40	60	1	PCC
9	EE263	Communication Skills Lab	-	-	2	40	60	1	HSMC
		TOTAL	17	2	6	360	540	22	TPW-25

SEMESTER V (Third Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE311	Synchronous & Special Machines	3	-	-	40	60	3	PCC
2	EE312	Control Systems	3	-	-	40	60	3	PCC
3	EE313	Microprocessors	3	-	-	40	60	3	PCC
4	EE314	Linear ICs and Applications	3	-	-	40	60	3	PCC
5	EE315	Program Elective – 1	3	-	-	40	60	3	PEC
6	EE316	Open Elective – 2	3	-	-	40	60	3	OEC
7	EE351	Microprocessors Laboratory	-	-	2	40	60	1	PCC
8	EE352	Pulse and Digital circuits lab	-	-	2	40	60	1	PCC
9	EE353	Syn.&Spl.m/es lab	-	-	2	40	60	1	PCC
		TOTAL	18	-	6	360	540	21	TPW-24

SEMESTER VI (Third Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE321	Transmission & Distribution	3	-	-	40	60	3	PCC
2	EE322	Measurements and Instrumentation	2	-	-	40	60	2	PCC
3	EE323	Program Elective - 2	3	-	-	40	60	3	PEC
4	EE324	Program Elective - 3	3	-	-	40	60	3	PEC
5	EE325	Open Elective-3	3	-	-	40	60	3	OEC
6	EE326	HS-2 Soft Skills/mgmt. course/VA communication skills	3	-	-	40	60	3	HSMC
7	EE361	Measurements and workshop practice Laboratory	-	-	2	40	60	1	PCC
8	EE362	Electronics Design Laboratory	1	-	4	40	60	3	PCC
9	EE363	Control Systems Lab	-	-	2	40	60	1	PCC
		TOTAL	18	-	8	360	540	22	TPW-26

SEMESTER VII (Fourth Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE411	Program Elective -4	3	-	-	40	60	3	PEC
2	EE412	Open Elective - 4	3	-	-	40	60	3	OEC
3	EE413	UEP	3	-	-	40	60	3	PCC
4	EE414	CAPS	3	-	-	40	60	3	PCC
5	EE415	Industrial Management	3	-	-	40	60	3	HSMC
6	EE451	Power Systems Lab	-	-	2	40	60	1	PCC
7	EE452	Simulation Lab	-	-	2	40	60	1	PCC
8	EE453	Project Stage – 1	-	-	6	100	--	3	PROJ
9	EEV02		1	-	2	100	-	-	VC
		TOTAL	16	-	11	480	420	20	TPW-27

SEMESTER VIII (Fourth Year) **COURSE STRUCTURE**

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	EE421	Program Elective – 5	3	-	-	40	60	3	PEC
2	EE422	Program Elective – 6	3	-	-	40	60	3	PEC
3	EE461	Project Stage – II	-	-	16	40	60	8	PROJ
		TOTAL	6	-	16	120	180	14	TPW-22

R.V.R. & J.C. COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-522 019
(Autonomous)
(w.e.f. the batch of students admitted during the academic year 2016-17)
B.Tech. in INFORMATION TECHNOLOGY

I Year (I Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 101	Differential Equations & Transforms	4	-	3	40	60	3	BS
IT 102	Engineering Physics	4	-	3	40	60	3	BS
IT 103	Applied Chemistry	4	-	3	40	60	3	BS
IT 104	Environmental Studies	4	-	3	40	60	3	HS
IT 105	Problem Solving with C	4+1	-	3	40	60	3	PC
IT 106	Mechanics for Engineers	4	-	3	40	60	3	ES
IT 151	Physics Laboratory	-	3	3	40	60	2	BS
IT 152	C - Programming Lab	-	3	3	40	60	2	PC
IT 153	Communication skills Lab	-	3	3	40	60	2	HS
Total		**25**	**9**	**-**	**360**	**540**	**24**	

B.Tech. in INFORMATION TECHNOLOGY

I Year (II Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 107	Matrix Algebra & Numerical Analysis	4	-	3	40	60	3	BS
IT 108	Electronic and Electrical Engineering Materials	4	-	3	40	60	3	BS
IT 109	Chemistry for Engineering Materials	4	-	3	40	60	3	BS
IT 110	English for Communication	4	-	3	40	60	3	HS
IT 111	Object Oriented Programming	4+1	-	3	40	60	3	PC
IT 112	Professional Ethics & Human Values	4	-	3	40	60	3	HS
IT 154	Chemistry Laboratory	-	3	3	40	60	2	BS
IT 155	Object Oriented Programming Lab	-	3	3	40	60	2	PC
IT 156	Engineering Graphics Lab	2	4	3	40	60	2	ES
Total		**27**	**10**	**-**	**360**	**540**	**24**	

B.Tech. in INFORMATION TECHNOLOGY

II Year (I Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 201	Probability - Statistics & Random Processes	4	-	3	40	60	3	BS
IT 202	Basic Electrical & Electronics Engineering	4	-	3	40	60	3	ES
IT 203	Digital Logic Design	4	-	3	40	60	3	ES
IT 204	Data Structures	4+1	-	3	40	60	3	PC
IT 205	Computer Organization	4	-	3	40	60	3	PC
IT 206*	Discrete Mathematical Structures	4+1	-	3	40	60	3	PC
IT 251	Basic Electrical & Electronics Engineering Lab	-	3	3	40	60	2	ES
IT 252	Data Structures Lab	-	3	3	40	60	2	PC
IT 253	Professional Communication Skills Lab	-	3	3	40	60	2	HS
Total		**26**	**9**	**-**	**360**	**540**	**24**	

Enrollment of NCC/NSO/NSS will be initiated from the date of commencement of class work for II Year I Semester.

***Subjects, which are offered in both I & II Semesters:**

IT 206:Discrete Mathematical Structures

IT 212:Operating Systems

B.Tech. in INFORMATION TECHNOLOGY

II Year(II Semester) :

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 207	Number Theory and Algebra	4	-	3	40	60	3	BS
IT 208	Microprocessors & Interfacing	4	-	3	40	60	3	ES
IT 209	Theory of Computation	4	-	3	40	60	3	PC
IT 210	Database Management Systems	4+1	-	3	40	60	3	PC
IT 211	JAVA Programming	4+1	-	3	40	60	3	PC
IT 212*	Operating Systems	4	-	3	40	60	3	PC
IT 254	Microprocessors & Interfacing Lab	-	3	3	40	60	2	ES
IT 255	Database Management Systems Lab	-	3	3	40	60	2	PC
IT 256	JAVA Programming Lab	-	3	3	40	60	2	PC
Total		**26**	**9**	**-**	**360**	**540**	**24**	

Enrollment of Internship/Industrial Training/Certificate course will be initiated from the end of the II year II semester.

***Subjects, which are offered in both I & II Semesters:**

IT 206:Discrete Mathematical Structures

IT 212:Operating Systems

B.Tech. in INFORMATION TECHNOLOGY

III Year (I Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 301	Computer Networks	4	-	3	40	60	3	PC
IT 302	Web Technologies	4+1	-	3	40	60	3	PC
IT 303	Design & Analysis of Algorithms	4+1	-	3	40	60	3	PC
IT 304	UNIX Programming	4+1	-	3	40	60	3	PC
IT 305*	Compiler Design	4	-	3	40	60	3	PC
IT 306*	Software Engineering	4	-	3	40	60	3	PC
IT 351	Web Technologies Lab	-	3	3	40	60	2	PC
IT 352	Design & Analysis of Algorithms Lab	-	3	3	40	60	2	PC
IT 353	UNIX Programming Lab	-	3	3	40	60	2	PC
Total		**27**	**9**	**-**	**360**	**540**	**24**	

Enrolment of MOOCS course will be initiated from the date of commencement of class work for III Year I semester.

***Subjects, which are offered in both I & II Semesters:**

IT 305 : Compiler Design

IT 306 : Software Engineering

IT 311/A,B,C,D : Elective –I (Refer III year II Semester)

IT 312/A,B,C,D : Elective –II (Refer III year II Semester)

B.Tech. in INFORMATION TECHNOLOGY

III Year (II Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 307	Network Programming	4+1	-	3	40	60	3	PC
IT 308	Data Engineering	4+1	-	3	40	60	3	PC
IT 309	Object Oriented Analysis & Design	4+1	-	3	40	60	3	PC
IT310	Cryptography & Network Security	4	-	3	40	60	3	PC
IT 311*	Elective – I	4	-	3	40	60	3	PE
IT 312*	Elective – II	4	-	3	40	60	3	PE
IT 354	Network Programming Lab	-	3	3	40	60	2	PC
IT 355	Data Engineering Lab	-	3	3	40	60	2	PC
IT 356	Object Oriented Analysis & Design Lab	-	3	3	40	60	2	PC
Total		**27**	**9**	**-**	**360**	**540**	**24**	

NCC/NSO/NSS Certificate must be submitted on or before the last instruction day of III Year II Semester otherwise his/her Semester End Examination result will not be declared.

Elective –I

IT 311 (A) – Artificial Intelligence
IT 311 (B) – Principles of Programming Languages
IT 311 (C) – Multimedia Systems
IT 311 (D) – Mobile Computing

Elective -II

IT 312 (A) – Embedded Systems
IT 312 (B) – ADBMS
IT 312 (C) – Graph Theory
IT 312 (D) – Industry Related Subject

***Subjects, which are offered in both I & II Semesters:**

IT 305 : Compiler Design
IT306 : Software Engineering
IT 311/A,B,C,D : Elective -I
IT 312/A,B,C,D : Elective –II

B.Tech. in INFORMATION TECHNOLOGY

IV Year (I Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT 401	Distributed Systems	4	-	3	40	60	3	PC
IT 402	Web Services	4+1	-	3	40	60	3	PC
IT 403	MOOCS	-	-	-	-	-	0	PC
IT 404	Elective-III (Open Elective)	4	-	3	40	60	3	OE
IT 405*	Interactive Computer Graphics	4	-	3	40	60	3	PC
IT 406*	Elective - IV	4+1	-	3	40	60	3	PE
IT 451	Mini Project / Term Paper	-	3	-	100	-	2	PC
IT 452	Web Services Lab	-	3	3	40	60	2	PC
IT 453	Elective-IV Lab	-	3	3	40	60	2	PE
Total		**22**	**9**	**-**	**380**	**420**	**21**	

MOOCS Course Certificate must be submitted on or before the last instruction day of IV YearI semester otherwise his/her Semester End Examination result will not be declared.

Enrollment of Internship/Industrial Training/Certificate course completion certificate must be submitted on or before the last instruction day of IV year II semester otherwise His/Her Semester End Examination Result will not declared.

Elective – III (Open Elective)
CE 404/A BASIC SURVEYING
CE 404/B BUILDING MATERIALS & ESTIMATION
CH 404/A ENERGY ENGINEERING
CH 404/B BIO - FUELS
EC-404/A APPLIED ELECTRONICS
EC-404/B BASIC COMMUNICATION
EE 404/A Non-conventional Energy Sources
EE 404/B Utilization of Electrical Energy
ME 404/A ROBOTICS
ME 404/B OPERATIONS RESEARCH

Elective-IV
IT 406 (A) – Open Source Systems
IT 406 (B) – .Net Technologies
IT 406 (C) – Programming with Python
IT 406 (D) – Internet of Things

Elective-IV Lab
IT 453 (A) – Open Source Systems Lab
IT 453 (B) – .Net Technologies Lab
IT 453 (C) – Programming with Python Lab
IT 453 (D) – Internet of Things Lab

***Subjects, which are offered in both I & II Semesters:**

IT/CS 405 :Interactive Computer Graphics
IT 406/A,B,C,D : Elective-IV
IT 409/A,B,C,D : Elective-V
IT 410/A,B,C,D : Elective-VI

B.Tech. in INFORMATION TECHNOLOGY

IV Year (II Semester):

Code No.	Subject Name	Scheme of Instruction periods per week		Scheme of Examination				
		Theory + tutorial	Practical's	Duration of semester end exam (hrs)	Sessional Marks	Semester End Exam Marks	Credits	Category Code
IT407	Industrial Engineering & Management	4	-	3	40	60	3	HS
IT 408	Distributed & Cloud Computing	4+1	-	3	40	60	3	PC
IT 409 *	Elective-V	4	-	3	40	60	3	PE
IT 410 *	Elective-VI	4	-	3	40	60	3	PE
IT 454	Distributed & Cloud Computing Lab	-	3	3	40	60	2	PC
IT 455	Project Work	-	9	-	40	60	10	PC
Total		**17**	**12**		**240**	**360**	**24**	

Elective-V
IT/CS 409 (A) Parallel Algorithms
IT/CS 409 (B) Digital Image Processing
IT 409 (C) Natural Language Processing
IT 409 (D) Cyber Security

Elective-VI
IT 410 (A) – Machine Learning
IT 410 (B) – Semantic Web
IT 410 (C) – Big Data Analytics
IT 410 (D) – Industry Related Subject

***Subjects, which are offered in both I & II Semesters:**

IT/CS 405 :Interactive Computer Graphics
IT 406/A,B,C,D : Elective-IV
IT 409/A,B,C,D : Elective-V
IT 410/A,B,C,D : Elective-VI

1.2.2 Highlight elective courses in structure R17

Department of INFORMATION TECHNOLOGY

R.V.R. &J.C. COLLEGE OF ENGINEERING (A) :: GUNTUR – 522019.

PROPOSED SCHEME OF EXAMINATION AND INSTRUCTION FOR M.TECH(CST) w.e.f 2017-18

I/II M.TECH (COMPUTER SCIENCE & TECHNOLOGY) :: FIRST SEMESTER

Sl. No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks			
		Lecture	Practical		Internal	External		Total
						Theory	Practical	
1	CT511 – Advanced Data Structures and Algorithms	4	--	4	40	60	--	100
2	CT512– Database Technologies	4	--	4	40	60	--	100
3	CT513– Advanced Operating Systems	4	--	4	40	60	--	100
4	Elective – I	4	--	4	40	60	--	100
5	Elective – II	4	--	4	40	60	--	100
6	Elective – III	4	--	4	40	60	--	100
7	CT551– Advanced Programming Lab	--	3	2	40	--	60	100
8	CT552– Database Technologies Lab	--	3	2	40	--	60	100
TOTAL		24	6	28	320	360	120	800

I/II M.TECH (COMPUTER SCIENCE & TECHNOLOGY) :: SECOND SEMESTER

Sl. No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks			
		Lecture	Practical		Internal	External		Total
						Theory	Practical	
1	CT521 – Cryptography & Network Security	4	--	4	40	60	--	100
2	CT522 –Distributed Systems	4	--	4	40	60	--	100
3	CT523 –Machine Learning	4	--	4	40	60	--	100
4	Elective-IV	4	--	4	40	60	--	100
5	Elective-V	4	--	4	40	60	--	100
6	Elective- VI	4	--	4	40	60	--	100
7	CT561 –Machine Learning Lab	--	3	2	40	--	60	100
8	CT562 – Industry Related Lab	--	3	2	40	--	60	100
TOTAL		24	6	28	320	360	120	800

II/II M.TECH (COMPUTER SCIENCE & TECHNOLOGY) :: FIRST SEMESTER

Sl. No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks		
		Lecture	Practical		Internal	External	Total
1	CT 651 – MOOCS	--	--	2	--	--	--
2	CT 652 – Summer Internship	--	--	2	100	--	100
3	CT 653 – Project Phase - I	--	--	4	100	--	100
TOTAL		--	--	8	200	--	200

II/II M.TECH (COMPUTER SCIENCE & TECHNOLOGY) :: SECOND SEMESTER

Sl. No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks		
		Lecture	Practical		Internal	External	Total
1	CT 661 – Project Phase - II	--	--	10	40	60	100

TOTAL MARKS: 1900 **TOTAL: 74 Credits**

R.V.R. & J.C. College of Engineering (A):: GUNTUR
M.Tech (COMPUTER SCIENCE & TECHNOLOGY)
w.e.f. 2017-18

Proposed Electives:

1. CT571 – Automata and Formal Languages
2. CT572 – Advanced Computer Architecture
3. CT573 – Advanced Web Technologies
4. CT574 – Advanced Software Engineering
5. CT575 – Artificial Intelligence
6. CT576 – Digital Image Processing
7. CT577 – Speech Processing and Synthesis
8. CT578 – Multimedia Systems
9. CT579 – Information Security
10. CT580 – Web Services
11. CT581 – Wireless Networks
12. CT582 – Embedded Systems and Applications
13. CT583 – Big Data Analytics
14. CT584 – Cloud Computing
15. CT585 – Internet of Things
16. CT586 – Mobile Computing
17. CT587 – Agile Software Development
18. CT588 – Data Engineering
19. CT589 – Evolutionary Computation
20. CT590 – Cyber Security
21. CT591 – Fuzzy Set Theory and Applications
22. CT592 – Natural Language Processing
23. CT593 – Software Architecture
24. CT594 – Semantic Web

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19

(Autonomous)

(w.e.f. the academic year 2018-2019)

B.Tech., Information Technology

Semester I (First year)

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			SCHEME OF EXAMINATION			CATEGORY CODE
			L	T	P	INT	EXT	CREDITS	
1	IT 111	Mathematics – I	3	1	-	40	60	4	BS
2	IT 112	Engineering Physics	3	1	-	40	60	4	BS
3	IT 113	Basic Electrical Engineering	3	1	-	40	60	4	ES
4	IT V002	Introduction to Computing	2	-	2	100	-	-	VC
5	IT151	Physics Lab	-	-	3	40	60	1.5	BS
6	IT152	Basic Electrical Engineering Lab	-	-	2	40	60	1	ES
7	IT 153	Engineering Graphics and Design Lab	1	-	4	40	60	3	ES
Total			12	3	11	340	360	17.5	TPW-26

SEMESTER II (FIRST YEAR)

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			SCHEME OF EXAMINATION			CATEGORY CODE
			L	T	P	INT	EXT	CREDITS	
1	IT 121	MATHEMATICS – II	3	1	-	40	60	4	BS
2	IT 122	ENGINEERING CHEMISTRY	3	1	-	40	60	4	BS
3	IT 123	PROGRAMMING FOR PROBLEM SOLVING	3	-	-	40	60	3	ES
4	IT 124	ENGLISH FOR COMMUNICATION SKILLS	2	-	-	40	60	2	HS
5	MC 002	ENVIRONMENTAL SCIENCE	2	-	-	100	-	-	MC
6	IT V001	ENGLISH COMPETENCY DEVELOPMENT PROGRAM	2	-	-	100	-	-	VC
7	ITV 003	Spoken English & etiquette	2	-	-	100	-	-	VC
8	IT 161	CHEMISTRY LAB	-	-	3	40	60	1.5	BS
9	IT 162	PROGRAMMING FOR PROBLEM SOLVING LAB	-	-	4	40	60	2	ES
10	IT 163	WORKSHOP PRACTICES LAB	1	-	4	40	60	3	ES
11	IT 164	ENGLISH LANGUAGE COMMUNICATION SKILLS LAB	-	-	2	40	60	1	HS
TOTAL			16	2	13	520	480	20.5	TPW-31

SEMESTER III (SECOND YEAR)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	IT211	Mathematics – III	4	1	-	40	60	4	BS
2	IT212	Life Sciences For Engineers	2	-	-	40	60	2	ES
3	IT 213	Digital Electronics	3	-	-	40	60	3	PC
4	IT 214	Discrete Mathematics	3	1	-	40	60	4	PC
5	IT 215	Data Structures	3	-	-	40	60	3	PC
6	IT 216	Object Oriented Programming	3	-	-	40	60	2	PC
7	MC 001	Constitution of India	2	-	-	100	-	-	MC
8	MC004	Design Thinking and Product Innovation	2	-	-	100	-	-	mc
9	IT 251	Digital Electronics Lab	-	-	2	40	60	1	ES
10	IT 252	Data Structures Lab	-	-	4	40	60	2	PC
11	IT 253	Object Oriented Programming Lab	-	-	4	40	60	1	PC
Total			22	2	10	420	480	22	TPW-34

SEMESTER IV (SECOND YEAR)

S.No.	CODE.NO	SUBJECT	Scheme of Instruction periods per week			Scheme of examination			Category Code
			L	T	P	INT	EXT	CREDITS	
1	IT 221	Humanities Elective-I	3	-	-	40	60	3	HE
2	IT 222	Computer Organization	3	-	-	40	60	3	PC
3	IT 223	Operating Systems	3	-	-	40	60	3	pc
4	IT 224	Data Base Management Systems	3	-	-	40	60	3	pc
5	IT 225	Formal Languages & Automata Theory	3	-	-	40	60	3	PC
6	IT 226	Open Elective - I	3	-	-	40	60	3	OE
7	IT V004	Programming with Python	3	-	2	100	-	-	VC
8	MC003	Essence of Indian Traditional Knowledge	2	-	-	100	-	-	MC
9	IT 261	Operating Systems Lab	-	-	4	40	60	2	pc
10	IT 262	Data Base Management Systems Lab	-	-	4	40	60	2	pc
Total			23	0	10	480	480	22	TPW-33

SEMESTER V (THIRD YEAR)

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			SCHEME OF EXAMINATION			CATEGORY CODE
			L	T	P	INT	EXT	CREDITS	
1	IT311	Computer Networks	3	-	-	40	60	3	HS
2	IT 312	DESIGN & ANALYSIS OF ALGORITHMS	3	1	-	40	60	4	PC
3	IT 313	Web Technologies	3	-	-	40	60	3	PC
4	IT 314	SOFTWARE ENGINEERING	3	-	-	40	60	3	PC
5	IT 315	PROFESSIONAL ELECTIVE-I	3	-	-	40	60	3	PE
6.	IT 316	OPEN ELECTIVE - II	3	-	-	40	60	3	OE
7.	IT 351	DESIGN & ANALYSIS OF ALGORITHMS LAB	-	-	4	40	60	2	PC
8	IT352	Web Technologies Lab	-	-	4	40	60	2	PR
9.	IT 353	PROFESSIONAL COMMUNICATION SKILLS LAB	-	-	2	40	60	1	HS
TOTAL			18	1	10	420	480	24	TPW-29

SEMESTER VI (THIRD YEAR)

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			SCHEME OF EXAMINATION			CATEGORY CODE
			L	T	P	INT	EXT	CREDITS	
1	IT 321	COMPILER DESIGN	3	-	-	40	60	3	PC
2	IT 322	Data Engineering	3	-	-	40	60	3	PC
3	IT 323	ARTIFICIAL INTELLIGENCE	3	-	-	40	60	3	PC
4	IT 324	Cryptography & Network Security	3	-	-	40	60	3	PC
5	IT 325	Professional Elective-II	3	-	-	40	60	3	PE
6	IT326	Open Elective - III	3	-	-	40	60	3	OE
7	IT 361	ARTIFICIAL INTELLIGENCE LAB	-	-	4	40	60	2	PC
8	IT 362	SE/ Mini Project Lab	-	-	4	40	60	2	PC
9	IT 363	TERM PAPER	-	-	4	40	60	2	PR
TOTAL			18	0	12	360	540	24	TPW-30

SEMESTER VII (FINAL YEAR)

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			SCHEME OF EXAMINATION			CATEGORY CODE
			L	T	P	INT	EXT	CREDITS	
1	IT 411	Humanities (Elective-II)	3	-	-	40	60	3	HE
2	IT 412	Machine Learning	3	-	-	40	60	3	PC
3	IT 413	Neural Networks	3						PC
4	IT 414	PROFESSIONAL ELECTIVE-III	3	-	-	40	60	3	PE
5	IT 415	PROFESSIONAL ELECTIVE- IV	3	-	-	40	60	3	PE
6	IT 451	Machine Learning Lab	-	-	2	40	60	1	PC
7	IT 452	PROJECT-I	-	-	4	40	60	3	PR
TOTAL			15	0	6	280	420	18	TPW-21

SEMESTER VIII (FINAL YEAR)

S.NO.	CODE.NO	SUBJECT	SCHEME OF INSTRUCTION PERIODS PER WEEK			SCHEME OF EXAMINATION			CATEGORY CODE
			L	T	P	INT	EXT	CREDITS	
1	IT 421	PROFESSIONAL ELECTIVE-V	3	0	-	40	60	3	PE
2	IT 422	Open Elective-IV(MOOCS)	3	0	-	40	60	3	PE
3	IT 461	PROJECT-II	-	-	12	40	60	6	PR
TOTAL			6	0	12	120	180	12	TPW-18

PROGRAM ELECTIVE COURSES:

CODE NO.	SUBJECT NAME	CODE NO.	SUBJECT NAME
PROFESSIONAL ELECTIVE COURSES FOR III/IV B.TECH. STUDENTS		PROFESSIONAL ELECTIVE COURSES FOR IV/IV B.TECH. STUDENTS	
ITEL01	UNIX PROGRAMMING	ITEL13	ADVANCED COMPUTER ARCHITECTURE
ITEL02	INTERACTIVE COMPUTER GRAPHICS	ITEL14	DESIGN AND ANALYSIS OF PARALLEL ALGORITHMS
ITEL03	BIG DATA ANALYTICS	ITEL15	DEEP LEARNING
ITEL04	EMBEDDED SYSTEMS	ITEL16	WIRELESS NETWORKS
ITEL05	OPEN SOURCE SYSTEMS	ITEL17	CLOUD COMPUTING
ITEL06	DIGITAL IMAGE PROCESSING	ITEL18	QUANTUM COMPUTING
ITEL07	NETWORK PROGRAMMING	ITEL19	NATURAL LANGUAGE PROCESSING
ITEL08	MOBILE APP DEVELOPMENT	ITEL20	VIRTUAL REALITY
ITEL09	INTERNET OF THINGS	ITEL21	CYBER SECURITY
ITEL010	.NET TECHNOLOGIES	ITEL22	BLOCK CHAIN TECHNOLOGY
ITEL011	DISTRIBUTED COMPUTING	ITEL23	MULTICORE TECHNOLOGIES
ITEL012	* INDUSTRY RELATED SUBJECT	ITEL24	INDUSTRY RELATED SUBJECT
NOTE: STUDENTS ARE ALLOWED TO TAKE PROFESSIONAL ELECTIVES FROM 1 TO 12 DURING III/IV B.TECH AND 13 TO 24 DURING IV/IV B.TECH COURSE * TO BE DECIDED BASED ON INDUSTRY REQUIREMENTS			

OPEN ELECTIVE COURSES (OFFERED BY IT DEPARTMENT):

CODE NO.	SUBJECT NAME	CODE NO.	SUBJECT NAME
ITOL01	DATA STRUCTURES AND ALGORITHMS	ITOL02	OPERATING SYSTEMS
ITOL03	BIGDATA ANALYTICS	ITOL04	WEB TECHNOLOGIES

R.V.R. & J.C. COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF MANAGEMENT SCIENCES
SCHEME OF INSTRUCTION AND EXAMINATION
(w.e.f. the batch of students admitted during the academic year 2017-18 onwards)
Master of Business Administration (M.B.A)

I Year – I Semester

S. No	Course Code	Name of the Subject	Teaching Hours / Week	Core / Elective	Sessional Marks	Semester End Exam Marks	Total Marks	Credits
1	MS 111	Perspectives of Management	4	Core	40	60	100	4
2	MS 112	Quantitative Techniques for Management	4	Core	40	60	100	4
3	MS 113	Managerial Economics	4	Core	40	60	100	4
4	MS 114	Business Environment and Legislation	4	Core	40	60	100	4
5	MS 115	Accounting for Managers	4	Core	40	60	100	4
6	MS 116	Organizational Behaviour	4	Core	40	60	100	4
7	MS 117	Managerial Communication	4	Core	40	60	100	4
Total			**28**	**--**	**280**	**420**	**700**	**28**

Registering MOOCs One course compulsory on or before I Semester End Examinations

Note: Students are encouraged to register for MOOCs (Massive Open Online Course's) / NCFM / AMFI / NPTEL and other online certificate courses related to MBA.

I Year - II Semester

S. No	Course Code	Name of the Subject	Teaching Hours / Week	Core / Elective	Sessional Marks	Semester End Exam Marks	Total Marks	Credits
1	MS 121	Entrepreneurship and Small Business Management	4	Core	40	60	100	4
2	MS 122	Research Methodology and Business Analytics	4	Core	40	60	100	4
3	MS 123	Human Resource Management	4	Core	40	60	100	4
4	MS 124	Financial Management	4	Core	40	60	100	4
5	MS 125	Marketing Management	4	Core	40	60	100	4
6	MS 126	Production and Operations Management	4	Core	40	60	100	4
7	MS 127	Information Technology for Managers	4	Core	40	60	100	4
Total			**28**	**--**	**280**	**420**	**700**	**28**

At the end of I Year II Semester, every student must undergo Project Internship for 6 Weeks and must prepare a report and submit the same two weeks before the commencement of II Year I Semster end examinations.

II Year - I Semester

S. No	Course Code	Name of the Subject	Teaching Hours / Week	Core / Elective	Sessional Marks	Semester End Exam Marks	Total Marks	Credits
1	MS 211	Strategic Management	4	Core	40	60	100	4
2	MS 212	Business Ethics and Corporate Governance	4	Core	40	60	100	4
3	MS 213	Logistics and Supply Chain Management	4	Core	40	60	100	4
4	MS 214 M	Marketing Elective I	4	Elective	40	60	100	4
	MS 215 M	Marketing Elective II	4		40	60	100	4
	MS 216 M	Marketing Elective III	4		40	60	100	4
5	MS 214 F	Finance Elective I	4	Elective	40	60	100	4
	MS 215 F	Finance Elective II	4		40	60	100	4
	MS 216 F	Finance Elective III	4		40	60	100	4
6	MS 214 H	H R Elective I	4	Elective	40	60	100	4
	MS 215 H	H R Elective II	4		40	60	100	4
	MS 216 H	H R Elective III	4		40	60	100	4
7	MS 214 ED	E D Elective I	4	Elective	40	60	100	4
	MS 215 ED	E D Elective II	4		40	60	100	4
	MS 216 ED	E D Elective III	4		40	60	100	4
8	MS 214 BT	B T Elective I	4	Elective	40	60	100	4
	MS 215 BT	B T Elective II	4		40	60	100	4
	MS 216 BT	B T Elective III	4		40	60	100	4
9	MS 251	Project Internship Report	--	--	40	60	100	4
Total			**28**	**--**	**320**	**480**	**800**	**32**

Specializations (Choose two elective courses from marketing and two from any one of the other four specializations)								
SPECIALIZATIONS								
		MARKETING						
1	MS 214 M	Product and Brand Management	4	Elective	40	60	100	4
2	MS 215 M	Consumer Behaviour and Customer Relationship Management	4	Elective	40	60	100	4
3	MS 216 M	Advertising and Media Management	4	Elective	40	60	100	4
		FINANCE						
1	MS 214 F	Financial Markets and Services	4	Elective	40	60	100	4
2	MS 215 F	Financial Derivatives and Risk Management	4	Elective	40	60	100	4
3	MS 216 F	Banking and Insurance Management	4	Elective	40	60	100	4
		HUMAN RESOURCE						
1	MS 214 H	Management of Industrial Relations	4	Elective	40	60	100	4
2	MS 215 H	Organizational Change and Development	4	Elective	40	60	100	4
3	MS 216 H	Training and Development	4	Elective	40	60	100	4
		ENTREPRENEURSHIP DEVELOPMENT						
1	MS 214 ED	Innovations & Start up Management	4	Elective	40	60	100	4
2	MS 215 ED	Micro, Small & Medium Enterprises Management	4	Elective	40	60	100	4
3	MS 216 ED	Entrepreneurial Eco – System	4	Elective	40	60	100	4
		BANKING TECHNOLOGY						
1	MS 215 BT	Banking Theory Law and Practices	4	Elective	40	60	100	4
2	MS 216 BT	Rural Banking and Financial Inclusion	4	Elective	40	60	100	4
3	MS 217 BT	Treasury and Derivatives Management	4	Elective	40	60	100	4

II Year - II Semester

S. No	Course Code	Name of the Subject	Teaching Hours / Week	Core / Elective	Sessional Marks	Semester End Exam Marks	Total Marks	Credits
1	MS 221	International Business	4	Core	40	60	100	4
2	MS 222	Talent and Knowledge Management	4	Core	40	60	100	4
3	MS 223 M MS 224 M MS 225 M MS 226 M	Marketing Elective I Marketing Elective II Marketing Elective III Marketing Elective IV	4 4 4 4	Elective	40 40 40 40	60 60 60 60	100 100 100 100	4 4 4 4
4	MS 223 F MS 224 F MS 225 F MS 226 F	Finance Elective I Finance Elective II Finance Elective III Finance Elective IV	4 4 4 4	Elective	40 40 40 40	60 60 60 60	100 100 100 100	4 4 4 4
5	MS 223 H MS 224 H MS 225 H MS 226 H	H R Elective I H R Elective II H R Elective III H R Elective IV	4 4 4 4	Elective	40 40 40 40	60 60 60 60	100 100 100 100	4 4 4 4
6	MS 223 ED MS 224 ED MS 225 ED MS 226 ED	E D Elective I E D Elective II E D Elective III E D Elective IV	4 4 4 4	Elective	40 40 40 40	60 60 60 60	100 100 100 100	4 4 4 4
7	MS 223 BT MS 224 BT MS 225 BT MS 226 BT	B T Elective I B T Elective II B T Elective III B T Elective IV	4 4 4 4	Elective	40 40 40 40	60 60 60 60	100 100 100 100	4 4 4 4
8	MS 261	Comprehensive Viva	--	--	--	100	100	4
9	MS 227	MOOCS	--	--	--	--	100	--
Total			**28**	**--**	**280**	**520**	**800**	**32**

Specializations (Choose any five elective courses out of five specializations having four courses in each.

Student can choose three from marketing specialization and two from any one of the other four specializations)								
SPECIALIZATIONS								
		MARKETING						
1	MS 223 M	International Marketing Management	4	Elective	40	60	100	4
2	MS 224 M	Sales Promotion and Distribution Management	4	Elective	40	60	100	4
3	MS 225 M	Services and Retail Marketing	4	Elective	40	60	100	4
4	MS 226 M	Social Media and E-Marketing	4	Elective	40	60	100	4
		FINANCE						
1	MS 223 F	International Financial Management	4	Elective	40	60	100	4
2	MS 224 F	Security Analysis and Portfolio Management	4	Elective	40	60	100	4
3	MS 225 F	Foreign Exchange Management	4	Elective	40	60	100	4
4	MS 226 F	Financial Engineering	4	Elective	40	60	100	4
		HUMAN RESOURCE						
1	MS 223 H	International Human Resource Management	4	Elective	40	60	100	4
2	MS 224 H	Performance and Compensation Management	4	Elective	40	60	100	4
3	MS 225 H	Human Resource Development: Strategies and Systems	4	Elective	40	60	100	4
4	MS 226 H	Cross Culture Management	4	Elective	40	60	100	4
		ENTREPRENEURSHIP DEVELOPMENT						
1	MS 223 ED	Social Entrepreneurship	4	Elective	40	60	100	4
2	MS 224 ED	Women Entrepreneurship	4	Elective	40	60	100	4
3	MS 225 ED	Entrepreneurial Leadership	4	Elective	40	60	100	4
4	MS 226 ED	Venture Capital & Private Equity	4	Elective	40	60	100	4
		BANKING TECHNOLOGY						
1	MS 223 BT	Management of Bank Operations	4	Elective	40	60	100	4
2	MS 224 BT	Bank Customer Relationship Management	4	Elective	40	60	100	4
3	MS 225 BT	Services Marketing for Banks and Financial Institutions	4	Elective	40	60	100	4
4	MS 226 BT	Credit Risk Management for Banks	4	Elective	40	60	100	4

R.V.R. & J.C. COLLEGE OF ENGINEERING (Autonomous)
MASTER OF COMPUTER APPLICATIONS
Course Structure, Scheme of Instruction and Examination w.e.f 2017-2018

I YEAR – I SEMESTER

Sub. Code	Subject Title	Scheme of Instruction periods per week		Scheme of Examination			
		Theory	Lab.	Duration of Sem. End Exam. (Hrs.)	Sessional Marks	Semester End Exam. Marks	Credits
CA111	Problem Solving with C	4	-	3	40	60	4
CA112	Computer Organization	4	-	3	40	60	4
CA113	Operating Systems Principles	4	-	3	40	60	4
CA114	Discrete Mathematical Structures	4	-	3	40	60	4
CA115	Accountancy and Financial Management	4	-	3	40	60	4
CA151	PC Software Lab	-	6	3	40	60	2
CA152	C Programming Lab	-	6	3	40	60	2
CA153	Communication Skills Lab	-	4	3	40	60	2
	TOTAL:	**20**	**16**	**24**	**320**	**480**	**26**

I YEAR – II SEMESTER

Sub. Code	Subject Title	Scheme of Instruction periods per week		Scheme of Examination			
		Theory	Lab.	Duration of Sem. End Exam. (Hrs.)	Sessional Marks	Semester End Exam. Marks	Credits
CA121	Data Structures in Python	4	-	3	40	60	4
CA122	Data Base Management Systems	4	-	3	40	60	4
CA123	Computer Networks	4	-	3	40	60	4
CA124	Probability & Statistics	4	-	3	40	60	4
CA125	Management Information Systems	4	-	3	40	60	4
CA161	Data Structures in Python Lab	-	6	3	40	60	2
CA162	DBMS Lab	-	6	3	40	60	2
CA163	UNIX Shell Programming Lab	-	4	3	40	60	2
	TOTAL:	**20**	**16**	**24**	**320**	**480**	**26**

II YEAR – I SEMESTER

Sub. Code	Subject Title	Scheme of Instruction periods per week		Scheme of Examination			
		Theory	Lab.	Duration of Sem. End Exam. (Hrs.)	Sessional Marks	Semester End Exam. Marks	Credits
CA211	Object Oriented Programming through JAVA	4	-	3	40	60	4
CA212	Web Technologies	4	-	3	40	60	4
CA213	Cryptography and Network Security	4	-	3	40	60	4
CA214	Operations Research	4	-	3	40	60	4
CA215	Software Engineering	4	-	3	40	60	4
CA251	Java Programming Lab	-	6	3	40	60	2
CA252	Web Technologies Lab	-	6	3	40	60	2
CA253	Technical Seminar & Report Writing Lab	-	4	3	40	60	2
	TOTAL:	**20**	**16**	**24**	**320**	**480**	**26**

Note: Each student should learn any one course by registering for courses through Online instruction from standard e-learning portals like SWAYAM, NPTEL, COURSERA, EdX, etc.
Enrolment of MOOCs course will be initiated from the date of commencement of class work for II Year I Semester and submit the course completion certificate on or before the last instruction day of III Year I Semester.

II YEAR – II SEMESTER

Sub. Code	Subject Title	Scheme of Instruction periods per week		Scheme of Examination			
		Theory	Lab.	Duration of Sem. End Exam. (Hrs.)	Sessional Marks	Semester End Exam. Marks	Credits
CA221	.Net Programming	4	-	3	40	60	4
CA222	Web Services	4	-	3	40	60	4
CA223	Design and Analysis of Algorithms	4	-	3	40	60	4
CA224	**Elective-I**	4	-	3	40	60	4
CA225	**Elective-II**	4	-	3	40	60	4
CA261	.Net Programming Lab	-	6	3	40	60	2
CA262	Web Services Lab	-	6	3	40	60	2
CA263	Soft Skills Lab	-	4	3	40	60	2
	TOTAL:	**20**	**16**	**24**	**320**	**480**	**26**

Elective-I	**Elective-II**
(A) Artificial Intelligence	(A) Embedded Systems
(B) Computer Graphics & Multimedia *	(B) Image Processing using MATLAB *
(C) Software Project Management	(C) Object Oriented Modeling and Design using UML *
(D) Logistics & Supply Chain Management	(D) Advanced DBMS
(E) Open Source Systems *	(E) Cyber Security

* Learning-By-Doing (**LBD**)

III YEAR – I SEMESTER

Sub. Code	Subject Title	Scheme of Instruction periods per week		Scheme of Examination			
		Theory	Lab.	Duration of Sem. End Exam. (Hrs.)	Sessional Marks	Semester End Exam. Marks	Credits
CA311	Data Mining and Big Data	4	-	3	40	60	4
CA312	Mobile Application Development using Android	4	-	3	40	60	4
CA313	Cloud Computing	4	-	3	40	60	4
CA314	**Elective-III**	4	-	3	40	60	4
CA315	**Elective-IV**	4	-	3	40	60	4
CA316	**MOOCs** *	-	-	-	100	-	2
CA351	Data Mining and Hadoop Lab	-	6	3	40	60	2
CA352	Mobile Application Development using Android Lab	-	6	3	40	60	2
CA353	Mini Project Work	-	4	-	100	-	2
	TOTAL:	**20**	**16**	**21**	**480**	**420**	**28**

* MOOCs Course Completion Certificate must be submitted on or before the last instruction day of III Year I Semester, otherwise his/her Semester End Examination result will not be declared.

Mini Project Work: A problem chosen by each student to be carried out and a report is to be submitted at the semester end.

Elective-III	**Elective-IV**
(A) Machine Learning using R **	(A) Internet of Things **
(B) Soft Computing	(B) Bioinformatics
(C) Software Testing and Quality Assurance **	(C) DevOps **
(D) Enterprise Resource Planning	(D) E-Commerce
(E) Information Retrieval Systems	(E) Social Network Analysis

** Learning-By-Doing (**LBD**)

III YEAR - II SEMESTER

Sub. Code	Subject Title	Scheme of Instruction		Scheme of Examination			
		Theory	Lab.	Duration of Sem. End Exam. (Hrs.)	Sessional Marks	Semester End Exam. Marks	Credits
CA361	Major Project Work	- Six Months Duration	-	-	40	60	10

1. Three Stages in Project adjudication:
   a) Presentation of Problem Statement and Problem Approval by Guide.
   b) Progress Approval by System Demonstration with results (Internal) - 40 Marks
   c) Final Presentation with Documentation (External Project Viva-Voce) - 60 Marks
2. Candidates can do their thesis work within the department or in any industry. In case of thesis done in industry/research organization, one advisor (Guide) should be from the department and one advisor(Co-Guide) should be from the industry/research organization.

TOTAL MARKS FOR THE MCA COURSE : 4100
TOTAL CREDITS FOR THE MCA COURSE : 142

R V R & J C COLLEGE OF ENGINEERING, CHOWDAVARAM, GUNTUR-19 *(Autonomous)*

(w.e.f. the batch of students admitted during the academic year 2016-2017)

B.Tech. in Mechanical Engineering

I Year I Semester):

S. No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of SemEnd Exam.(hrs)	Sessional Marks	Semester End Exam. Marks	Credits	
1	EC/EE/ME 101 Differential Equations And Statistics	3+1		3	40	60	3	BS
2	102 Engineering Physics (common to all branches)	4	-	3	40	60	3	BS
3	103 Applied Chemistry (common to all branches except ChE)	4	-	3	40	60	3	BS
4	CE/EE/ME 104 English for Communication	4	-	3	40	60	3	HS
5	CE/EE/ME 105 Problem Solving with C	4+1	-	3	40	60	3	ES
6	ME 106 Engineering Mechanics - I	4+1	-	3	40	60	3	ES
7	CE/EE/ME 151 Chemistry Laboratory	-	3	3	40	60	2	BS
8	CE/EE/ME 152 C-Programming Lab.	-	3	3	40	60	2	ES
9	CE/ME 153 Graphics Laboratory.	2	4	3	40	60	2	ES
Total		28	10	-	360	540	24	

B.Tech. in Mechanical Engineering

I Year (II Semester):

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semend Exam. (hrs)	Sessional Marks	Semester endExam. Marks	Credits	
1	EC/EE/ME 107 Calculus And Numerical Methods	3+1	-	3	40	60	3	BS
2	ME 108 Physics of Materials	4	-	3	40	60	3	BS
3	109 Chemistry of Engineering Materials (common to all branches except ChE)	4	-	3	40	60	3	BS
4	CE/EE/ME 110 Environmental Studies	4	-	3	40	60	3	HS
5	CE/ME 111 Engineering Drawing	2	4	3	40	60	3	ES
6	ME 112 Engineering Mechanics - II	4+1	-	3	40	60	3	ES
7	CE/EE/ME 154 Physics Laboratory	-	3	3	40	60	2	BS
8	CE/EE/ME 155 Communication Skills Lab.	-	3	3	40	60	2	HS
9	CE /ME 156 Workshop Practice	-	3	3	40	60	2	ES
Total		23	13	-	360	540	24	

B.Tech. in Mechanical Engineering

II Year I Semester):

S. No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	ME201 Complex Analysis and Numerical Solutions	3+1	-	3	40	60	3	BS
2	ME 202 Mechanics of Materials - I	4+1	-	3	40	60	3	ES
3	ME 203 Electrical Technology	4	-	3	40	60	3	ES
4	ME 204 Basic Thermodynamics	4+1	-	3	40	60	3	ES
5	ME 205 Theory of Machines and Mechanisms	4+1	-	3	40	60	3	PC
6	ME 206* Fluid Mechanics & Hydraulic Machines	4+1	-	3	40	60	3	PC
7	ME 251 SM & FM LAB	-	3	3	40	60	2	ES
8	ME 252 Machine Drawing & CAD LAB	-	3	3	40	60	2	PC
9	EE/ME 253 Professional Communication Skills LAB	-	3	3	40	60	2	HS
Total		28	9	-	360	540	24	

Enrollment of NCC/NSO/NSS will be initiated from the date of commencement of class work for II Year I Semester.

Subjects, which are offered in First & Second Semesters:

ME 206* : Fluid Mechanics & Hydraulic Machines

ME 212* : Basic Electronics and Mirco Controllers

B.Tech. in Mechanical Engineering

II Year II Semester):

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	ME 207 Transformation Techniques and Distributions	3+1	-	3	40	60	3	BS
2	ME 208 Mechanics of Materials - II	4+1	-	3	40	60	3	ES
3	ME 209 Casting , Welding and Metal Working Process	4	-	3	40	60	3	PC
4	ME 210 Applied Thermodynamics	4+1	-	3	40	60	3	ES
5	ME 211 Engineering Metallurgy	4	-	3	40	60	3	ES
6	ME 212* Basic Electronics and Mirco Controllers	4	-	3	40	60	3	ES
7	ME 254 Basic Manufacturing Process LAB	-	3	3	40	60	2	PC
8	ME 255 Computer Applications in Mech. Engg. Lab	-	3	3	40	60	2	PC
9	ME 256 Basic Electrical and Electronics LAB	-	3	3	40	60	2	ES
Total		26	9	-	360	540	24	

Enrollment of Internship / Industrial Training / Certification Course will be initiated from the end of II Year II Semester.

Subjects, which are offered in First & Second Semesters:

ME 206* : Fluid Mechanics & Hydraulic Machines

ME 212* : Basic Electronics and Mirco Controllers

B.Tech. in Mechanical Engineering

III Year I Semester:

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	ME 301 Professional Ethics & Human Values	4	-	3	40	60	3	HS
2	ME 302 Design of Machine Elements	4+1	-	3	40	60	3	PC
3	ME 303 Metal Cutting & Machine Tools	4	-	3	40	60	3	PC
4	ME 304 IC Engines and Gas Turbines	4+1	-	3	40	60	3	PC
5	ME 305*	4	-	3	40	60	3	PC
6	ME 306*	4+1	-	3	40	60	3	PC
7	ME 351 Machine Shop Practice	-	3	3	40	60	2	PC
8	ME 352 Fuels and IC Engines LAB	-	3	3	40	60	2	PC
9	ME 353 Modeling LAB	-	3	3	40	60	2	PC
Total		27	9	-	360	540	24	

Enrollment of MOOCS course will be initiated from the date of commencement of class work for III Year I Semester.

Subjects, which are offered in First & Second Semesters:

ME 305 : Operations Research
ME 306 : Dynamics of Machines & Vibrations

Electives	A	B	C	D
E-I: ME 311	Nano Technology	Tribology	Automobile Engineering	Industry based Elective (Introduction to Aircraft Industry and Systems)
E-II: ME 312	Measurements & Control Systems	Mechanics of Composite Materials	Refrigeration & Air-Conditioning	Industry based Elective (PLM)

B.Tech. in Mechanical Engineering

III Year II Semester:

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	ME307 Manufacturing Engineering	4	-	3	40	60	3	PC
2	ME 308 Design of Transmission Elements	4+1	-	3	40	60	3	PC
3	ME 309 Heat Transfer	4+1	-	3	40	60	3	PC
4	ME 310 Finite Element Analysis	4+1	-	3	40	60	3	PC
5	ME 311* Elective-I	4	-	3	40	60	3	PE
6	ME 312* Elective-II	4	-	3	40	60	3	PE
7	ME 354 Analysis LAB	-	3	3	40	60	2	PC
8	ME 355 Heat Transfer LAB	-	3	3	40	60	2	PC
9	ME 356 Industry Based LAB	-	3	3	40	60	2	PC
Total		27	9	-	360	540	24	

NCC/NSO/NSS Certificate must be submitted on or before the last instruction day of III Year II Semester otherwise his/her Semester End Examination result will not be declared.

Subjects, which are offered in First & Second Semesters:

ME 305 : Operations Research
ME 306 : Dynamics of Machines & Vibrations

Electives	A	B	C	D
E-I: ME 311	Nano Technology	Tribology	Automobile Engineering	Industry based Elective (Introduction to Aircraft Industry and Systems)
E-II: ME 312	Measurements & Control Systems	Mechanics of Composite Materials	Refrigeration & Air-Conditioning	Industry based Elective (PLM)

B.Tech. in Mechanical Engineering

IV Year I Semester:

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Sem EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	ME 401 Engineering Metrology	4	-	3	40	60	3	PC
2	ME 402 Advanced Machine Design	4+1	-	3	40	60	3	PC
3	ME 403* MOOCS	-	-	-	-	-	0	
4	ME 404 Elective-III (Open Elective)	4	-	3	40	60	3	OE
5	ME 405*	4	-	3	40	60	3	PC
6	ME 406* Elective-IV	4	-	3	40	60	3	PE
7	ME 451 Mini project / Term Paper etc.	-	3	3	100	--	2	PC
8	ME 452 Simulation LAB	--	3	3	40	60	2	PC
9	ME 453 Design and Metrology LAB	-	3	3	40	60	2	PC
Total		21	9	--	380	480	21	

* MOOCS Certificate must be submitted on or before the last instruction day of IV Year I Semester otherwise his/her Semester End Examination result will not be declared.

* Internship / Industrial Trainning / Certification Course completion certificate must be submitted on or before the last instruction day of IV Year I Semester, otherwise his / her Semester End Examination results will not be declared.

404 : Elective -III (choose from other Branches)

Branch	A	B	Branch	A	B
CE404	Basic Surveying	Building Materials and Estimation	EC404	Applied Electronics	Basic Communication
ChE404	Energy Engineering	Bio- Fuels	EE404	Non-conventional Energy Sources	Utilization of Electrical Energy
CS404	JAVA Programming	Data Base Management Systems	IT404	Software Engineering	WEB Technologies

Subjects, which are offered in First & Second Semesters:

ME 405 : Operations Management

Electives	A	B	C	D
E-IV: ME 406	Mechatronics	Design for Manufacturing & Assembly	Energy Resources Utilization	Safety Management
E-V: ME 409	Flexible Manufacturing System & Group Technology	Computer Aided Design	Computational Fluid Flow and Heat Transfer	Total Quality Management
E-VI: ME 410	Robotic Engineering	Advanced Concepts in Mechanical Engineering	Solar Radiation and Energy Conversion	Industrial Administration

B.Tech. in Mechanical Engineering

IV Year II Semester:

S.No.	Code No. & Subject	Scheme of Instruction periods per week		Scheme of Examination				Category Code
		Theory + Tutorial	Practical's	Duration of Semester EndExam. (hrs)	Sessional Marks	Semester end Exam. Marks	Credits	
1	ME407 Industrial Engineering & Management	4	-	3	40	60	3	PC
2	ME 408 Automation & CAM	4	-	3	40	60	3	PC
3	ME 409* Elective-V	4	-	3	40	60	3	PE
4	ME 410* Elective-VI	4	-	3	40	60	3	PE
5	ME 454 CAM LAB	-	3	3	40	60	2	PC
6	ME 455 Project Work	-	9	3	40	60	10	PC
Total		16	12	-	240	360	24	

Subjects, which are offered in First & Second Semesters:

ME 405 : Operations Management

Electives	A	B	C	D
E-IV: ME 406	Mechatronics	Design for Manufacturing & Assembly	Energy Resources Utilization	Safety Management
E-V: ME 409	Flexible Manufacturing System & Group Technology	Computer Aided Design	Computational Fluid Flow and Heat Transfer	Total Quality Management
E-VI: ME 410	Robotic Engineering	Advanced Concepts in Mechanical Engineering	Solar Radiation and Energy Conversion	Industrial Administration

Department of Mechanical Engineering
R.V.R. &J.C COLLEGE OF ENGINEERING (A) :: GUNTUR – 522019.
SCHEME OF EXAMINATION AND INSTRUCTION FOR I / II M.TECH. w.e.f 2017-18

I/II M.TECH (MACHINE DESIGN) :: FIRST SEMESTER

Sl. No	Code No & Subject		Hours/Week		Credits	Evaluation of Marks			
			Lecture	Practical		Internal	External		Total
							Theory	Practical	
1	MD511	Core Subject-1	4	--	4	40	60	--	100
2	MD512	Core Subject-2	4	--	4	40	60	--	100
3	MD513	Core Subject-3	4	--	4	40	60	--	100
4	Elective Subject-1		4	--	4	40	60	--	100
5	Elective Subject-2		4	--	4	40	60	--	100
6	Elective Subject-3		4	--	4	40	60	--	100
7	MD551	LAB-I	--	6	2	40	--	60	100
8	MD552	LAB-II	--	6	2	40	--	60	100
TOTAL			24	12	28	320	360	120	800

I/II M.TECH (MACHINE DESIGN) :: SECOND SEMESTER

Sl. No	Code No & Subject		Hours/Week		Credits	Evaluation of Marks			
			Lecture	Practical		Internal	External		Total
							Theory	Practical	
1	MD521	Core Subject-4	4	--	4	40	60	--	100
2	MD522	Core Subject-5	4	--	4	40	60	--	100
3	MD523	Core Subject-6	4	--	4	40	60	--	100
4	Elective Subject-4		4	--	4	40	60	--	100
5	Elective Subject-5		4	--	4	40	60	--	100
6	Elective Subject-6		4	--	4	40	60	--	100
7	MD561	LAB-III	--	6	2	40	--	60	100
8	MD562	Seminar	--	6	2	100	--	--	100
TOTAL			24	12	28	380	360	60	800

II/II M.TECH (MACHINE DESIGN) :: FIRST SEMESTER

Sl. No	Code No & Subject		Hours/Week		Credits	Evaluation of Marks		
			Lecture	Practical		Internal	External	Total
1	MD611	MOOCS	--	--	2	--	--	--
2	MD651	Dissertation Review	--	24	4	100	--	100
3	MD652	Internship	--	--	2	100	--	100
TOTAL			--	24	8	200	--	200

M.TECH. II/II M.TECH (MACHINE DESIGN) :: SECOND SEMESTER

Sl. No	Code No & Subject		Hours/Week		Credits	Evaluation of Marks		
			Lecture	Practical		Internal	External	Total
1	MD661	Project Viva Voce Examination	--	24	10	40	60	100

TOTAL MARKS : 1900 **TOTAL :74 Credits**

R.V.R. & J.C. College of Engineering (A):: GUNTUR.

Subjects List- M.Tech (Machine Design) w.e.f 2017-18

Core:

S.No	Subject codes	Subject Name
	I SEM	
1.	MD 511	Theory of Elasticity and Plasticity
2.	MD512	Machinery Vibration And Control
3.	MD513	Mechanisms and Robot Kinematics
	II SEM	
4.	MD 521	Finite Element Methods
5.	MD 522	Optimization Techniques
6.	MD 523	Advanced Materials for Design

Electives:

S.NO	Elective Subject Codes	Subject Name
1.	MD571	Design of Experiments
2.	MD572	Fluidics and Control Systems
3.	MD573	Mechatronics System Design
4.	MD574	Computational Fluid Dynamics
5.	MD575	Reliability Engineering
6.	MD576	Mechanics of Composite Materials
7.	MD577	Tribology
8.	MD578	Product Design and development
9.	MD579	Rapid Prototyping
10.	MD580	Fracture Mechanics
11.	MD581	Robotic Engineering
12.	MD582	Signal Analysis And Condition Monitoring
13.	MD583	Design for Manufacturing and Assembly
14.	MD584	Vehicle Dynamics
15.	MD585	Theory of Plates and Shells
16.	MD586	Mechanics of Sheet Metal Forming
17.	MD587	Research Methodology
18.	MD588	Geometric Modelling

LABs:

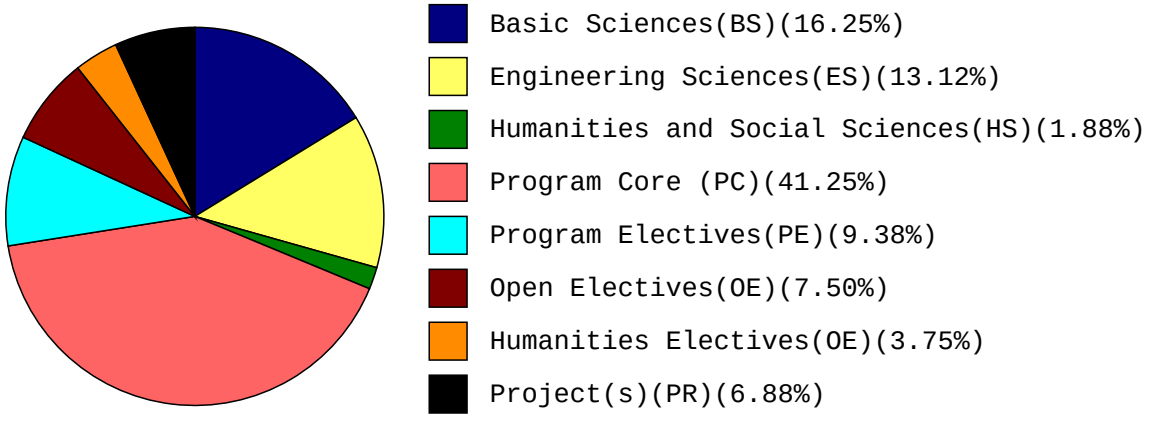
S.NO	LABS	LAB NAME
1.	MD551	Computer aided Design LAB
2.	MD552	Machine Dynamics and Simulation LAB
3.	MD561	Analysis LAB

DEPARTMENT OF MECHANICAL ENGINEERING

B.TECH. MECHANICAL ENGINEERING

Pogram curriculum grouping based on course components

Course Component	Curriculum Content (% of total number of credits program)	Total number of contact hours	Total number of credits
Basic Sciences (BS)	16.25	30	26
Engineering Sciences (ES)	13.13	29	21
Humanities and Social Sciences (HS)	1.88	4	3
Professional Core (PC)	41.25	76	66
Professional Electives (PE)	9.38	12	15
Open Electives (OE)	7.5	9	12
Humanities Electives (HE)	3.75	6	6
Project(s) (PR)	6.88	16	11
Mandatory Course(s) (MC)	--	8	--
Total number of Credits			160



B.TECH. MECHANICAL ENGINEERING

(w.e.f. the batch of students admitted from the academic year 2018-2019)

Three Weeks Orientation Programme is Mandatory before starting Semester I [First Year]

Semester I [First Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME/CE/EC 111	Mathematics-I	3	1	-	40	60	4	BS
2	ME/EC/EE 112	Engineering Chemistry	3	1	-	40	60	4	BS
3	ME/CE/CH/EE 113	English for Communication Skills	2	-	-	40	60	2	HS
4	ME/EC/EE 151	Chemistry Lab	-	-	3	40	60	1.5	BS
5	ME/CE/CH/EE 152	English Language Communication Skills Lab	-	-	2	40	60	1	HS
6	ME/CE/EE 153	Workshop Practice Lab	1	-	4	40	60	3	ES
7	MC 002	Environmental Science	2	-	-	100	-	-	MC
		TOTAL	11	2	9	340	360	15.5	TPW-22

Semester II [First Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME/CE/EC 121	Mathematics-II	3	1	-	40	60	4	BS
2	ME 122	Engineering Physics	3	1	-	40	60	4	BS
3	ME/CE/CH/CS/ EE/EC/IT 123	Programing for Problem Solving	3	-	-	40	60	3	ES
4	ME/CH 124	Basic Electrical Engineering	3	1	-	40	60	4	ES
5	ME 161	Physics Lab	-	-	3	40	60	1.5	BS
6	ME/CE/CH/CS/ EE/EC/IT/ 162	Programing for Problem Solving Lab	-	-	4	40	60	2	ES
7	ME/CE/EE 163	Engineering Graphics & Design Lab	1	-	4	40	60	3	ES
8	ME/CH 164	Basic Electrical Engineering Lab	-	-	2	40	60	1	ES
9	MC 001	Constitution of India	2	-	-	100	-	-	MC
		TOTAL	15	3	13	420	480	22.5	TPW-31

Semester III [Second Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME 211	Engineering Mechanics	2	1	-	40	60	3	ES
2	ME 212	Life Sciences for Engineers	2	-	-	40	60	2	BS
3	ME 213	Manufacturing Processes	3	-	-	40	60	3	PC
4	ME 214	Basic Thermodynamics	2	1	-	40	60	3	PC
5	ME 215	Theory of Mechanisms & Machines	2	1	-	40	60	3	PC
6	ME 216	Fluid Mechanics & Hydraulic Machines	2	1	-	40	60	3	PC
7	ME 251	Machine Drawing Lab	1	-	2	40	60	2	PC
8	ME 252	Communicative English Lab	1	-	2	40	60	2	BS
9	ME 253	Basic Electronics Lab	1	-	2	40	60	2	ES
10	MC 003	Essence of Indian Traditional Knowledge	2	-	-	100	-	-	MC
		TOTAL	18	4	6	460	540	23	TPW-28

Semester IV [Second Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	ME 221	Mathematics - III (PDE, Probability & Statistics)	2	1	-	40	60	3	BS
2	ME 222	Strength of Materials	2	1	-	40	60	3	PC
3	ME 223	Manufacturing Technology	3	-	-	40	60	3	PC
4	ME 224	Applied Thermodynamics	2	1	-	40	60	3	PC
5	ME 225	Material Science and Metallurgy	3	-	-	40	60	3	PC
6	ME 226	Open Elective-I	3	-	-	40	60	3	OE
7	ME 261	Fluid Mechanics & Strength of Materials Lab	-	-	2	40	60	1	PC
8	ME 262	Manufacturing Lab - 1	-	-	2	40	60	1	PC
9	ME 263	Modelling Lab	-	-	2	40	60	1	PC
10	MC 004	Design Thinking and Innovation	2	-	-	100	-	-	MC
		TOTAL	17	3	6	460	540	21	TPW-26

Semester V (Third Year) COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	ME 311	Design of Machine Elements	2	1	-	40	60	3	PC
2	ME 312	Solid Mechanics	2	1	-	40	60	3	PC
3	ME 313	Machine Dynamics and Vibrations	3	-	-	40	60	3	PC
4	ME 314	Operations Research	2	1	-	40	60	3	PC
5	ME 315	Professional Elective-I	3	-	-	40	60	3	PE
6	ME 316	Humanities Elective-I	3	-	-	40	60	3	HE
7	ME 351	Thermal Engineering Laboratory I	1	-	2	40	60	2	PC
8	ME 352	Professional Communication Skills Lab	-	-	2	40	60	1	PC
		TOTAL	16	3	4	320	480	21	TPW-23

Semester VI [Third Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	ME 321	Design of Transmission Elements	2	1	-	40	60	3	PC
2	ME 322	Finite Element Method	2	1	-	40	60	3	PC
3	ME 323	Heat Transfer	2	1	-	40	60	3	PC
4	ME 324	Professional Elective-II	3	-	-	40	60	3	PE
5	ME 325	Humanities Elective-II	3	-	-	40	60	3	HE
6	ME 326	Open Elective-II	3	-	-	40	60	3	OE
7	ME 361	Thermal Engineering Laboratory II	-	-	2	40	60	1	PC
8	ME 362	Analysis & Simulation Lab	-	-	2	40	60	1	PC
		TOTAL	15	3	4	320	480	20	TPW-22

Semester VII [Fourth Year] — COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME 411	Automation in Manufacturing	3	-	-	40	60	3	PC
2	ME 412	Fundamentals of Industrial Engineering	3	-	-	40	60	3	PC
3	ME 413	Metrology and Mechanical Measurements	3	-	-	40	60	3	PC
4	ME 414	Professional Elective-III	3	-	-	40	60	3	PE
5	ME 415	Professional Elective-IV	3	-	-	40	60	3	PE
6	ME 416	Open Elective-III	3	-	-	40	60	3	OE
7	ME 451	Manufacturing Lab II (CAM)	-	-	2	40	60	1	PC
8	ME 452	Design and Metrology Lab	-	-	2	40	60	1	PC
9	ME 453	Internship	-	-	-	100	-	2	PR
10	ME 454	Mini Project	-	-	2	100	00	2.0	PR
		TOTAL	18	0	6	520	480	24	TPW-24

Semester VIII [Fourth Year] — COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME 421	Professional Elective-V (MOOCs)	-	-	-	100	-	3	PE
2	ME 422	Open Elective-IV (MOOCs)	-	-	-	100	-	3	OE
3	ME 461	Project	-	-	14	40	60	7	PR
		TOTAL	0	0	14	240	60	13	TPW-14

Program Elective Courses

Code No.	Subject Name	Code No.	Subject Name
MEEL01	Computer Aided Design	MEEL02	Mechatronic System Design
MEEL03	Fluidics and control systems	MEEL04	Industrial Robotics
MEEL05	I C Engines and Gas Turbines	MEEL06	Gas Dynamics and JET Propulsion
MEEL07	Refrigeration and Air Conditioning	MEEL08	Automobile Engineering
MEEL09	Power Plant Engineering	MEEL10	Energy Conservation and Management
MEEL11	Product Lifecycle Management	MEEL12	Principles of Management
MEEL13	Process Planning and Cost Estimation	MEEL14	Total Quality Management
MEEL15	Composite Materials	MEEL16	Design Of Experiments
MEEL17	Farm Machinery and Equipment	MEEL18	Computional Fluid Dynamics
MEEL19	Introduction to Aircraft Industry and Systems	MEEL20	Research Methodology

Value Added Courses

Code No.	Subject Name	Code No.	Subject Name
ME V01	English Competency Development Programme	ME V02	AI Tools , Techniques & Applications
ME V03	Internet of Things		

Open Elective Courses

Code No.	Subject Name	Code No.	Subject Name
CEOL01	Building Materials and Construction	CEOL02	Solid waste Management
CEOL03	Remote Sensing and GIS	CHOL01	Energy Engineering
CHOL02	Biofuels	CHOL03	Pollution Control
CHOL04	Nanoscience and Nanotechnology	CSOL01	Programming with Java
CSOL02	Relational Database Management Systems	CSOL03	Programming with Python
CSOL04	Internet of Things	ECOL01	Applied Electronics
ECOL02	Basic Communication	ECOL03	Basic Electronics & Communication Engineering
ECOL04	Microprocessors & Interfacing	ECOL05	Digital Image Processing

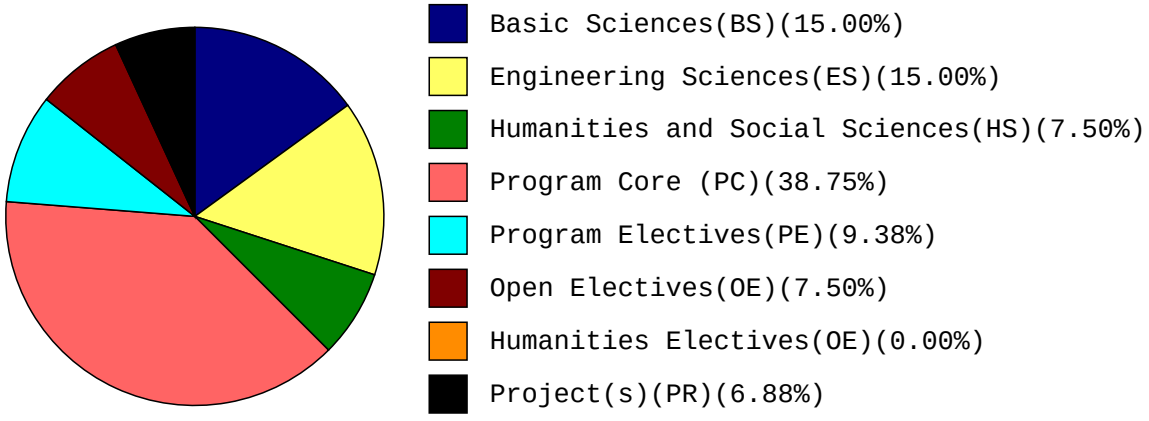
EEOL01	Renewable energy sources	EEOL02	Utilization of Electrical Energy
EEOL03	Power Converters	EEOL04	Energy Conservation
EEOL05	Introduction to Electric Vehicles and Storage Systems	ITOL01	Data Structures & Algorithms
ITOL02	Operating Systems	ITOL03	Big Data Analytics
ITOL04	Web Technologies		

DEPARTMENT OF MECHANICAL ENGINEERING

B.TECH. MECHANICAL ENGINEERING

Program curriculum grouping based on course components

Course Component	Curriculum Content (% of total number of credits program)	Total number of contact hours	Total number of credits
Basic Sciences (BS)	15	27	24
Engineering Sciences (ES)	15	32	24
Humanities and Social Sciences (HS)	7.5	15	12
Professional Core (PC)	38.75	71	62
Professional Electives (PE)	9.38	12	15
Open Electives (OE)	7.5	9	12
Humanities Electives (HE)	0		0
Project(s) (PR)	6.88	16	11
Mandatory Course(s) (MC)	--	8	--
Total number of Credits			160



B.TECH. MECHANICAL ENGINEERING

(w.e.f. the batch of students admitted from the academic year 2018-2019)

Three Weeks Orientation Programme is Mandatory before starting Semester I [First Year]

Semester I [First Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME/CE/EC 111	Mathematics-I	3	1	-	40	60	4	BS
2	ME/EC/EE 112	Engineering Chemistry	3	1	-	40	60	4	BS
3	ME/CE/CH/EE 113	English for Communication Skills	2	-	-	40	60	2	HS
4	ME/EC/EE 151	Chemistry Lab	-	-	3	40	60	1.5	BS
5	ME/CE/CH/EE 152	English Language Communication Skills Lab	-	-	2	40	60	1	HS
6	ME/CE/EE 153	Workshop Practice Lab	1	-	4	40	60	3	ES
7	MC 002	Environmental Science	2	-	-	100	-	-	MC
		TOTAL	11	2	9	340	360	15.5	TPW-22

Semester II [First Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME/CE/EC 121	Mathematics-II	3	1	-	40	60	4	BS
2	ME 122	Engineering Physics	3	1	-	40	60	4	BS
3	ME/CE/CH/CS/ EE/EC/IT 123	Programing for Problem Solving	3	-	-	40	60	3	ES
4	ME/CH 124	Basic Electrical Engineering	3	1	-	40	60	4	ES
5	ME 161	Physics Lab	-	-	3	40	60	1.5	BS
6	ME/CE/CH/CS/ EE/EC/IT/ 162	Programing for Problem Solving Lab	-	-	4	40	60	2	ES
7	ME/CE/EE 163	Engineering Graphics & Design Lab	1	-	4	40	60	3	ES
8	ME/CH 164	Basic Electrical Engineering Lab	-	-	2	40	60	1	ES
9	MC 001	Constitution of India	2	-	-	100	-	-	MC
		TOTAL	15	3	13	420	480	22.5	TPW-31

Semester III [Second Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	
			L	T	P	SES	EXT		
1	ME 211	Engineering Mechanics	2	1	-	40	60	3	ES
2	ME 212	Life Science for Engineers	2	-	-	40	60	2	BS
3	ME 213	Manufacturing Processes	3	-	-	40	60	3	PC
4	ME 214	Basic Thermodynamics	2	1	-	40	60	3	PC
5	ME 215	Theory of Mechanisms & Machines	2	1	-	40	60	3	PC
6	ME 216	Fluid Mechanics & Hydraulic Machines	2	1	-	40	60	3	PC
7	ME 251	Machine Drawing Lab	1	-	2	40	60	2	PC
8	ME 252	Communicative English Lab	1	-	2	40	60	2	HS
9	ME 253	Basic Electronics Lab	1	-	2	40	60	2	ES
10	MC 003	Essence of Indian Traditional Knowledge	2	-	-	100	-	-	MC
		TOTAL	18	4	6	460	540	23	TPW-28

Semester IV [Second Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	ME 221	Mathematics - III (PDE, Probability & Statistics)	2	1	-	40	60	3	BS
2	ME 222	Strength of Materials	2	1	-	40	60	3	PC
3	ME 223	Manufacturing Technology	3	-	-	40	60	3	PC
4	ME 224	Applied Thermodynamics	2	1	-	40	60	3	PC
5	ME 225	Material Science and Metallurgy	3	-	-	40	60	3	PC
6	ME 226	Open Elective-I	3	-	-	40	60	3	OE
7	ME 261	Fluid Mechanics & Strength of Materials Lab	-	-	2	40	60	1	PC
8	ME 262	Manufacturing Lab - 1	-	-	2	40	60	1	PC
9	ME 263	Modelling Lab	-	-	2	40	60	1	PC
10	MC 004	Design Thinking and Product Innovation	2	-	-	100	-	-	MC
		TOTAL	17	3	6	460	540	21	TPW-26

Semester V (Third Year) COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	ME 311	Design of Machine Elements	2	1	-	40	60	3	PC
2	ME 312	Advanced Strength of Materials	2	1	-	40	60	3	PC
3	ME 313	Machine Dynamics and Vibrations	3	-	-	40	60	3	PC
4	ME 314	Operations Research	2	1	-	40	60	3	ES
5	ME 315	Professional Elective-I	3	-	-	40	60	3	PE
6	ME 316	Humanities Elective-I	3	-	-	40	60	3	HS
7	ME 351	Thermal Engineering Laboratory	1	-	2	40	60	2	PC
8	ME 352	Professional Communication Skills Lab	-	-	2	40	60	1	HS
		TOTAL	16	3	4	320	480	21	TPW-23

Semester VI [Third Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination			Category
	Code No.	Subject Name	Periods per week			Maximum Marks		Credits	Code
			L	T	P	SES	EXT		
1	ME 321	Design of Transmission Elements	2	1	-	40	60	3	PC
2	ME 322	Finite Element Method	2	1	-	40	60	3	PC
3	ME 323	Heat Transfer	2	1	-	40	60	3	PC
4	ME 324	Professional Elective-II	3	-	-	40	60	3	PE
5	ME 325	Humanities Elective-II	3	-	-	40	60	3	HS
6	ME 326	Open Elective-II	3	-	-	40	60	3	OE
7	ME 361	Heat Transfer Laboratory	-	-	2	40	60	1	PC
8	ME 362	Analysis & Simulation Lab	-	-	2	40	60	1	PC
		TOTAL	15	3	4	320	480	20	TPW-22

Semester VII [Fourth Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Credits	Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks			
			L	T	P	SES	EXT		
1	ME 411	Automation in Manufacturing	3	-	-	40	60	3	PC
2	ME 412	Fundamentals of Industrial Engineering	3	-	-	40	60	3	PC
3	ME 413	Metrology and Mechanical Measurements	3	-	-	40	60	3	PC
4	ME 414	Professional Elective-III	3	-	-	40	60	3	PE
5	ME 415	Professional Elective-IV	3	-	-	40	60	3	PE
6	ME 416	Open Elective-III	3	-	-	40	60	3	OE
7	ME 451	Manufacturing Lab II (CAM)	-	-	2	40	60	1	PC
8	ME 452	Design and Metrology Lab	-	-	2	40	60	1	PC
9	ME 453	Internship	-	-	-	100	-	2	PR
10	ME 454	Mini Project	-	-	2	100	00	2.0	PR
		TOTAL	18	0	6	520	480	24	TPW-24

Semester VIII [Fourth Year] COURSE STRUCTURE

SNo.	Course Details		Scheme of Instruction			Scheme of Examination		Credits	Category Code
	Code No.	Subject Name	Periods per week			Maximum Marks			
			L	T	P	SES	EXT		
1	ME 421	Professional Elective-V (MOOCs)	-	-	-	100	-	3	PE
2	ME 422	Open Elective-IV (MOOCs)	-	-	-	100	-	3	OE
3	ME 461	Project	-	-	14	40	60	7	PR
		TOTAL	0	0	14	240	60	13	TPW-14

Program Elective Courses

Code No.	Subject Name	Code No.	Subject Name
MEEL01	Computer Aided Design	MEEL02	Mechatronic System Design
MEEL03	Fluidics and control systems	MEEL04	Industrial Robotics
MEEL05	I C Engines	MEEL06	Gas Dynamics and JET Propulsion
MEEL07	Refrigeration and Air Conditioning	MEEL08	Automobile Engineering
MEEL09	Power Plant Engineering	MEEL10	Energy Conservation and Management
MEEL11	Product Lifecycle Management	MEEL12	Principles of Industrial Management
MEEL13	Process Planning and Cost Estimation	MEEL14	Total Quality Management
MEEL15	Composite Materials	MEEL16	Design Of Experiments
MEEL17	Farm Machinery and Equipment	MEEL18	Computional Fluid Dynamics
MEEL19	Elements of Aerospace Engineering	MEEL20	Production Planning and Control

Value Added Courses

Code No.	Subject Name	Code No.	Subject Name
ME V01	English Competency Development Programme	ME V02	AI Tools , Techniques & Applications
MEV03	Advanced Modelling Lab (DELMIA)	MEV04	Advanced Modelling Lab (SIMULIA)

Open Elective Courses

Code No.	Subject Name	Code No.	Subject Name
CEOL01	Building Materials and Construction	CEOL02	Solid waste Management
CEOL03	Remote Sensing and GIS	CHOL01	Energy Engineering
CHOL02	Biofuels	CHOL03	Pollution Control
CHOL04	Nanoscience and Nanotechnology	CSOL01	Programming with Java
CSOL02	Relational Database Management Systems	CSOL03	Introduction to Python Programming
CSOL04	Internet of Things	ECOL01	Applied Electronics
ECOL02	Basic Communication	ECOL03	Basic Electronics & Communication Engineering

ECOL04	Microprocessors & Interfacing	ECOL05	Digital Image Processing
EEOL01	Renewable Energy Sources	EEOL02	Utilization of Electrical Energy
EEOL03	Power Converters	EEOL04	Energy Conservation
EEOL05	Introduction to Electric Vehicles and Storage Systems	ITOL01	Data Structures & Algorithms
ITOL02	Operating Systems	ITOL03	Big Data Analytics
ITOL04	Web Technologies		