



**Gokaraju Rangaraju Institute of Engineering and Technology**  
**(Autonomous)**

GRIET/CE/BOS/IE/G/21-22

9<sup>th</sup> April 2022

Minutes of Meeting

For

**I & II M. Tech Structural Engineering**

(For Students admitted from 2022-23 as per GR22 Regulations)

**Board of Studies**

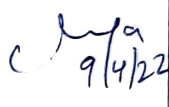
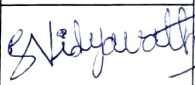



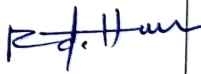

Held on 9<sup>th</sup> April 2022

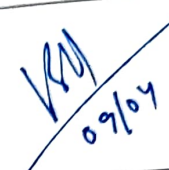
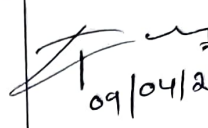

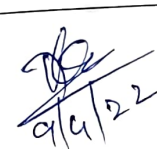





**GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous)

Minutes of meeting of the BOS for M. Tech Structural Engineering, Course Structure and Syllabus approval for 1 & II-year GR22 Regulation of Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous) held on 9<sup>th</sup> April 2022 in the Department of Civil Engineering, GRIET at 11:30 AM.

Venue: Room No:4212, Seminar Hall, Civil Engineering Department.

S.No.	Name of the member	Position in the Current Engagements	Position in the BOS	Signature
<b>Chairperson</b>				
1	Dr C Lavanya	Professor & HOD, Department of Civil Engineering, GRIET, Hyderabad	Chairman	
<b>University Nominee</b>				
2	Dr S Vidyavathi	Professor, Department of Civil Engineering, JNTUH, Kukatpally	JNTUH Nominee	
<b>Educationist or Industrialist</b>				
3	Dr M V Seshagiri Rao	Professor, Department of Civil Engineering, CVR College of Engineering	External Expert (Academics)	
4	Dr. R. Prasanna Kumar	Professor & HOD, Department of Civil Engineering, Geetanjali College of Engineering & Technology.	External Expert (Academics)	
5	Dr V V Krishna Reddy	Chief Consultant & Proprietor, M/S Continental Designers Project Consultant	External Expert (Industry)	
<b>Members</b>				
6	Dr Mohammad Hussain	Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	
7	Dr G V V Satyanarayana	Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	

8	Dr V Srinivasa Reddy	Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	 09/04
9	Dr T Srinivas	Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	 09/04/22
10	Dr O S D Hima Bindu	Associate Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	 9/4/22
11	Mr T Srikanth	Associate Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	 9/4/22
12	Mr A Prakash	Assistant Professor, Department of Civil Engineering, GRIET, Hyderabad	Internal Member	 alun
13	Dr R Raman Goud	Professor, Department of Mechanical Engineering, GRIET, Hyderabad	Internal Member	 Raman
14	Ms K Ramya	System Support Engineer, Tata Consultancy Services, Hyderabad	Alumni	 Ramya

**Item 1:** Syllabus subject to approval by Academic council is confirmed for M.Tech Structural Engineering I & II Year.

**Item 2:** Subjects of BS, ES, HS and MC are confirmed by BOS of respective Departments.

**Item 3:** Evaluation Scheme suggested as per GR22 to be adopted.

**Item 4:** Panel of Examiners are suggested.

**Item 5:** Existing Practices to be strengthened and continued.



# GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

## ACTION TO BE TAKEN IN M. TECH COURSE STRUCTURE AND SYLLABUS

Minutes of meeting of the BOS for M. Tech Structural Engineering, Course Structure and Syllabus approval for I & II-year GR22 Regulation of Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous) held on 9<sup>th</sup> April 2022 in the Department of Civil Engineering, GRIET at 11:30 AM.

Venue: Room No:4212, Seminar Hall, Civil Engineering Department.

The following members constitute the board of studies of Civil Engineering, with effect from the Academic year 2021-22.

- |   |                                |
|---|--------------------------------|
| 1. Dr C Lavanya, Professor & I/C HOD, DCE, GRIET  | BOS Chairman                   |
| 2. Dr S Vidyavathi, Professor, DCE, JNTUH, Kukatpally   | JNTU Nominee                   |
| 3. Dr M V Seshagiri Rao, Professor, DCE, CVR College of Engineering                                     | External Expert<br>(Academics) |
| 4. Dr. R. Prasanna Kumar, Professor & HOD, DCE, Geetanjali College of Engineering & Technology          | External Expert<br>(Academics) |
| 5. Dr V V Krishna Reddy, Chief Consultant & Proprietor,<br>M/S Continental Designers Project Consultant | External Expert<br>(Industry)  |
| 6. Dr Mohammad Hussain, Professor, DCE, GRIET   | Internal Member                |
| 7. Dr G V V Satyanarayana, Professor, DCE, GRIET  | Internal Member                |
| 8. Dr V Srinivasa Reddy, Professor, DCE, GRIET  | Internal Member                |
| 9. Dr T Srinivas, Professor, DCE, GRIET   | Internal Member                |
| 10. Dr O S D Hima Bindu, Associate Professor, DCE, GRIET  | Internal Member                |
| 11. Mr T Srikanth, Associate Professor, DCE, GRIET  | Internal Member                |
| 12. Mr A Prakash, Assistant professor, DCE, GRIET   | Internal Member                |
| 13. Dr R Raman Goud, Professor, DME, GRIET  | Co-opted Member                |
| 14. Ms K Ramya, System Support Engineer, TCS, Hyderabad   | Alumni                         |

Head of the department welcomed all members in BOS meeting and discussed the following points to be considered in the syllabus.

S.No	Actionable Items	Action to be Taken by
1	All the subjects must be included with Text Books and Reference Books separately with latest edition and year of Publication in uniform count and Citation.	Mrs K Hemalatha
2	<b>Theory of Thin Plates and Shells</b> is introduced as new Course in Professional Elective V in place of Analysis and Design of Shells and Folded Plates.	Dr V Mallikarjuna Reddy
3	<b>Theory and Application of Cement Composites:</b> Unit I, Unit II and Unit III are to be included with advanced topics as per AICTE guidelines as the syllabus is similar to Advanced Concrete Technology Unit I: Introduction-Classification and Characteristics of Composite Materials Unit II: Mechanical Behaviour Unit III: Cement Composites	Dr V Srinivasa Reddy
4	<b>Structural Design Lab:</b> ETABS Software name is be mentioned along with syllabus	Mr C Vivek Kumar
5	<b>Advanced Structural Engineering Lab:</b> Assessment of flexural behaviour of under reinforced R.C. Beam and Over Reinforced RC beam are included as Experiment 11 and 12.	Dr G V V Satyanarayana



BOS - Chairman

PROFESSOR AND HEAD  
Department of Civil Engineering  
Gokaraju Rangaraju Institute of  
Engineering and Technology  
Bachupally, Kukatpally,  
Hyderabad-500 090





**GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous)

Internal Minutes of meeting of the BOS for M. Tech Structural Engineering, Course Structure and Syllabus approval for I & II-year GR22 Regulation of Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous) held on 29<sup>th</sup> Jan 2022 through Online mode from 2:30 PM to 4:00 PM.

S.No	Name of the Member	Position in the current Engagements	Position in the BOS
<b>Chairperson</b>			
1	Dr C Lavanya	Professor, DCE, GRIET	Chairman
<b>Members</b>			
2	Dr V. Mallikarjun Reddy	Professor, DCE, GRIET	Internal Member
3	Dr. Mohammed Hussain	Professor, DCE, GRIET	Internal Member
4	Dr. V.Srinivasa Reddy	Professor, DCE, GRIET	Internal Member
5	Dr. G.V.V. Satyanarayana	Professor, DCE, GRIET	Internal Member
6	Dr. T.Srinivas	Professor, DCE, GRIET	Internal Member
7	Dr K Srikanth	Associate Professor, DCE, GRIET	Internal Member
8	Dr. O.S.D. Hima Bindu	Associate Professor, DCE, GRIET	Internal Member
9	Ms. K.Hemalatha	Assistant Professor, DCE, GRIET	Internal Member
10	Mr V Naresh Kumar Varma	Assistant Professor, DCE, GRIET	Internal Member
11	Mr A Vittalaiah	Assistant Professor, DCE, GRIET	Internal Member
12	C Vivek Kumar	Assistant Professor, DCE, GRIET	Internal Member
13	A Prakash	Assistant Professor, DCE, GRIET	Internal Member
14	G Swetha	Assistant Professor, DCE, GRIET	Internal Member
15	Polina V V S S R Krishna	Assistant Professor, DCE, GRIET	Internal Member
16	Mr. C Vanadeep	Assistant Professor, DCE, GRIET	Internal Member
17	Mr. V.Ramesh	Assistant Professor, DCE, GRIET	Internal Member
18	Ms. T. Jahnvi	Assistant Professor, DCE, GRIET	Internal Member
19	K Veera Babu	Assistant Professor, DCE, GRIET	Internal Member

The members of board of studies during the meeting held on 29<sup>th</sup> January 2022 through Online meeting discussed thoroughly and drew the following recommendations for I and II years of GR22 Regulation:

1. All the subjects must be included with Pre-Requisites and action verbs in Course objectives, Course outcomes as per Blooms Taxonomy levels.
2. The following recommendations were done in Course Structure:
  - i) Advanced Concrete Lab title is changed with Advanced Concrete Technology Lab.
  - ii) Advanced Structural Engineering lab is introduced as new lab Course in I year II semester.
3. In Analytical and Numerical Methods for Structural Engineering syllabus is rearranged as follows
  - i) Solution of Nonlinear Algebraic and Transcendental Equations and Error Analysis topics is assigned in Unit I from Unit III.
  - ii) Fundamentals of Numerical Methods and Curve Fitting is allocated in Unit III from Unit I
  - iii) Richardson Extrapolation and Implicit & Explicit scheme concepts are removed from Unit IV
  - iv) Boundary Value problems were added in Unit IV
  - v) Developing an algorithm for simple mathematical problems concepts are added in Unit V
4. Structural Health Monitoring - RF/PSTN/GSM/Satellite Communications, Networking of sensor, Data compression technique is added in Unit II as today Health monitoring of all structures governed by sensors only.
5. Structural Design Lab-
  - i) Dynamic analysis of multi-storeyed structure added in Task 9 along with static analysis
  - ii) Analysis and design of retaining wall, Analysis of bridge deck slab experiments are removed as it is time consuming for both experiments.
6. Design of Advanced Structures-
  - i) Ribbed Slabs title is added in Unit I
  - ii) Design of Deck slab bridges title is changed with design of bridges and included design of T beam bridge in Unit V
7. Cost Management of Engineering projects-
  - i) Project site, data required for significance topics removed from Unit II as the topics repeated in same unit.
  - ii) Cost-Volume-Profit Analysis & Balanced Score Card and Value-Chain Analysis concepts are restricted to theory only in Unit III.
  - iii) Transportation and Assignment problems topics are restricted to only theory as these topics are related to another specialization.



**BOS-Chairman**

PROFESSOR AND HEAD  
Department of Civil Engineering  
Gokaraju Rangaraju Institute of  
Engineering and Technology  
Bachupally, Kukatpally,  
Hyderabad-500 090



**GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous)

**DEPARTMENT OF CIVIL ENGINEERING**

**M.Tech Structural Engineering**

**Comparison of syllabus**

S.No	Name of the Course	GR20 to GR22	POs
1	New Courses	Advanced Structural Engineering Lab Theory of Thin Plates and Shells	1,2,3,4,5,6 1,2,3,4,5,6
2	Title Change	Advanced Concrete lab title is changed with Advanced Concrete Technology Lab	1,4,5,6
3	Professional electives and open electives	Five professional electives starting from I yr I sem and one open elective in II yr I sem	-
4	Analytical and Numerical Methods for Structural Engineering	Syllabus is rearranged in all units. Boundary Value problems were added in Unit IV and developing an algorithm for simple mathematical problems concepts are added in Unit V	1,3,4,5,6
5	Structural Health Monitoring	RF/PSTN/GSM/Satellite Communications, Networking of sensor, Data compression technique is added in Unit II	1,3,4,5,6
6	Structural Design Lab	Dynamic analysis of multi-storeyed structure added in Task 9 & Analysis and design of retaining wall, Analysis of bridge deck slab experiments are removed	1,2,3,4,5,6
7	Design of Advanced Structures	Design of Deck slab bridges title is changed with design of bridges and included design of T beam bridge in Unit V	1,2,3,4,5,6
8	Cost Management of Engineering projects	Cost-Volume-Profit Analysis & Balanced Score Card and Value-Chain Analysis concepts, Transportation and Assignment problems topics are restricted to theory only in Unit III	4,5,6
9	Theory and Application of Cement Composites	Unit I, Unit II and Unit III are included with advanced topics as per AICTE guidelines as the syllabus is similar to Advanced Concrete Technology	1,5,6

**BOS-Chairman**

**PROFESSOR AND HEAD**  
Department of Civil Engineering  
Gokaraju Rangaraju Institute of  
Engineering and Technology  
Bachupally, Kukatpally,  
Hyderabad-500 090





# GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Bachupally, Kukatpally, Hyderabad-500090, India

## STRUCTURAL ENGINEERING M. Tech (STE) GR22 Course Structure

### I YEAR - I SEMESTER

Sl. No	Group	Course Code	Subject	Credits			Total Credits	Hours			Total Hours	Int. Marks	Ext. Marks	Total Marks
				L	T	P		L	T	P				
1	PC	GR22D5001	Matrix methods in structural analysis	3	0	0	3	3	0	0	3	40	60	100
2	PC	GR22D5002	Advanced Solid Mechanics	3	0	0	3	3	0	0	3	40	60	100
3	PE I	GR22D5003	1. Theory and Application of Cement Composites	3	0	0	3	3	0	0	3	40	60	100
		GR22D5004	2. Advanced Concrete Technology											
		GR22D5005	3. Theory of Structural Stability											
4	PE II	GR22D5006	1. Analytical and Numerical Methods for Structural Engineering	3	0	0	3	3	0	0	3	40	60	100
		GR22D5007	2. Structural Health Monitoring											
		GR22D5008	3. Structural Optimization											
5	PC	GR22D5009	Structural Design Lab	0	0	2	2	0	0	4	4	40	60	100
6	PC	GR22D5010	Advanced Concrete Technology Lab	0	0	2	2	0	0	4	4	40	60	100
7	PC	GR22D5011	Research Methodology and IPR	2	0	0	2	2	0	0	2	40	60	100
<b>Total</b>				<b>14</b>	<b>0</b>	<b>4</b>	<b>18</b>	<b>14</b>	<b>0</b>	<b>8</b>	<b>22</b>	<b>280</b>	<b>420</b>	<b>700</b>
8	AC		Audit Course I	0	0	0	0	2	0	0	2	40	60	100

### I YEAR - II SEMESTER

Sl. No	Group	Course Code	Subject	Credits			Total Credits	Hours			Total Hours	Int. Marks	Ext. Marks	Total Marks
				L	T	P		L	T	P				
1	PC	GR22D5012	FEM in Structural engineering	3	0	0	3	3	0	0	3	40	60	100
2	PC	GR22D5013	Structural Dynamics	3	0	0	3	3	0	0	3	40	60	100
3	PE III	GR22D5014	1. Advanced Steel Design	3	0	0	3	3	0	0	3	40	60	100
		GR22D5015	2. Design of Formwork											
		GR22D5016	3. Principles of Bridge Engineering											
4	PE IV	GR22D5017	1. Design of Advanced Concrete Structures	3	0	0	3	3	0	0	3	40	60	100
		GR22D5018	2. Advanced Design of Foundations											
		GR22D5019	3. Earthquake Resistant Design of Buildings											
5	PC	GR22D5020	Advanced Structural Engineering Lab	0	0	2	2	0	0	4	4	40	60	100
6	PC	GR22D5021	Numerical Analysis Lab	0	0	2	2	0	0	4	4	40	60	100
7	PW	GR22D5144	Mini Project	0	0	2	2	0	0	4	4	50	50	100
<b>Total</b>				<b>12</b>	<b>0</b>	<b>6</b>	<b>18</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>24</b>	<b>280</b>	<b>420</b>	<b>700</b>
8	AC		Audit Course II	0	0	0	0	2	0	0	2	40	60	100