Rajiv Gandhi University Of Knowledge Technologies-AP

NUZVID... RK VALLEY... SRIKAKULAM...ONGOLE

B. Tech Civil Engineering, Admitted Batch: 2020-21

RGUKT

BOARD OF STUDIES

IN

DEPARTMENT OF CIVIL ENGINEERING

RGUKT-AP

MODIFIED COURSE STRUCTURE AND SYLLABI OF B.TECH

PROGRAMME IN CIVIL ENGINEERING

Effective from the batches admitted in 2020-21 onwards

B. Tech Civil Engineering, Admitted Batch: 2020-21

CONTENTS

	(iv)	**Professional Core Courses**
		Engineering Geology
		Building Materials and Construction
		Mechanics of Materials-I
		Mechanics of Fluids
		Surveying-I
		Mechanics of Materials Lab
		Surveying Lab
		Concrete Technology
		Hydraulics Engineering
		Mechanics of Materials-II
		Structural Analysis
		Surveying-II
		Water Resources Engineering
		Hydraulics Engineering Lab
		Concrete Technology Lab
		Advanced Structural Analysis
		Design of Reinforced concrete Structures
		Environmental Engineering-I
		Environmental Engineering-II
		Estimation and Costing
		Transportation Engineering-I
		Transportation Engineering-II

		Soil Mechanics
		Soil Mechanics Lab
		Transportation Engineering Lab
		Design of Steel Structures
		Foundation Engineering
		Building Planning and Computer Aided Drawing Lab
		Environmental Engineering Lab
	(v)	**Professional Elective Courses**
		STRUCTURAL ENGINEERING
		Finite Element Method
		Stability of Structures
		Prestressed Concrete Structures
		Advanced Reinforced Concrete Structures
		Advanced Concrete Technology
		Structural Dynamics
		Bridge Engineering
		Repair and Rehabilitation of Structures
		Earthquake Resistant Design
		TRANSPORTATION ENGINEERING
		Pavement Analysis and Design
		Urban Transportation and Planning
		HYDRAULICS & WATER RESOURCES ENGINEERING
		Watershed Management

		Irrigation and Water Power Engineering
		Advanced Hydraulics
		ENVIRONMENTAL ENGINEERING
		Air Pollution and Control
		GEOTECHNICAL ENGINEERING
		Advanced Foundation Engineering
		Ground Improvement Techniques
		CONSTRUCTION ENGINEERING
		Construction Planning and Management
		Infrastructure Planning and Management
		Construction Economics and Finance
		GEOINFORMATICS
		Remote Sensing and GIS
		Environmental Geotechnics
		Sustainable Building Materials
		Functional Efficiency of Buildings
		Decision Making Methods in Civil Engineering
		Construction Safety Management
	(vi)	**Open Elective Courses**
		Electives offering from Civil Engineering
		Ground Water Hydrology
		Water Resources Systems
		Environmental Management & Impact Assessment

		Modern Construction Materials
		Green building and Landscape
		Solid and Hazardous Waste management
		Air Pollution and Control
		Civil Engineering Societal & Global Impact
	(vii)	**MOOC**
		MOOC-1
		MOOC-2
		MOOC-3
	(viii)	**Seminars/Mini Projects/Projects**
		Project-I
		Project-II
	(ix)	**Mandatory Courses**
		Aptitude and Reasoning
		Indian Constitution
		Environmental Science
		Indian Community Services
		Seminar

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Chapter-1

General, Course structure, Theme and semester-wise credit distribution

A. Definition of Credit:

1.5 Hour Lecture (L) per week	1 credit
1.5 Hour Tutorial (T) per week	1 credit
3 Hours Practical (Lab)/week	1.5 credits

B. Total number of credits: 160

C. Minimum number of contact hours/weeks per semester: 15 weeks of teaching

i. For 1 credit course: 15 contact hours per semester
ii. For 2 credit course: 30 contact hours per semester
iii. For 3 credit course: 45 contact hours per semester
iv. For 4 credit course: 60 contact hours per semester

D. Course code and definition, Abbreviations

Course Symbol	**Definitions**
PCC	Professional Core Course
PEC	Professional Elective Course
Project-1 & 2	Project
OEC	Open Electives Course
MOOC	Massive Open Online Course
MC	Mandatory Courses
SI	Summer Internship
BSC	Basic Science Course
ESC	Engineering Science Courses
HSC	Humanities and Social Sciences including Management Science
SEM	Seminar

E. Structure of Program

S.No	Category	Break up of credits
1	Basic Science Courses	17
2	Engineering Science Courses	15.5
3	Humanities and Social Sciences including Management courses	10.5
4	Professional core courses	81
5	Professional Elective courses	9
6	Open Elective courses	6
7	Massive Open Online Course	9
8	Project work, seminar and internship in industry or elsewhere	12
9	Mandatory courses [Aptitude and reasoning, Environmental Science, Indian Constitution]	(non-credit)
	Total	160

F. Semester-wise Credits Distribution

	TOTAL	E1-S1	E1-S2	E2-S1	E2-S2	E3-S1	E3-S2	E4-S1	E4-S2	SUM Intern	AICTE
BSC	**17**	8.5	8.5	0	0	0	0	0	0	0	25
ESC	**15.5**	7	8.5	0	0	0	0	0	0	0	24
HSC	**10.5**	2.5	0	3	0	1.5	1.5	0	2	0	12
PCC	**81**	0	3	18	23	20	17	0	0	0	48
PEC	**15**	0	0	0	0	0	3	9	3	0	18
OEC	**9**	0	0	0	0	0	0	3	6	0	18
MOOC	**9**	0	0	0	0	0	3	3	3	0	-
PROJECTS/ INTERNSHIP	**12**	0	0	0	0	0	0	4	5	3	15
RGUKT Proposed	**160**	**18**	**20**	**21**	**23**	**21.5**	**21.5**	**16**	**16**	**3**	
AICTE	160	17.5	20.5	21	23	21	22	15	16	**0**	

Notations:

E1-S1: First Year Engineering First Semester
E1-S2: First Year Engineering Second Semester
E2-S1: Second Year Engineering First Semester
E2-S2: Second Year Engineering Second Semester
E3-S1: Third Year Engineering First Semester
E3-S2: Third Year Engineering Second Semester
E4-S1: Fourth Year Engineering First Semester
E4-S2: Fourth Year Engineering Second Semester
SUM INTERN: Summer Internship Program

CODES:

NAME OF DEPARTMENT	**CODE**
CHEMICAL	CH
CIVIL	CE
CSE	CS
ECE	EC
MECHANICAL	ME
MME	MM
CHEMISTRY	CY
PHYSICS	PY
MATHEMATICS	MA
ENGLISH	EG
MANGEMENT	BM
BIOSCIENCE	BE

Subject	01-09(Each Semester we have max 7 subjects including MC)
Lab	81 – 89(each semester we have max 3 Lab)
Professional Elective Courses	21-50
Open Elective Courses	51-70
Massive Open Online Courses	81-90
Summer internships	91
Project-1	92
Project-2	93
Seminar (If any)	94
Mini projects (If any 3 year)	95

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CHAPTER – 2
SEMESTER-WISE STRUCTURE OF CURRICULUM

Mandatory Induction Program

3 Weeks Duration
• Physical activity • Creative Arts • Universal Human Values • Literary • Proficiency Modules • Lectures by Eminent people • Visit to local areas • Familiarization of Dept./Branch Innovations

I Year – SEMESTER – I

COURSE STRUCTURE

S. No	Category	Code	Subject Name	L-T-P	Credits
1	BSC	20CY 1102	Engineering Chemistry	**3-0-0**	**3**
2	BSC	20MA 1101	Differential Equations and Multivariable Calculus	**3-1-0**	**4**
3	ESC	20CS 1108	Programming and Data Structures	**3-0-0**	**3**
4	ESC	20CE 1114	Engineering Graphics and Computer Drafting	**1-0-3**	**2.5**
6	BSC	20CY 1182	Engineering Chemistry Lab	**0-0-3**	**1.5**
5	HSC	20EG 1181	English Language Communication Skills Lab-I	**1-0-3**	**2.5**
7	ESC	20CS 1188	Programming and Data Structures Lab	**0-0-3**	**1.5**
8	MC	20HS 1104	Aptitude and Reasoning	**2-0-0**	**0**
				Total Credits	**18**

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I Year – SEMESTER – II

COURSE STRUCTURE

S. No	Category	Code	Subject Name	L-T-P	Credits
1	BSC	20PY 1202	Engineering Physics	**3-0-0**	**3**
2	BSC	20MA 1201	Mathematical Methods	**3-1-0**	**4**
3	ESC	20EE 1209	Basic Electrical and Electronics Engineering	**3-0-0**	**3**
4	ESC	20CE 1201	Engineering Mechanics	**3-1-0**	**4**
5	PCC	20CE 1202	Engineering Geology	**3-0-0**	**3**
6	BSC	20PY 1282	Engineering Physics Lab	**0-0-3**	**1.5**
7	ESC	20ME 1285	Workshop	**0-0-3**	**1.5**
8	MC	20BE 1201	Environmental Science	**2-0-0**	**0**
				Total Credits	**20**

II Year – SEMESTER – I

COURSE STRUCTURE

S.No	Category	Code	Subject Name	L-T-P	Credits
1	HSC	20BM 2101	Management Economics and Financial Analysis	**3-0-0**	**3**
2	PCC	20CE 2101	Building Materials and Construction	**2-1-0**	**3**
3	PCC	20CE 2102	Concrete Technology	**3-0-0**	**3**
4	PCC	20CE 2103	Mechanics of Fluids	**2-1-0**	**3**
5	PCC	20CE 2104	Mechanics of Materials-I	**2-1-0**	**3**
6	PCC	20CE 2105	Surveying-I	**3-0-0**	**3**
7	PCC	20CE 2181	Mechanics of Materials Lab	**0-0-3**	**1.5**
8	PCC	20CE 2182	Surveying Lab	**0-0-3**	**1.5**
9	MC	20HS 2101	Indian Constitution	**2-0-0**	**0**
				Total Credits	**21**

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II Year – SEMESTER – II

COURSE STRUCTURE

S.No	Category	Code	Subject Name	L-T-P	Credits
1	PCC	20CE 2201	Hydraulics Engineering	**2-1-0**	**3**
2	PCC	20CE 2202	Mechanics of Materials-II	**2-1-0**	**3**
3	PCC	20CE 2203	Soil Mechanics	**3-1-0**	**4**
4	PCC	20CE 2204	Structural Analysis	**3-1-0**	**4**
5	PCC	20CE 2205	Surveying-II	**2-1-0**	**3**
6	PCC	20CE 2206	Water Resources Engineering	**2-1-0**	**3**
7	PCC	20CE 2282	Concrete Technology Lab	**0-0-3**	**1.5**
8	PCC	20CE 2281	Hydraulics Engineering Lab	**0-0-3**	**1.5**
				Total Credits	**23**

III Year – SEMESTER – I

COURSE STRUCTURE

S.No	Category	Code	Subject Name	L-T-P	Credits
1	PCC	20CE 3101	Advanced Structural Analysis	**3-1-0**	**4**
2	PCC	20CE 3102	Design of Reinforced concrete Structures	**3-1-0**	**4**
3	PCC	20CE 3103	Environmental Engineering-I	**2-1-0**	**3**
4	PCC	20CE 3104	Estimation and Costing	**2-1-0**	**3**
5	PCC	20CE 3105	Transportation Engineering-I	**2-1-0**	**3**
6	HSC	20EG 3182	English Language Communication Skills Lab-II	**0-0-3**	**1.5**
7	PCC	20CE 3181	Soil Mechanics Lab	**0-0-3**	**1.5**
8	PCC	20CE 3182	Transportation Engineering Lab	**0-0-3**	**1.5**
				Total Credits	**21.5**

III Year – SEMESTER – II

COURSE STRUCTURE

S.No	Category	Code	Subject Name	L-T-P	Credits
1	PCC	20CE 3201	Building Planning and Computer Aided Drawing Lab	**1-0-3**	**2.5**
2	PCC	20CE 3202	Design of Steel Structures	**3-1-0**	**4**
3	PCC	20CE 3203	Environmental Engineering-II	**3-0-0**	**3**
4	PCC	20CE 3204	Foundation Engineering	**2-1-0**	**3**
5	PCC	20CE 3205	Transportation Engineering-II	**2-1-0**	**3**
6	PEC	20CE 32XX	Professional Elective Course-1/ MOOC-1	**3-0-0**	**3**
7	HSC	20EG 3283	English Language Communication Skills Lab-1	**0-0-3**	**1.5**
8	PCC	20CE 3282	Environmental Engineering Lab	**0-0-3**	**1.5**
				Total Credits	**21.5**

(CE 3291-SUMMER INTERNSHIP PROJECT - 3 CREDITS

IV Year – SEMESTER – I

COURSE STRUCTURE

S.No	Category	Code	Subject Name	L-T-P	Credits
1	PEC	20CE 41 XX	Professional Elective Course-2 /MOOC-2	**3-0-0**	**3**
2	PEC	20CE 41 XX	Professional Elective Course-3	**3-0-0**	**3**
3	PEC	20CE 41 XX	Professional Elective Course-4	**3-0-0**	**3**
4	OEC	20XX 41 XX	Open Elective Course-1	**3-0-0**	**3**
5	PROJ	20CE 4191	**Project-1**	**0-0-4**	**4**
6	SEM	20CE 4194	Seminar	**0-0-4**	**0**
				Total Credits	**16**

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IV Year – SEMESTER – II

COURSE STRUCTURE

S.No	Category	Code	Subject Name	L-T-P	Credits
1	PEC	20CE 42 XX	Professional Elective Course-5	**3-0-0**	**3**
2	OEC	20CE 42 XX	Open Elective Course-2/ MOOC-3	**3-0-0**	**3**
3	OEC	20XX 42 XX	Open Elective Course-3	**3-0-0**	**3**
5	PROJ	20CE 4192	**Project-2**	**0-0-5**	**5**
6	MC	20HS 4299	Indian Community Services	**0-0-0**	**2**
				Total Credits	**16**

CREDIT DISTRIBUTION

	TOTAL	**E1-S1**	**E1-S2**	**E2-S1**	**E2-S2**	**E3-S1**	**E3-S2**	**E4-S1**	**E4-S2**	**SUM Intern**	**AICTE**
BSC	**17**	8.5	8.5	0	0	0	0	0	0	0	25
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PEC	**9**	0	0	0	0	0	0	6	3	0	18
OEC	**6**	0	0	0	0	0	0	3	3	0	18
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PROJECTS/ INTERNSHIP	**12**	0	0	0	0	0	0	4	5	3	15
RGUKT Proposed	**160**	**18**	**20**	**21**	**23**	**21.5**	**21.5**	**16**	**16**	**3**	
AICTE	160	17.5	20.5	21	23	21	22	15	16	**0**	

LIST OF PROFESSIONAL ELECTIVE COURSES

Code	Category	Course Name
		STRUCTURAL ENGINEERING
20CE XX21	PEC	Finite Element Method
20CE XX22	PEC	Stability of Structures
20CE XX23	PEC	Prestressed Concrete Structures
20CE XX24	PEC	Advanced Reinforced Concrete Structures
20CE XX25	PEC	Advanced Concrete Technology
20CE XX26	PEC	Structural Dynamics
20CE XX27	PEC	Bridge Engineering
20CE XX28	PEC	Repair and Rehabilitation of Structures
20CE XX29	PEC	Earthquake Resistant Design
		TRANSPORTATION ENGINEERING
20CE XX30	PEC	Pavement Analysis and Design
20CE XX31	PEC	Urban Transportation and Planning
		HYDRAULICS & WATER RESOURCES ENGINEERING, ENVIRONMENTAL
20CE XX32	PEC	Watershed Management
20CE XX33	PEC	Irrigation and Water Power Engineering
20CE XX34	PEC	Advanced Hydraulics
		GEOTECHNICAL ENGINEERING
20CE XX36	PEC	Advanced Foundation Engineering
20CE XX37	PEC	Ground Improvement Techniques
		CONSTRUCTION ENGINEERING
20CE XX38	PEC	Construction Planning and Management
20CE XX39	PEC	Infrastructure Planning and Management
20CE XX40	PEC	Construction Economics and Finance
		GEOINFORMATICS
20CE XX41	PEC	Remote Sensing and GIS
20CEXX42	PEC	Environmental Geotechnics
20CEXX43	PEC	Sustainable Building Materials
20CEXX44	PEC	Functional Efficiency of Buildings
20CEXX45	PEC	Decision Making Methods in Civil Engineering
20CEXX46	PEC	Construction Safety Management

LIST OF OPEN ELECTIVE COURSES		
20CE XX51	OEC	Ground Water Hydrology
20CE XX52	OEC	Water Resources Systems
20CE XX53	OEC	Environmental Management & Impact Assessment
20CE XX54	OEC	Modern Construction Materials
20CE XX55	OEC	Green building and Landscape
20CE XX56	OEC	Civil Engineering Societal & Global Impact
20CEXX57	OEC	Solid and Hazardous Waste management
20CEXX58	OEC	Air Pollution and Control
Courses offered by Civil Engineering to other Departments		
For ECE,EEE, MECH,MME & CHEM		
20CEXX14	ESC	Engineering Graphics and Computer Drafting

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**********SYLLABUS START**********