



GOKARAJURANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Bachupally, Kukatpally, Hyderabad-500090, India. (040)65864440

B. Tech Civil Engineering GR20 Course Structure

I B. Tech (CE) - I Semester

S.No	BOS	Group	Course Code	Course Name	Credits				Hours				Int.	Ext	Total Marks
					L	T	P	Total	L	T	P	Total			
1	Maths	BS	GR20A1001	Linear Algebra and Differential Calculus	3	1	0	4	3	1	0	4	30	70	100
2	Physics	BS	GR20A1004	Engineering Physics	3	1	0	4	3	1	0	4	30	70	100
3	English	HS	GR20A1006	English	2	0	0	2	2	0	0	2	30	70	100
4	CSE	ES	GR20A1007	Programming for Problem Solving	2	1	0	3	2	1	0	3	30	70	100
5	ME	ES	GR20A1010	Engineering Graphics	1	0	2	3	1	0	4	5	30	70	100
6	Physics	BS	GR20A1013	Engineering Physics Lab	0	0	1.5	1.5	0	0	3	3	30	70	100
7	CSE	ES	GR20A1016	Programming for Problem Solving Lab	0	0	1.5	1.5	0	0	3	3	30	70	100
8	English	HS	GR20A1015	English Language and Communication Skills Lab	0	0	1	1	0	0	2	2	30	70	100
Total					11	3	6	20	11	3	12	26	240	560	800
9	Mgmt	MC	GR20A1020	Design Thinking	1	0	0	1	2	0	0	2	30	70	100

I B. Tech (CE) - II Semester

S.No	BOS	Group	Course Code	Course Name	Credits				Hours				Int.	Ext	Total Marks
					L	T	P	Total	L	T	P	Total			
1	Maths	BS	GR20A1002	Differential Equations and Vector Calculus	3	1	0	4	3	1	0	4	30	70	100
2	Chemistry	BS	GR20A1005	Engineering Chemistry	3	1	0	4	3	1	0	4	30	70	100
3	ME	ES	GR20A1009	Engineering Mechanics	3	1	0	4	3	1	0	4	30	70	100
4	CSE	ES	GR20A1011	Data Structures	2	1	0	3	2	1	0	3	30	70	100
5	Chemistry	BS	GR20A1014	Engineering Chemistry Lab	0	0	1.5	1.5	0	0	3	3	30	70	100
6	CSE	ES	GR20A1018	Data Structures Lab	0	0	1	1	0	0	2	2	30	70	100
7	ME	ES	GR20A1019	Engineering Workshop	1	0	1.5	2.5	1	0	3	4	30	70	100
TOTAL					12	4	4	20	12	4	09	25	210	490	700
8	Mgmt	MC	GR20A1021	Life skills and Personality Development	1	0	0	1	2	0	0	2	30	70	100

II B.Tech (CE)- I Semester

S. No	BOS	Group	Course Code	Course Name	Credits				Hours				Int.	Ext.	Total Marks
					L	T	P	Total	L	T	P	Total			
1	CE	PC	GR20A2009	Building Materials and Construction Planning	2	0	0	2	2	0	0	2	30	70	100
2	CE	PC	GR20A2010	Engineering Geology	2	0	0	2	2	0	0	2	30	70	100
3	CE	PC	GR20A2011	Solid Mechanics – I	2	1	0	3	2	1	0	3	30	70	100
4	Maths	BS	GR20A2008	Computational Mathematics for Engineers	3	0	0	3	3	0	0	3	30	70	100
5	CE	PC	GR20A2012	Introduction to Fluid Mechanics	3	0	0	3	3	0	0	3	30	70	100
6	CE	PC	GR20A2013	Surveying and Geomatics	3	0	0	3	3	0	0	3	30	70	100
7	CE	PC	GR20A2014	Engineering Geology lab	0	0	2	2	0	0	4	4	30	70	100
8	CE	PC	GR20A2015	Solid Mechanics Lab	0	0	2	2	0	0	4	4	30	70	100
TOTAL					15	1	4	20	15	1	8	24	240	560	800
9	Mgmt	MC	GR20A2002	Value Ethics and Gender Culture	2	0	0	2	2	0	0	2	30	70	100
10	Chemistry	MC	GR20A2001	Environmental Science	2	0	0	2	2	0	0	2	30	70	100

II B. Tech (CE)- II Semester

S. No	BOS	Group	Course Code	Course Name	Credits				Hours				Int.	Ext.	Total Marks
					L	T	P	Total	L	T	P	Total			
1	CE	PC	GR20A2016	Solid Mechanics – II	2	1	0	3	2	1	0	3	30	70	100
2	EEE	ES	GR20A2017	Basic Electrical and Electronics Engineering	3	0	0	3	3	0	0	3	30	70	100
3	CE	PC	GR20A2018	Structural Analysis – I	3	0	0	3	3	0	0	3	30	70	100
4	Mgmt	HS	GR20A2004	Economics and Accounting for Engineers	3	0	0	3	3	0	0	3	30	70	100
5	CE	PC	GR20A2019	Hydraulic Engineering	2	0	0	2	2	0	0	2	30	70	100
6	CE	PC	GR20A2020	Surveying Lab	0	0	2	2	0	0	4	4	30	70	100
7	CE	PC	GR20A2021	Computer Aided Design Lab	0	0	2	2	0	0	4	4	30	70	100
8	CE	PC	GR20A2022	Fluid Mechanics and Hydraulic Machinery Lab	0	0	2	2	0	0	4	4	30	70	100
TOTAL					13	1	6	20	13	1	12	26	240	560	800

III B. Tech (CE) - I Semester

S.No	BOS	Group	CourseCode	Course Name	Credits				Hours				Int	Ext	Total Marks
					L	T	P	Total	L	T	P	Total			
1	CE	PC	GR20A3001	Geotechnical Engineering	2	0	0	2	2	0	0	2	30	70	100
2	CE	PC	GR20A3002	Concrete Technology	2	0	0	2	2	0	0	2	30	70	100
3	CE	PC	GR20A3003	Hydrology and Water Resources Engineering	3	0	0	3	3	0	0	3	30	70	100
4	CE	PC	GR20A3004	Design of Reinforced Concrete Structures	2	1	0	3	2	1	0	3	30	70	100
5	CE	PE		Professional Elective-I	3	0	0	3	3	0	0	3	30	70	100
6	CE	OE		Open Elective-I	3	0	0	3	3	0	0	3	30	70	100
7	CE	PC	GR20A3010	Geotechnical Engineering Lab	0	0	2	2	0	0	4	4	30	70	100
8	CE	PC	GR20A3011	Concrete Technology Lab	0	0	2	2	0	0	4	4	30	70	100
TOTAL					15	1	4	20	15	1	8	24	240	560	800
9	Mgmt	MC	GR20A2003	Constitution of India	2	0	0	2	2	0	0	2	30	70	100

Professional Elective-I			
S.No.	BOS	Course Code	COURSE
1	CE	GR20A3005	Structural Analysis - II
2	CE	GR20A3006	Traffic Engineering and Management
3	CE	GR20A3007	Groundwater
4	CE	GR20A3008	Irrigation Management

Open Elective-I			
S.No.	BOS	Course Code	COURSE
1	CE	GR20A3009	Engineering Materials for Sustainability

III B. Tech (CE) - II Semester

S.No	BOS	Group	CourseCode	Course Name	Credits				Hours				Int	Ext	Total Marks
					L	T	P	Total	L	T	P	Total			
1	CE	PC	GR20A3081	Design of Steel Structures	2	1	0	3	2	1	0	3	30	70	100
2	CE	PC	GR20A3082	Foundation Engineering	3	0	0	3	3	0	0	3	30	70	100
3	CE	PC	GR20A3083	Environmental Engineering	2	0	0	2	2	0	0	2	30	70	100
4	CE	PE		Professional Elective-II	3	0	0	3	3	0	0	3	30	70	100
5	CE	OE		Open Elective-II	3	0	0	3	3	0	0	3	30	70	100
6	CE	PC	GR20A3089	Environmental Engineering Lab	0	0	2	2	0	0	4	4	30	70	100
7	CE	PC	GR20A3090	GIS Lab	0	0	2	2	0	0	4	4	30	70	100
8	CE	PW	GR20A3141	Mini Project with Seminar	0	0	2	2	0	0	4	4	30	70	100
TOTAL					13	1	6	20	13	1	12	26	240	560	800

Professional Elective II			
S.No	BOS	Course Code	COURSE
1	CE	GR20A3084	Masonry Structures
2	CE	GR20A3085	Rock Mechanics
3	CE	GR20A3086	Open Channel Flow
4	CE	GR20A3087	Construction Equipment and Automation

Open Elective II			
S.No	BOS	Course Code	COURSE
1	CE	GR20A3088	Geographic Information Systems and Science

IV B. Tech (CE) - I Semester

S. No	BOS	Group	Course Code	Course Name	Credits				Hours				Int	Ext	Total Marks
					L	T	P	Total	L	T	P	Total			
1	CE	PC	GR20A4001	Estimation and Costing	2	1	0	3	2	1	0	3	30	70	100
2	CE	PC	GR20A4002	Transportation Engineering	3	0	0	3	3	0	0	3	30	70	100
3	CE	PE		Professional Elective-III	3	0	0	3	3	0	0	3	30	70	100
4	CE	PE		Professional Elective-IV	3	0	0	3	3	0	0	3	30	70	100
5	CE	OE		Open Elective-III	3	0	0	3	3	0	0	3	30	70	100
6	CE	PC	GR20A4012	Transportation Engineering Lab	0	0	2	2	0	0	4	4	30	70	100
7	CE	PC	GR20A4013	Computer Applications in Structural Engineering Lab	0	0	2	2	0	0	4	4	30	70	100
8	CE	PW	GR20A4129	Project Work-Phase I	0	0	6	6	0	0	12	12	30	70	100
TOTAL					14	1	10	25	14	1	20	35	240	560	800

Professional Elective III			
S.No.	BOS	CourseCode	COURSE
1	CE	GR20A4003	Bridge Engineering
2	CE	GR20A4004	Ground Improvement Techniques
3	CE	GR20A4005	Surface Hydrology
4	CE	GR20A4006	Tall Buildings

Professional Elective IV			
S.No.	BOS	Course Code	COURSE
1	CE	GR20A4007	Industrial Structures
2	CE	GR20A4008	Geometric Design of Highways
3	CE	GR20A4009	Physico-Chemical Processes for Water and Wastewater Treatment
4	CE	GR20A4010	Rehabilitation and Retrofitting of Structures

Open Elective III			
S.No.	BOS	Course Code	COURSE
1	CE	GR20A4011	Environmental Impact Assessment and Life Cycle Analyses

IV B.Tech (CE) - II Semester

S.No	BOS	Group	Course Code	Course Name	Credits				Hours				Int	Ext	Total Marks
					L	T	P	Total	L	T	P	Total			
1	CE	PE		Professional Elective-V	3	0	0	3	3	0	0	3	30	70	100
2	CE	PE		Professional Elective-VI	3	0	0	3	3	0	0	3	30	70	100
3	Mgm T	HS	GR20A4091	Entrepreneurship and Project Management	2	1	0	3	2	1	0	3	30	70	100
4	CE	PW	GR20A4130	Project Work-Phase II	0	0	6	6	0	0	12	12	30	70	100
TOTAL					8	1	6	15	8	1	12	21	120	280	400

Professional Elective V			
S.No.	BOS	Course Code	COURSE
1	CE	GR20A4083	Prestressed Concrete
2	CE	GR20A4084	Pavement Design
3	CE	GR20A4085	Design of Hydraulic Structures
4	CE	GR20A4086	Construction Project Planning and Systems

Professional Elective VI			
S.No.	BOS	Course Code	COURSE
1	CE	GR20A4087	Earthquake Engineering
2	CE	GR20A4088	Urban Transportation and Planning
3	CE	GR20A4089	Green Building Technology
4	CE	GR20A4090	Pavement Materials

PROFESSIONAL ELECTIVES - 4 THREADS

S. No.	Structural Engineering	Geotechnical and Transportation Engineering	Environmental and Hydrology Engineering	Construction Technology & Management
1	Structural Analysis - II	Traffic Engineering and Management	Groundwater	Irrigation Management
2	Masonry Structures	Rock Mechanics	Open Channel flow	Construction Equipment and Automation
3	Bridge Engineering	Ground Improvement Techniques	Surface Hydrology	Tall Buildings
4	Industrial Structures	Geometric Design of Highways	Physico-Chemical Processes for Water and Wastewater Treatment	Rehabilitation and Retrofitting of Structures
5	Prestressed Concrete	Pavement Design	Design of Hydraulic Structures	Construction Project Planning & Systems
6	Earthquake Engineering	Urban Transportation and Planning	Green Building Technology	Pavement Materials

OPEN ELECTIVES FOR GR20 REGULATIONS:

THREAD 1	THREAD 2	OFFERED BY
1. Soft Skills and Interpersonal Communication 2. Human Resource Development and Organizational Behavior 3. Cyber Law and Ethics 4. Economic Policies in India	1. Principles of E-Commerce 2. Business Analytics 3. Augmented Reality and Virtual Reality	CSE
	1. Internet of Things 2. Augmented Reality and Virtual Reality 3. Human Computer Interaction	CSE (AIML)
	1. Augmented Reality and Virtual Reality 2. Internet of Things 3. Human Computer Interaction	CSE (DS)
	1. Services Science and Service Operational Management 2. IT Project Management 3. Marketing Research and Marketing Management	CSBS
	1. Artificial Intelligence 2. Introduction to Data Science 3. Human Computer Interaction	IT
	1. Non-Conventional Energy Sources 2. Machine Learning 3. Artificial Intelligence Techniques	EEE
	1. Principles of Communication 2. Sensor Technology 3. Cellular and Mobile Communications	ECE
	1. Robotics 2. Composite Materials 3. Operations Research	ME
	1. Engineering Materials for Sustainability 2. Geographic Information Systems and Science 3. Environmental Impact Assessment and Life Cycle Analyses	CE