

Concrete Technology Lab

(GR18A3012)

III B.Tech – I Semester

(AY 2021-22)

by

Mr. Y. Kamala Raju

Assistant Professor



Department of Civil Engineering

Gokaraju Rangaraju Institute of Engineering and Technology

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440



**Gokaraju Rangaraju Institute of Engineering and
Technology**

Department of Civil Engineering

Concrete Technology Lab

Course File Check List

S. No.	Name of the Format	Page No.
1	Syllabus	
2	Time Table	
3	Program Educational Objectives	
4	Program Objectives	
5	Course Objectives	
6	Course Outcomes	
7	Students Roll List	
8	Guide lines to study the course books & references, course design & delivery	
9	Course Schedule	
10	Unit Plan/Course Plan	
11	Evaluation Strategy	
12	Assessment in relation to COB's and CO's	
13	Tutorial Sheets	
14	Assignment Sheets	
15	Rubric for course	
16	Mappings of CO's and PO's	
17	Model question papers	
18	Mid-I and Mid-II question papers	
19	Mid-I marks	
20	Mid-II marks	
21	Sample answer scripts and Assignments	
22	Course materials like Notes, PPT's, Videos, etc,	

GOKARAJU RANGARAJU

INSTITUTE OF ENGINEERING AND TECHNOLOGY



GR 18 Regulations

Course Code: GR18A3012
III Year I Semester

L T P C
0 0 2 1

Course Objectives: The objectives of this course is to make the student to

1. Familiarize the students with physical and mechanical properties of cement concrete constituents
2. Provide practical knowledge and understanding towards the materials used for concrete.
3. Provide exposure about the fresh and hardened concrete
4. Acquire practical skills in the area of cement, fresh and hardened concretetesting.
5. Give good understanding about water to be added to cement for various purposes.

Course Outcomes: After completion of this course, students will be able to

1. Identify the suitable materials used for concrete for particular purpose
2. Gauge the quality control of Cement and concrete
3. Identify, describe and carry out the main laboratory tests relevant to the use of concrete on site
4. Design normal concrete mixes.
5. Interpret the properties in term to design or invent the new materials

List of Experiments:

1. Normal Consistency test on cement
2. Initial Setting time and final setting time of cement
3. Fineness test of cement
4. Specific gravity of cement
5. Soundness test of cement
6. Compressive strength of cement
7. Sieve analysis of coarse and fine aggregate
8. Bulking of sand (Field test & Laboratory Test)
9. Workability test on concrete using slump Cone
10. Workability test on concrete by compaction factor test
11. Workability test on concrete by Vee-Bee Test
12. Young's modulus and compressive strength of concrete
13. Split tensile strength test on concrete



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
Concrete Technology Lab

TIME TABLE



Gokaraju Rangaraju Institute of Engineering and Technology
 Department of Civil Engineering
 Time-Table AY: 2021-22 (I-Semester)

Section: B								III Year								wef: 01-09-2021								ROOM NO	
Day/Time	09:00-09:55		09:55-10:50		10:50-11:45		11:45-12:25		12:25-01:15		01:15-02:05		02:05-02:55		Theory / Tutorial	4208									
Monday	GTE				DCS-I				Lunch Break	HWRE				PPC				Lab	GTE LAB 4102&04/CT LAB 4110/EE LAB 4202						
Tuesday	EE		DCS-I				GTE				EIA&L														
Wednesday	EE		EIA&L				DCS-I			COI				III Year Co-ordinator											
Thursday	SA-II				HWRE					GTE LAB(B1)/CT LAB(B2)								Dr. K. Srikanth							
Friday	EE		HWRE				CT LAB(B1)/EE LAB(B2)								Class Co-Ordinator										
Saturday	SA-II		EIA&L				GTE LAB(B2)/EE LAB(B1)								Mrs. G. Swetha										

Course Code	Course Shortform	Course Name	Faculty Name (Short Code - Staff ID)	Almanac	
GR18A3001	SA - II	Structural Analysis II	Mr.Siva Prasad Raju Vundi (Mr.SPR-840)	1st Spell of Instruction	16-08-2021 To 16-10-2021
GR18A3002	GTE	Geotechnical Engineering	Dr. C. Lavanya (Dr. C.L - 804)	1st Mid-term Examinations	18-10-2021 To 20-10-2021
GR18A3003	DCS-I	Design of Concrete Structures I	Dr. T. Srinivas (Dr. T.S -1106)	2nd Spell of Instruction	21-10-2021 To 08-12-2021
GR18A3004	EE	Environmental Engineering	Mr. A. Vittalaiah(1499)	2nd Mid-term Examinations	09-12-2021 To 11-12-2021
GR18A3005	HWRE	Hydrology & Water Resources Engineering	Dr. Mohammed Hussain(Dr.Mohd.H-861)	Preparation	13-12-2021 To 18-12-2021
GR18A3008	EIA&L	Environmental Impact Assessment and Life	Mr. T. Srikanth (Mr. T.S -1360)	End Semester Examinations (Theory/Practicals) Regular/Supplementary	20-12-2021 To 08-01-2022
GR18A3010	GTE Lab	Geotechnical Engineering Lab	Mrs. G. Swetha(Mrs. G.S-1558)/Mrs. Manisha Gunturi(Mrs.MG-1647)		
GR18A3011	EE Lab	Environmental Engineering Lab	Mr. C. Vanadeep (Mr. CV-1645)/Dr. K. Srikanth (Dr. KS -1594)		
GR18A3012	CT Lab	Concrete Technology Lab	Mr. Y. Kamala Raju (Mr. YKR-929)/Mr. Siva Raju Vundi(Mr. SPR-840)		
GR18A2003	COI	Constitution of India	Dr. Atulkumar Anil Manchaiwar(Dr. AKM-1589)		
GR18A6003	PPC	Project Planning and Control	Mrs. K. Hemalatha(Mrs. KH-1177)		



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

PROGRAMME EDUCATIONAL OBJECTIVES

B.Tech Programme Educational Objectives (PEOs)

1. Graduates of the program will be successful in technical and professional career of varied sectors of Civil Engineering.
2. Graduates of the program will have proficiency to analyse and design real time Civil Engineering projects.
3. Graduates of the program will exhibit management and leadership qualities with good communication skills facilitating to work in a multidisciplinary team.
4. Graduates of the program will continue to engage in life-long learning with ethical and social responsibility.

B.Tech Programme Outcomes(POs)

Graduates of the Civil Engineering programme will be able to

- a. Apply knowledge of mathematics, science and fundamentals of Civil Engineering.
- b. Analyse problem and interpret the data.
- c. Design a system component, or process to meet desired needs in Civil Engineering within realistic constraints.
- d. Identify, formulate, analyse and interpret data to solve Civil Engineering problems.
- e. Use modern engineering tools such as CAD and GIS for the Civil Engineering practice.
- f. Understand the impact of engineering solutions in a global, economic and societal context.
- g. Understand the effect of Civil Engineering solutions on environment and to demonstrate the need for sustainable development.
- h. Understanding of professional and ethical responsibility.
- i. Work effectively as an individual or in a team and to function on multi-disciplinary context.
- j. Communicate effectively with engineering community and society.
- k. Demonstrate the management principles in Civil Engineering projects.
- l. Recognize the need for and an ability to engage in life-long learning.

B. Tech Program Specific Outcomes (PSOs)

1. Recognize the need for a sustainable environment and design smart infrastructure considering the global challenges.
2. Create and develop innovative designs with new era materials through research and development.



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

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

COURSE OBJECTIVES

Academic Year : 2021-22 Semester : I

Name of the Program: B.Tech Year: I Year Section: A,B,B

Course/Subject : Concrete Technology Lab Course Code : GR18A3012

Name of the Faculty : Mr. Y Kamala Raju

Designation: Assistant Professor Department: Civil Engineering

On completion of this Subject/Course the student shall be able to:

S. No	Course Objectives
1	Familiarize the students with physical and mechanical properties of cement concrete constituents
2	Provide practical knowledge and understanding towards the materials used for concrete.
3	Provide exposure about the fresh and hardened concrete
4	Acquire practical skills in the area of cement, fresh and hardened concrete testing.
5.	Give good understanding about water to be added to cement for various purposes.

Signature of HOD

Signature of faculty

Date:

Date:

Note: Please refer to Bloom's Taxonomy, to know the illustrative verbs that can be used to state the objectives.



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

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

COURSE OUTCOMES

Academic Year : 2021-22 **Semester** : **II**

Name of the Program: B.Tech **Year: I Year Section: A,B,B**

Course/Subject : Concrete Technology Lab **Course Code** : GR18A3012

Name of the Faculty : Mr. Y Kamala Raju

Designation: Associate Professor / Assistant Professor

Department: Civil Engineering

On completion of this Subject/Course the student shall be able to:

S. No	Course Outcomes
1	Identify the suitable materials used for concrete for particular purpose
2	Gauge the quality control of Cement and concrete
3	Identify, describe and carry out the main laboratory tests relevant to the use of concrete
4	Design normal concrete mixes.
5	Design normal concrete mixes.

Signature of HOD

Signature of faculty

Date:

Date:

Note: Please refer to Bloom's Taxonomy, to know the illustrative verbs that can be used to state the objectives.



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
2021-22 BATCH STUDENT ROLL LIST

S.No	Reg No	Student Name
1	18241A0151	SOHEB PATEL
2	18241A0152	SRIAM SHIVA ADITYA
3	19241A0101	RUHAIL AHMAD LONE
4	19241A0102	AITHA SAI TEJA
5	19241A0103	BARISSETTY SHIVA KARTHIK
6	19241A0104	BENDHI VARUN THEJA GOUD
7	19241A0105	BHUKYA VAMSHI
8	19241A0106	BOGE VENKAT ROHITH
9	19241A0107	BONTHA PRANEETHKUMAR
10	19241A0108	CHILUKA RAHUL
11	19241A0109	DANDI KIRAN
12	19241A0110	DAYYA RAGNESH
13	19241A0111	E MANISH GOUD
14	19241A0112	ERRAM SAI PRIYA
15	19241A0113	G DEEPIKA
16	19241A0114	GORANTALA SAI
17	19241A0115	GUGULOTHU SANTHOSH
18	19241A0116	GURIJALA SAI KUMAR
19	19241A0117	GURUJALA SRIDHAR

20	19241A0118	IRUVANTI HEMANTH KUMAR
21	19241A0119	JANGITI VYSHNAVI
22	19241A0120	JARUPLA CHERAN
23	19241A0121	
24	19241A0122	JETTI SREEVANI
25	19241A0123	K SOWMYA
26	19241A0124	KADALI KRISHNASRI SAI
27	19241A0125	KAMAREDDY AKSHAY
28	19241A0126	KATTA SAI KUMAR
29	19241A0127	KOLLURI.TEJASWI
30	19241A0128	KONDAPURAM SRIJA
31	19241A0129	KOTTE VIVEK
32	19241A0130	KRUTHIKA VIJAY PALANGE
33	19241A0131	MADA AKHIL REDDY
34	19241A0132	MADARAM SHRAVAN KUMAR REDDY
35	19241A0133	MADDIGATLA AJAY SAGAR
36	19241A0134	CHANDANA MALPATEL
37	19241A0135	MANDALA CHINNI
38	19241A0136	MIREGILLA VIJAYAKUMAR
39	19241A0137	MOHD OBAID KASHIF
40	19241A0138	NARAPAKA MADHAV KUMAR
41	19241A0139	NIMMALA ARSHITHA
42	19241A0140	PAPAGALLA MAHAVEER
43	19241A0141	P SIDDARTHA

44	19241A0142	PAGIDIPALLY AJAY KUMAR
45	19241A0143	PALLAPU NAVEEN
46	19241A0144	PALLE SANATH KUMAR
47	19241A0145	PANTANGI PRANAY
48	19241A0146	PATIL SWAPNIL
49	19241A0147	POLISETTY SAAHAS
50	19241A0148	S.SAITEJA
51	19241A0149	SAI NEERAJ M
52	19241A0150	SATYA SAI PRASANNA REDDY SOLIPETA
53	19241A0151	SHAIK BILAL
54	19241A0152	SHAIK FIRDOUS AYESHA
55	19241A0153	SOORA VIKAS
56	19241A0154	TELLAM SRI SAI PAVANA ROSHINI
57	19241A0155	THALLAPALLY SWARANYA
58	19241A0156	THUMATI VENKATA VAYUNANDHAN
59	19241A0157	UDUMULA NIKHIL REDDY
60	19241A0158	VELISHALA GAYATHRI
61	19241A0159	VENKATA SIDDHARTHA RAJU VEGESNA
62	19241A0160	YASWANTH KURUVA
63	19241A0161	ABDUL RAHEEM
64	19241A0162	ANEMONI MURALI MANOHAR
65	19241A0163	ASKANY HARISH SAGAR
66	19241A0164	BODLA AKSHITH
67	19241A0165	BURRA VAMSHI KRISHNA

68	19241A0166	CHERLAKOLA AKHILA
69	19241A0167	CHINTAPALLI VIKRAM
70	19241A0168	CHIRRIBOYINA DHANYA
71	19241A0169	D SREE MADHURI
72	19241A0170	GADDAM SAHITHI
73	19241A0171	GAJJALA SUKENDHAR REDDY
74	19241A0172	YASHASWI GANGAVARAM
75	19241A0173	GINDHAM ADITYA KUMAR
76	19241A0174	GUDHETI NARENDAR REDDY
77	19241A0175	GUMMADI SAI PRATEEK REDDY
78	19241A0176	HANMAPUR DHEERAJ GOUD
79	19241A0177	JAVVAJI AISHWARYA
80	19241A0178	JULAPALLY NITHIN RAO
81	19241A0179	K NAVEEN
82	19241A0180	K RAJESHWARI
83	19241A0181	KACHAVA SURENDAR
84	19241A0182	KODATHALA INDU
85	19241A0183	KOTARU SRINIVASA VARAPRASAD
86	19241A0184	MALOTH RAHUL
87	19241A0185	MATURI SATHVIK
88	19241A0186	MD ABDUL MAAJID
89	19241A0187	MEDARI DAYANA
90	19241A0188	NARSINGA SANDEEP
91	19241A0189	PALANATI ROHITH
92	19241A0190	PURALASETTY BHAVANA

93	19241A0191	RODDA MALAVIKA REDDY
94	19241A0192	SAPRAM NAGA SRILOWKYA MUKTHA
95	19241A0193	SHAIK PARVEZ ANSARI
96	19241A0194	SIDDELA THARUN KUMAR
97	19241A0195	TALARI CHANDANA SREE
98	19241A0196	VALLEPU KALYAN
99	19241A0197	VRASHAB PATEL
100	19241A0198	YELLAVULA NARENDER
101	19241A0199	BADDELA SAI THARUN
102	20245A0101	Aamanchi Bowmi
103	20245A0102	Aviraboina Sai Chaithanya
104	20245A0103	Bairy B S Anirudh
105	20245A0104	Daddu Tejasree
106	20245A0105	Dopathi Raviteja
107	20245A0106	Eruventi Niharika
108	20245A0107	Gaddamidi Anil
109	20245A0108	Gandla Rishik Raj
110	20245A0109	Gone Naveen Kumar
111	20245A0110	Kota Vishal
112	20245A0111	Kummari Mahesh
113	20245A0112	Lakavath Anil
114	20245A0113	Madavaram Rohith
115	20245A0114	Mandala Akshitha
116	20245A0115	M Manjunath

117	20245A0116	Porandla Nababhusanam
118	20245A0117	Pulishetty Bhavani
119	20245A0118	Racha Kranthi Ranadeer
120	20245A0119	S Manoj Kumar
121	20245A0120	Samudrala Manideep
122	20245A0121	Sangepaga Goutham
123	20245A0122	Sodadasi Rahul
124	20245A0123	Vanga Harshith
125	20245A0124	Choleti Vineetha
126	20245A0125	Gangula Grishma
127	20245A0126	Bollampalli Sai Poojith
128	20245A0127	Pamulapati Sumanth
129	20245A0128	T Sanghamithra
130	20245A0129	Abeda Akanksha
131	20245A0130	Doppalapudi Ramvineeth Sai
132	20245A0131	Pilly Uday Kiran

Signature of HOD
Date:

Signature of faculty
Date:



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

BOOKS AND MATERIALS

Text Books

1.	Concrete Technology Lab Manual
2.	CONCRETE TECHNOLOGY by M S Setty
3.	Concrete technology by Navelle

Suggested / Reference Books

6.	Concrete technology by N Krishna Raju
7.	Concrete Technology by M L Ghambhir

Web Sites

8	https://www.youtube.com/watch?v=6ju8mig4VoU&list=PLbMVogVj5nJT6RXXK4VKPGOfWHp2ZH8xin
.	https://www.youtube.com/watch?v=yzpWGrh9j6Y
	https://www.youtube.com/watch?v=jZHF90PSaac



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

COURSE DESIGN AND DELIVERY SYSTEM (CDD)

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, projects, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

- Understand the principles of Learning
- Understand the psychology of students
- Develop instructional objectives for a given topic
- Prepare course, unit and lesson plans
- Understand different methods of teaching and learning
- Use appropriate teaching and learning aids
- Plan and deliver lectures effectively
- Provide feedback to students using various methods of Assessments and tools of Evaluation
- Act as a guide, advisor, counselor, facilitator, motivator and not just as a teacher alone

Signature of HOD

Signature of faculty

Date:

Date:



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

COURSE SCHEDULE

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech.

Year: I

Section: A,B

Course/Subject: Concrete Technology Lab

Course Code: GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju

Department: Civil Engineering

Designation: Assistant Professor

The Schedule for the whole Course / Subject is:

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	Introduction and Demonstration	16-8-2021	16-8-2021	1 day
2.	Cycle-I	17-8-2021	3-11-2021	9 Weeks
3.	Cycle-II	8-11-2021	29-12-2021	8 Weeks
4.	Revision of Exercise-I/II Experiments	31-12-2021	5-1-2022	1 Weeks
5.	Preparation and Practical Examinations	7-1-2022	12-1-2022	1 Weeks
6.	End Semester Examinations	16-1-2022	30-1-2022	2 Weeks

1. Total No. of Instructional periods available for the course: **75** Hours / Periods



Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)

Department of Civil Engineering
Concrete Technology Lab

Cycle-1: Experiments based on properties of cement and Concrete

1. Normal Consistency test on cement
2. Initial Setting time and final setting time of cement
3. Fineness test of cement
4. Specific gravity of cement
5. Soundness test of cement
6. Compressive strength of cement

Cycle-II: Experiments based on Engineering Properties of cement and Concrete

7. Sieve analysis of coarse and fine aggregate
8. Bulking of sand (Field test & Laboratory Test)
9. Workability test on concrete using slump Cone
10. Workability test on concrete by compaction factor test
11. Workability test on concrete by Vee-Bee Test
12. Compressive Strength of concrete
13. Split tensile strength test on concrete



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
SCHEDULE OF INSTRUCTIONS
COURSE PLAN

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech.

Year: I **Section: A,B**

Course/Subject: Concrete Technology Lab

Course Code: GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju

Department: Civil Engineering

Designation: Assistant Professor

Exercise.	Lesson No.	Date	No. of Periods	Topics / Sub-Topics	Objectives & Outcomes Nos.	References (CT Lab Manual) Page Nos.: ___ to ___
1.	1.	16 Aug 21	3	Tests on cement - Consistency, Setting times, Soundness, Compressive Strength.	COB's - 1,3 CO's - 1,2	30 to 38
	2.	17 Aug 21	3	Gradation Charts of Aggregates.	COB's - 1,3 CO's - 1,2	21 to 24
	3.	23 Aug 21	3	Bulking of fine Aggregate	COB's - 1,3 CO's - 1,2	16 to 20
2.	4.	24 Aug 21	3	Aggregate Crushing and Impact value	COB's - 1,3 CO's - 1,2	10 to 15
	5.	3 Sep 21	3	Compressive strength of cement	COB's - 1,3 CO's - 1,2	59 to 62
	6.	3 Sep 21	3	Sieve analysis of coarse and fine aggregate	COB's - 1,3 CO's - 1,2	62 to 66
3.	7.	17 Sep 21	3	Bulking of sand (Field test & Laboratory Test)	COB's - 1,3 CO's - 1,2	67 to 73
	8.	24 Sep 20	3	Workability test on concrete using slump Cone	COB's - 1,3 CO's - 1,2	63 to 64
	9.	1 Oct 21	3	Workability test on concrete by compaction factor test	COB's - 1,3 CO's - 1,2	74 to 79
	10.	8 Oct 21	3	Workability test on concrete by Vee-Bee Test	COB's - 1,3 CO's - 1,2	94 to 101
4.	11.	21 Oct 21	3	Compressive strength of concrete	COB's - 1,3 CO's - 1,2	45 to 58
	12.	29 Oct 21	3	Split tensile strength test on concrete	COB's - 1,3 CO's - 1,2	80 to 86

Signature of HOD

Signature



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering

COURSE SCHEDULE

Academic Year : 2021-22

Semester : II

Name of the Program: B.Tech.

Year: I **Section: B**

Course/Subject: Concrete Technology Lab

Course Code: GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju

Designation: Assistant Professor

Department: Civil Engineering

The Schedule for the whole Course / Subject is:

S. No.	Description	Duration (Date)		Total No. of Periods
		From	To	
1.	Introduction and Demonstration	16-8-2021	16-8-2021	1 day
2.	Cycle-I	17-8-2021	3-11-2021	9 Weeks
3.	Cycle-II	8-11-2021	29-12-2021	8 Weeks
4.	Revision of Exercise-I/II Experiments	31-12-2021	5-1-2022	1 Weeks
5.	Preparation and Practical Examinations	7-1-2022	12-1-2022	1 Weeks
6.	Revision	16-1-2022	30-1-2022	2 Weeks

1. Total No. of Instructional periods available for the course: **75** Hours / Periods

3. MENTION THE CORRESPONDING COURSE OBJECTIVE AND OUT COME NUMBERS AGAINST EACH TOPIC.



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

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

DEPARTMENT OF CIVIL ENGINEERING

SESSION PLAN

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech** - Section **A1** Semester: **1**

Subject: **CONCRETE TECHNOLOGY LAB** Sub Code : **GR18A3012**

Faculty: **Mr. V Naresh Kumar Varma/Mr. P.V.S.S Krishna**

S.No.	Exp.No	DATE	Topics
1	-	17-08-2021	Introduction& importance of Concrete technology lab, Introduction about IS456-2000, Quality of materials required to make concrete
2	1	24-08-2021	Normal consistency of Cement
3	2	31-08-2021	Initial and Final setting time
4	3 & 4	07-09-2021	Fineness of Cement, Specific gravity of Cement
5	5	14-09-2021	Compressive strength of Cement
6	6	21-09-2021	Soundness of Cement
7		28-09-2021	Revision of Ist cycle Experiments

8	7	05-10-2021	Bulking of sand field test & Laboratory test
9	8	12-10-2021	Seive Analysis of Fine Aggregate
10	8	26-10-2021	Seive Analysis of Coarse Aggregate
11	9	02-11-2021	Workability of Concrete by Slump test
12	10	09-11-2021	Workability of Concrete by Compaction factor test
13	11	16-11-2021	Workability of Concrete by Vee-Bee test
14	12 & 13	23-11-2021	Compressive Strength & Split tensile strength of Concrete
15		30-11-2021	Revision of IInd cycle Experiments
16		07-12-2021	Lab Internal



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

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

DEPARTMENT OF CIVIL ENGINEERING

SESSION PLAN

(ACADEMIC YEAR: 2021-22)

Branch: **CIVIL ENGINEERING** Class: **III Year B.Tech - Section A2** Semester: **1**

Subject: **CONCRETE TECHNOLOGY LAB** Sub Code : **GR18A3012**

Faculty: **Mr. V Naresh Kumar Varma/Mr. P.V.S.S Krishna**

S.No.	Exp.No	DATE	Topics
1	-	16-08-2021	Introduction & importance of Concrete technology lab, Introduction about IS456-2000, Quality of materials required to make concrete
2	1	23-08-2021	Normal consistency of Cement
3	2	06-09-2021	Initial and Final setting time
4	3 & 4	13-09-2021	Fineness of Cement, Specific gravity of Cement
5	5	20-09-2021	Compressive strength of Cement
6	6	27-09-2021	Soundness of Cement
7	-	04-10-2021	Bulking of sand field test & Laboratory test
8	7	11-10-2021	Seive Analysis of Fine Aggregate

9	8	25-10-2021	Seive Analysis of Coarse Aggregate
10	8	01-11-2021	Workability of Concrete by Slump test
11	9	08-11-2021	Workability of Concrete by Compaction factor test
12	10	15-11-2021	Workability of Concrete by Vee-Bee test
13	11	22-11-2021	Compressive Strength & Split tensile strength of Concrete
14	12 & 13	29-11-2021	Revision
15		06-12-2021	Lab Internal



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year: I** **Section: A,B**

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 1 Duration of Lesson: 6hr

Lesson Title : Determination of Normal consistency of cement

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Normal consistency of cement
2. Importance of Normal consistency
3. Procedure to find the Normal consistency.
4. Impact of water content on Normal consistency

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Vicat Apparatus,
Normal consistency,
Percentage of water,
Gauging Time
Plasticity.

Signature of faculty

Note: Mention for each question the relevant Objectives and Outcomes Nos.



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 2 Duration of Lesson: 6hr

Lesson Title : Determination of Initial & Final Setting times of cement

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Initial & Final Setting times of cement
2. Importance of Normal consistency in Initial & Final Setting times of cement
3. Procedure to find Initial & Final Setting times of cement.
4. Impact of water content on Initial & Final Setting times of cement

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Vicat Apparatus, Needle,
Initial & Final Setting times of cement,
Percentage of water,
Gauging Time
Start of losing Plasticity & completely losing Plasticity.

Assignment / Questions: Signature of faculty
Note: Mention for each question the relevant Objectives and Outcomes Nos.



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year: I** **Section: A,B**

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 3 Duration of Lesson: 6hr

Lesson Title : Determination of Soundness of cement

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Soundness of cement.
2. Importance of Normal consistency in Soundness of cement.
3. Test Procedure to find Soundness of cement due to excess lime content.
4. Importance of soundness in construction , expansion limit in cement

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Le chatlier Apparatus,
Soundness & unsound ness of cement,
Permissible Limit of expansion in cement.

Assignment / Questions:

Signature of faculty

Note: Mention for each question the relevant Objectives and Outcomes Nos.



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 4 Duration of Lesson: 6hr

Lesson Title : Determination of Specific gravity of cement

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Specific gravity of cement.
2. Importance & role of Specific gravity of cement in preparing concrete.
3. Test Procedure to find Specific gravity of cement using density bottle method.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Density bottle method Apparatus,
Specific gravity of cement,
Importance of kerosene in as a media in find Specific gravity of cement.

Assignment / Questions:

Signature of faculty

Note: Mention for each question the relevant Objectives and Outcomes Nos.



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 5 Duration of Lesson: 6hr

Lesson Title : Determination of Fineness of cement.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Fineness of cement.
2. Importance & role of Fineness of cement in preparing concrete.
3. Test Procedure to find Fineness of cement using sieve analysis.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fineness of cement ,
Sieve analysis,
Importance of Fineness of cement,
Limits of fineness.

Assignment / Questions:

Signature of faculty

Note: Mention for each question the relevant Objectives and Outcomes Nos..



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 6 **Duration of Lesson:** 6hr

Lesson Title : Determination of Compressive Strength of cement

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Compressive Strength of cement
2. Importance & role of Compressive Strength of cement in preparing concrete.
3. Test Procedure to find Compressive Strength of cement
4. Experience Importance of curing
5. Have knowledge on gain of compressive strength of cement with time.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Compressive Strength of cement
Water requirement to on strength of cement
Curing peroid

Assignment / Questions:

Signature of faculty

Note: Mention for each question the relevant Objectives and Outcomes Nos.



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year: I** **Section: A,B**

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 7 Duration of Lesson: 6hr

Lesson Title : Determination of Bulking of sand

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Bulking of sand
2. Importance & role of Bulking of sand
3. Test Procedure to find Bulking of sand
4. Experience Importance of Bulking of sand
5. Gain knowledge on bulking of sand.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Bulking of sand
Percentage of bulking
Percentage of Moisture content
Surface moisture content on fine aggregate
Effect of bulking on different grading like fine grading, medium grading & coarse grading.
Optimum moisture content.

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year: I** **Section: A,B**

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 8 Duration of Lesson: 6hr

Lesson Title : Determination of fineness modulus of Fine Aggregate

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Sieve Analysis
2. Importance & role of Sieve Analysis
3. Test Procedure to find fineness modulus of fine aggregate
4. Experience & Importance of Fineness modulus ,Average size of aggregate
5. Gain knowledge on sieve sizes.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Sieve Analysis
Fineness modulus ,
Average size of aggregate .

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 9 Duration of Lesson: 6hr

Lesson Title : Determination of fineness modulus of Coarse Aggregate

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Sieve Analysis
2. Importance & role of Sieve Analysis
3. Test Procedure to find fineness modulus of Coarse aggregate
4. Experience & Importance of Fineness modulus ,Average size of aggregate
5. Gain knowledge on sieve sizes.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Sieve Analysis
Fineness modulus ,
Average size of aggregate.

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 10 Duration of Lesson: 6hr

Lesson Title : Determination of Workability of fresh concrete using Slump test of Concrete

INSTRUCTIONAL/LESSON OBJECTIVES

1. Learn about Workability of fresh concrete using Slump test of concrete
2. Importance & role of Workability
3. Test Procedure to find Workability of fresh concrete using Slump test of concrete
4. Experience Importance of setting time of concrete
5. Gain knowledge on gain of compressive strength of cement with time.
6. Experience effect Water /cement ratio on Workability.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fresh concrete ,Workability ,
Water / Cement Ratio, Slump of concrete,
Type of slump: True, shear and collapse ,
Degree of workability: Very low, Low, Medium ,High, very high.

Assignment / Questions:

On completion of this lesson the student shall be able to:

Signature of faculty

Note: Mention for each question the relevant Objectives and Outcomes Nos.



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 11 Duration of Lesson: 6hr

Lesson Title : Determination of Workability of fresh concrete using Compaction Factor test of concrete

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Workability of fresh concrete using Compaction factor test of concrete
2. Importance & role of Workability in compaction
3. Test Procedure to find Workability of fresh concrete using Compaction factor test of concrete
4. Experience Importance of setting time of concrete
5. Gain knowledge on gain of compressive strength of cement with time.
6. Experience effect Water /cement ratio on Workability in terms of compaction.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fresh concrete ,Workability ,
Water / Cement Ratio, Compaction factor,
Partially compacted, Fully compacted.
Range of compaction factor-0.78-0.95

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 12 Duration of Lesson: 6hr

Lesson Title : Determination of Workability of fresh concrete using Vee Bee test of Concrete

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Workability of fresh concrete using Vee Bee test of concrete
2. Importance & role of Workability in vibration
3. Test Procedure to find Workability of fresh concrete using Vee Bee test of concrete
4. Experience Importance of setting time of concrete
5. Gain knowledge on gain of compressive strength of cement with time.
6. Experience effect Water /cement ratio on Workability in terms of vibration.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fresh concrete ,Workability ,
Water / Cement Ratio, vibration,
Measurement Of vibration in time.

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 13 Duration of Lesson: 6 hr

Lesson Title : Determination of Compressive Strength of concrete

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Compressive Strength of concrete
2. Importance & role of Compressive Strength of concrete with time
3. Test Procedure to find Compressive Strength of concrete.
4. Experience Importance of Compressive Strength of concrete
5. Gain knowledge on gain of compressive strength of cement with time.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fresh concrete ,
Hardened concrete,
Curing period,
Failure of compression specimen

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year: I** **Section: A,B**

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 14 Duration of Lesson: 6 hr

Lesson Title : Determination of accelerating curing of concrete

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Compressive Strength of concrete
2. Importance & role of Compressive Strength of concrete with time
3. Test Procedure to find Compressive Strength of concrete.
4. Experience Importance of Compressive Strength of concrete
5. Gain knowledge on gain of compressive strength of cement with time.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fresh concrete ,
Hardened concrete,
Curing period,
Failure of compression specimen

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

LESSON PLAN

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech. **Year:** I **Section:** A,B

Course/Subject: Concrete Technology Lab **Course Code:** GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju **Department:** Civil Engineering

Designation: Assistant Professor

Lesson No : 15 Duration of Lesson: 6 hr

Lesson Title : Determination of air entrainment of concrete

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Learn about Compressive Strength of concrete
2. Importance & role of Compressive Strength of concrete with time
3. Test Procedure to find Compressive Strength of concrete.
4. Experience Importance of Compressive Strength of concrete
5. Gain knowledge on gain of compressive strength of cement with time.

TEACHING AIDS : white board, marker, Demonstration

TEACHING POINTS :

Fresh concrete ,
Hardened concrete,
Curing period,
Failure of compression specimen

Assignment / Questions:

Signature of faculty



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
COURSE COMPLETION STATUS

Academic Year : 2021-22

Semester : I

Name of the Program: M.Tech.

Year: I **Section: A,B**

Course/Subject: Concrete Technology Lab

Course Code: GR18A3012

Name of the Faculty: Mr. Y. Kamala Raju

Department: Civil Engineering

Designation: Assistant Professor

Actual Date of Completion & Remarks, if any

Units	Remarks	No. of Objectives Achieved	No. of Outcomes Achieved
Exercise - I	Covered on time	1	1,2
Exercise – I	Covered on time	2	2,5
Exercise – II	Covered on time	3	3
Exercise - II	Covered on time	4	4

Signature of HOD

Signature of faculty

Date:

Date:

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.

Note: After the completion of each unit mention the number of Objectives & Outcomes Achieved.



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
EVALUATION STRATEGY

Academic Year : 2021-22

Semester : I

Name of the Program: B.Tech.

Year: I

Section: A,B

Course/Subject: Concrete Technology Lab

Course Code: GR18A3012

Name of the Faculty: Mr.Y. Kamala Raju

Department: Civil Engineering

Designation: Assistant Professor

1. TARGET:

- a) Percentage for pass: 100%
- b) Percentage of class:

First class with distinction	115
First class	15
Pass class	-
Total strength	130

2. COURSE PLAN & CONTENT DELIVERY

- 87 to 102 practice classes held for detailed demonstration of experiments and for analyzing real time experiments in the lab.

3. METHOD OF EVALUATION

- 3.1 Continuous Assessment Examinations (CAE-I, CAE-II)
- 3.2 Assignments/Seminars
- 3.3 Mini Projects
- 3.4 Quiz
- 3.5 Semester/End Examination
- 3.6 Others

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subjects in this Semester.

- Introducing new experiments relating to soil design parameters.

Signature of HOD

Date:

Signature of faculty

Date:



Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

Assessment in relation to CO's and COB's

Assessment:

1. Assignment
2. Internal Examination
3. External Examination
4. Practical Projects
5. Viva

Assessments	Course Outcomes				
	1	2	3	4	5
1	X				
2					X
3			X		
4		X		X	
5	X				

Assessments	Course Objectives				
	1	2	3	4	5
1			X		X
2		X			
3					
4	X				
5					



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

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

Mappings of CO's, COB's Vs PO's, POB's

Course Objectives - Course Outcomes Relationship Matrix

Course Objectives \ Course Outcomes	Course Outcomes				
	1	2	3	4	5
1		X			
2					
3				X	
4					
5					X

Course Outcomes - Program Outcomes relations (Contributions: High, Medium and Low)

Concrete Technology Lab (GR18A3012) CO's	a	b	c	d	e	f	g	h	i	j	k	l
1. Identify the suitable materials used for concrete for particular purpose	H	H		M						M		H
2. Gauge the quality control of Cement and concrete	M	H		H								M
3. Identify, describe and carry out the main laboratory tests relevant to the use of concrete on site	M			M				M				H
4. Design normal concrete mixes.	H	M						H	M	M		M
5. Interpret the properties in term to design or invent the new materials	M	H		M				M				

Course Objectives - Program Outcomes (PO's) Relationship Matrix

Course Objectives \ Program Outcomes	Program Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
1	H	H		M						M		H
2	M	H		H								M
3	M			M				M				H
4	H	M						H	M	M		M
5	M	H		M				M				

Course Outcomes - Program Outcomes relations (PO's) Relationship Matrix

Course Outcomes \ Program Outcomes	Program Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
1	x	x		x						x		x
2	x	x		x								x
3	x	x		x				x				x
4	x	x						x	x	x		
5	x	x						x	x	x		x

Courses (with title & code)-Program Outcomes (PO's) Relationship Matrix

Course: Concrete Technology Lab

Program Educational Objectives (PEOs) - Course Outcomes Relationship Matrix

Program Educational Objectives					
Course Outcomes	1	2	3	4	5
1			X		X
2		X			
3					
4	X				
5					



Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

Assessment in Program Outcomes (PO's) Relationship Matrix

Assessment:

1. Assignment
2. Internal Examination
3. External Examination
4. Practical Projects
5. Viva

P-Outcomes	A	B	C	D	E	F	G	H	I	J	K	L
C-Outcomes												
1	H	M	M	H		M	M	H	H	H	H	H
2	H	M	M	H		M	H	M	M	M	M	M
3	H	H	M	M		H	H	M	M	M	M	M
4	H	H	H	H		M	M	M	M	M	M	M
5	M	M	M	M		M	M	M	M	M	M	M

Assignments & Assessments-Program Educational Objectives (PEO's) Relationship Matrix

Assessment:

1. Assignment
2. Internal Examination
3. External Examination
4. Practical Projects
5. Viva

Program Educational Objectives Course Outcomes	1	2	3	4	5
CO1	H	H	H	H	H
CO2					
CO3	M	M	M		M
CO4		M		M	M
CO5	M		M		

Constituents – Program Outcomes (Po's) Relationship Matrix
 Constituencies: 1) Industry 2) Management 3) Students 4) Parents



Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

Rubric Template – Concrete Technology Lab

Academic Year : 2021-22 **Semester:** II

Name of the Program: B.Tech **Year:** I Year **Section:** A,B,B

Course/Subject : Concrete Technology Lab **Course Code** : GR18A3012

Name of the Faculty : Mr.Y. Kamala Raju

Designation: Assistant Professor

Department: Civil Engineering

Objectives: To learn theory and practical aspects of Concrete Technology Lab

		Beginning	Developing	Reflecting Development	Accomplished	Exemplary	Score
Name of the Student	Performance Criteria	1	2	3	4	5	
19241A2 094	Level of knowledge on fundamental laboratory tests and collect, analyze or synthesize appropriate data.	Inability to perform fundamental laboratory tests or collect, analyze, or synthesize appropriate data	Able to collect, analyze, and synthesize data related to the properties and behavior of soils in the geotechnical laboratory	Ability to observe collection of samples, perform fundamental laboratory tests, and collect, analyze, and synthesize appropriate data.	Knowledge on collection of Samples & independently perform fundamental laboratory tests, and collect, analyze, and synthesize appropriate data with few procedural errors	Full knowledge on collection of soil samples, independently perform fundamental laboratory tests, and collect, analyze, and synthesize appropriate data with no procedural errors	5
	Level of knowledge on properties of soil and assessment using appropriate laboratory analysis.	Low level of knowledge on soil properties and the respective laboratory analyses.	Able to understand the importance of vital soil parameters and effecting factors.	Ability to apply the knowledge of soil properties in choosing appropriate laboratory analysis	Full Knowledge on properties of soil and assessment of vital parameters using laboratory analyses.	Analyzing all practical aspects of soil properties and their key role in the field of construction.	5
	Level of knowledge on strength parameters of soil and their real time applications.	Low level of knowledge on strength parameters of soil and their real time applications.	Able to understand the strength parameters of soil under various loading conditions.	Ability to apply the knowledge in the determination of strength parameters of soil	Full knowledge on strength parameters of soil and the respective laboratory analyses.	Analyzing the importance of strength parameters of soil under various existing conditions and their respective applications.	5



Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

Concrete Technology Lab

Internal Examination Model Question Paper

01. Determine the Initial Setting Time of Given Cement Sample and Briefly Explain the components, types of cements.
02. Determine The Normal Consistency of the Given Cement Sample & Explain the Importance of Normal Consistency of cement.
03. Determine The Soundness Of The Given Cement Sample. & Explain The Bogue's components Of Cement.
04. Determine The Compressive Strength of the Given Cement Sample and Explain the types of cements.
05. Determine The Optimum Dosage Superplasticizer Of The Given Cement Sample By Marsh Cone Test & what are types of admixtures
06. Determine The Bulking OF Given Fine Aggregate Sample In The Laboratory.
07. Determine The Bulking OF Given Fine Aggregate Sample In The Field.
08. Determine The Fineness Modulus Of Course Aggregates. Explain The Effect Of Air Entrainment Test On Fresh Concrete.
09. Determine Crushing Strength Of The Given Course Aggregates Sample. Write A Short Note On Influence Of W/C Ratio On Compressive Strength
10. Determine The Impact Strength Of The Given Course Aggregates Sample. Write A Short Note On Influence Of W/C Ratio On Compressive Strength.
11. Determine The Compressive Strength of Given Beam Element and column element By Non Destructive Testing of Concrete (Rebound Hammer Test).
12. Determine The Compressive Strength Of M25 Grade Of Concrete For W/C Ratio Of 0.40 By Accelerated Curing Of Concrete & Write A Short Note On The Influence Of Different Chemical Admixtures On Concrete.
13. Determine The Slump Value M20 Grade Of Concrete For W/C Ratios Of 0.50. Write A Short Note On The Influence Of Different Chemical Admixtures On Concrete.
14. Examine The Effect Of Partial Compaction To Fully Compaction Of Fresh Concrete Of M25 Grade For Water To Cement Ratios Of 0.45. Write A Short Note On The Influence Of Different Chemical Admixtures On Concrete.
15. Determine The Vee- Bee Time of M25 Grade of Concrete At w/c ratio is 0.40. Write A Short Note On The Influence Of Different Chemical Admixtures On Concrete.



Gokaraju Rangaraju Institute of Engineering and Technology
Department of Civil Engineering
Concrete Technology Lab

ASSIGNMENT -I

- 1) Determine The Initial Setting Time of Given Sample of Cement.
- 2) Investigate The Fineness of The Cement and Explain About the Importance in Detail.
- 3) Determine The Specific Gravity of The Given Sample of Cement.
- 4) Test The Given Sample of Fine Aggregate for Bulking in The Laboratory.
- 5) Find Out That the Given Sample of Cement Is Sound or Not. Explain The Cause for Unsound Ness of Cement.



Gokaraju Rangaraju Institute of Engineering & Technology

Department of Civil Engineering

III B.Tech I Semester A Section, Academic Year 2021-22

CT Lab- Internal Lab Exam Marks

S.No	Reg. No	NAME OF THE CANDIDATE	Internal Exam (10)	Internal Assessment (10)	Record (5)	Attendance (5)	Total Marks (30)
1	18241A0151	SOHEB PATEL	8	9	5	5	27
2	18241A0152	SRIAM SHIVA ADITYA	AB	3	1	1	5
3	19241A0101	RUHAIL AHMAD LONE	AB	3	1	1	5
4	19241A0102	AITHA SAI TEJA	9	10	5	5	29
5	19241A0103	BARISSETTY SHIVA KARTHIK	7	8	5	4	24
6	19241A0104	BENDHI VARUN THEJA GOUD	7	8	5	4	24
7	19241A0105	BHUKYA VAMSHI	7	8	5	4	24
8	19241A0106	BOGE VENKAT ROHITH	5	5	3	3	16
9	19241A0107	BONTHA PRANEETHKUMAR	6	6	5	4	21
10	19241A0108	CHILUKA RAHUL	5	5	3	3	16
11	19241A0109	DANDI KIRAN	8	9	5	5	27
12	19241A0110	DAYYA RAGNESH	3	10	5	5	23
13	19241A0111	E MANISH GOUD	6	6	5	4	21
14	19241A0112	ERRAM SAI PRIYA	9	10	5	5	29
15	19241A0113	G DEEPIKA	7	8	5	4	24
16	19241A0114	GORANTALA SAI	7	8	5	4	24
17	19241A0115	GUGULOTHU SANTHOSH	10	10	5	5	30
18	19241A0116	GURIJALA SAI KUMAR	3	10	5	5	23
19	19241A0117	GURUJALA SRIDHAR	5	5	3	3	16
20	19241A0118	IRUVANTI HEMANTH KUMAR	8	9	5	5	27
21	19241A0119	JANGITI VYSHNAVI	10	10	5	5	30
22	19241A0120	JARUPLA CHERAN	9	10	5	5	29
23	19241A0122	JETTI SREEVANI	7	8	5	4	24
24	19241A0123	K SOWMYA	7	8	5	4	24
25	19241A0124	KADALI KRISHNASRI SAI	8	9	5	5	27
26	19241A0125	KAMAREDDY AKSHAY	3	10	5	5	23
27	19241A0126	KATTA SAI KUMAR	7	8	5	4	24
28	19241A0127	KOLLURI.TEJASWI	7	8	5	4	24
29	19241A0128	KONDAPURAM SRIJA	9	10	5	5	29

30	19241A0129	KOTTE VIVEK	3	10	5	5	23
31	19241A0130	KRUTHIKA VIJAY PALANGE	3	10	5	5	23
32	19241A0131	MADA AKHIL REDDY	7	8	5	4	24
33	19241A0132	MADARAM SHRAVAN KUMAR REDDY	9	10	5	5	29
34	19241A0133	MADDIGATLA AJAY SAGAR	5	5	3	3	16
35	19241A0134	CHANDANA MALPATEL	6	6	5	4	21
36	19241A0135	MANDALA CHINNI	3	10	5	5	23
37	19241A0136	MIREGILLA VIJAYAKUMAR	6	6	5	4	21
38	19241A0137	MOHD OBAID KASHIF	7	8	5	4	24
39	19241A0138	NARAPAKA MADHAV KUMAR	3	10	5	5	23
40	19241A0139	NIMMALA ARSHITHA	9	10	5	5	29
41	19241A0141	P SIDDARTHA	AB	3	1	1	5
42	19241A0142	PAGIDIPALLY AJAY KUMAR	6	6	5	4	21
43	19241A0143	PALLAPU NAVEEN	10	10	5	5	30
44	19241A0144	PALLE SANATH KUMAR	7	8	5	4	24
45	19241A0145	PANTANGI PRANAY	10	10	5	5	30
46	19241A0146	PATIL SWAPNIL	3	10	5	5	23
47	19241A0147	POLISETTY SAAHAS	9	10	5	5	29
48	19241A0148	S.SAITEJA	9	10	5	5	29
49	19241A0149	SAI NEERAJ M	8	9	5	5	27
50	19241A0150	SATYA SAI PRASANNA REDDY SOLIPETA	AB	3	1	1	5
51	19241A0151	SHAIK BILAL	6	6	5	4	21
52	19241A0152	SHAIK FIRDOUS AYESHA	9	10	5	5	29
53	19241A0153	SOORA VIKAS	6	6	5	4	21
54	19241A0154	TELLAM SRI SAI PAVANA ROSHINI	9	10	5	5	29
55	19241A0155	THALLAPALLY SWARANYA	8	9	5	5	27
56	19241A0156	THUMATI VENKATA VAYUNANDHAN	10	10	5	5	30
57	19241A0157	UDUMULA NIKHIL REDDY	9	10	5	5	29
58	19241A0158	VELISHALA GAYATHRI	10	10	5	5	30
59	19241A0159	VENKATA SIDDHARTHA RAJU VEGESNA	8	9	5	5	27
60	19241A0160	YASWANTH KURUVA	9	10	5	5	29
61	19241A0159	ABDUL RAHEEM	8	9	5	5	27
62	19241A0160	ANEMONI MURALI MANOHAR	AB	3	1	1	5
63	19241A0161	ASKANY HARISH SAGAR	AB	3	1	1	5
64	19241A0162	BODLA AKSHITH	9	10	5	5	29

65	19241A0163	BURRA VAMSHI KRISHNA	7	8	5	4	24
66	19241A0164	CHERLAKOLA AKHILA	7	8	5	4	24
67	19241A0165	CHINTAPALLI VIKRAM	7	8	5	4	24
68	19241A0166	CHIRRIBOYINA DHANYA	5	5	3	3	16
69	19241A0167	D SREE MADHURI	6	6	5	4	21
70	19241A0168	GADDAM SAHITHI	5	5	3	3	16
71	19241A0169	GAJJALA SUKENDHAR REDDY	8	9	5	5	27
72	19241A0170	YASHASWI GANGAVARAM	3	10	5	5	23
73	19241A0171	GINDHAM ADITYA KUMAR	6	6	5	4	21
74	19241A0172	GUDHETI NARENDAR REDDY	9	10	5	5	29
75	19241A0173	GUMMADI SAI PRATEEK REDDY	7	8	5	4	24
76	19241A0174	HANMAPUR DHEERAJ GOUD	7	8	5	4	24
77	19241A0175	JAVVAJI AISHWARYA	10	10	5	5	30
78	19241A0176	JULAPALLY NITHIN RAO	3	10	5	5	23
79	19241A0177	K NAVEEN	5	5	3	3	16
80	19241A0178	K RAJESHWARI	8	9	5	5	27
81	19241A0179	KACHAVA SURENDAR	10	10	5	5	30
82	19241A0180	KODATHALA INDU	9	10	5	5	29
83	19241A0181	KOTARU SRINIVASA VARAPRASAD	7	8	5	4	24
84	19241A0182	MALOTH RAHUL	7	8	5	4	24
85	19241A0183	MATURI SATHVIK	8	9	5	5	27
86	19241A0184	MD ABDUL MAAJID	3	10	5	5	23
87	19241A0185	MEDARI DAYANA	7	8	5	4	24
88	19241A0186	NARSINGA SANDEEP	7	8	5	4	24
89	19241A0189	PALANATI ROHITH	9	10	5	5	29
90	19241A0190	PURALASETTY BHAVANA	3	10	5	5	23
91	19241A0191	RODDA MALAVIKA REDDY	3	10	5	5	23
92	19241A0192	SAPRAM NAGA SRILOWKYA MUKTHA	7	8	5	4	24
93	19241A0193	SHAIK PARVEZ ANSARI	9	10	5	5	29
94	19241A0194	SIDDELA THARUN KUMAR	5	5	3	3	16
95	19241A0195	TALARI CHANDANA SREE	6	6	5	4	21
96	19241A0196	VALLEPU KALYAN	3	10	5	5	23
97	19241A0197	VRASHAB PATEL	6	6	5	4	21
98	19241A0198	YELLAVULA NARENDER	7	8	5	4	24
99	19241A0199	BADDELA SAI THARUN	3	10	5	5	23

100	20245A0101	Aamanchi Bowmi	9	10	5	5	29
101	20245A0102	Aviraboina Sai Chaithanya	AB	3	1	1	5
102	20245A0103	Bairy B S Anirudh	6	6	5	4	21
103	20245A0104	Daddu Tejasree	10	10	5	5	30
104	20245A0105	Dopathi Raviteja	7	8	5	4	24
105	20245A0106	Eruventi Niharika	10	10	5	5	30
106	20245A0107	Gaddamidi Aanil	3	10	5	5	23
107	20245A0108	Gandla Rishik Raj	9	10	5	5	29
108	20245A0109	Gone Naveen Kumar	9	10	5	5	29
109	20245A0110	Kota Vishal	8	9	5	5	27
110	20245A0111	Kummari Mahesh	AB	3	1	1	5
111	20245A0112	Lakavath Anil	6	6	5	4	21
112	20245A0113	Madavaram Rohith	9	10	5	5	29
113	20245A0114	Mandala Akshitha	6	6	5	4	21
114	20245A0115	M Manjunath	9	10	5	5	29
115	20245A0116	P Nababhushanam	8	9	5	5	27
116	20245A0117	Pulishetty Bhavani	10	10	5	5	30
117	20245A0118	Racha Kranthi Ranadeer	9	10	5	5	29
118	20245A0119	S Manoj Kumar	10	10	5	5	30
119	20245A0120	Samudrala Manideep	8	9	5	5	27
120	20245A0121	Sangepaga Goutham	9	10	5	5	29
121	20245A0122	Sodadasi Rahul	6	6	5	4	21
122	20245A0123	Vanga Harshith	9	10	5	5	29
123	20245A0124	Choleti Vineetha	6	6	5	4	21
124	20245A0125	Gangula Grishma	9	10	5	5	29
125	20245A0126	Bollampalli Sai Poojith	8	9	5	5	27
126	20245A0127	Pamulapati Sumanth	10	10	5	5	30
127	20245A0128	T Sanghamithra	9	10	5	5	29
128	20245A0129	Abeda Akanksha	10	10	5	5	30
129	20245A0130	Doppalapudi Ramvineeth Sai	8	9	5	5	27
130	20245A0131	Pilly Uday Kiran	9	10	5	5	29



Gokaraju Rangaraju Institute of Engineering & Technology

(Autonomous College Affiliated to JNTU H)

(8 Pages)

Bachupally, Kukatpally, Hyderabad - 500090

PRACTICAL EXAMINATION ANSWER BOOK INTERNAL

No. 29821

H.T. No.

1 9 2 4 1 A 0 1 9 0

Name of the Examination Concrete Technology Lab Internal

Course B.Tech - 1st Sem Branch Civil Date 03/12/21

Signature of the Investigator

START WRITING FROM HERE

1. Determination the vee-see consistency time of M15 Grade of concrete at 0.45 Water to cement Ratio

$$C = 3 \text{ kg}$$

Aim :- To determine the vee-see consistency time of M15 Grade of concrete at 0.45 Water to cement Ratio

Apparatus :-

1. vee-see Apparatus
2. stop Watch
3. cement
4. fine & coarse aggregate
5. Water & Measuring jar
6. Tray
7. Trowel, Weighing Machine

⊙

procedure :-

1. prepare the fresh concrete mixture of M₁₀ grade of concrete at our w/c ratio it should be in the ratio 1:1:2
2. Take 3 kg of cement, 3 kg of fine aggregate and 6 kg of coarse aggregate and add water of 0.45 x 3 and
3. prepare the mixture in a tray thoroughly
4. keep the cone centrally in the cylinder which is in vee-see apparatus
5. Fill the cone with the mixture
6. Divide the mixture into 4 layers for each layer give the 25 tapings with the help of taping rod.
7. After that fill the Remove the cone & take the height of the mixture
8. The difference between the height of cone & height of the mixture gives the slump (mm)
9. Now switch on the vee-see & stop watch at the same time.
10. switch off when the mixture comes to horizontal plane and note down the time
11. That time is the vee-see consistency time.

Observation :-

Weight of the cement = 3 kg

Weight of fine aggregate = 3 kg

Weight of coarse aggregate = 6 kg

w/c ratio = 0.45

$$\begin{aligned}\text{Water added} &= 0.45 \times 3 \\ &= 1.35 \text{ lit}\end{aligned}$$

slump = cone height - obtained height

$$= 30 - 77$$

$$= 30 \text{ mm} \Rightarrow .$$

time for remoulding of concrete mixture is 20 sec

Result :-

The Vee-Bee consistency time is 20 sec

Conclusion :-

As per IS standard 20 sec if time is

30 sec the workability is low.



Gokaraju Rangaraju Institute of Engineering & Technology
(Autonomous College Affiliated to JNTUH)
Bachupally, Kukatpally, Hyderabad - 500090

(8 Pages)

PRACTICAL EXAMINATION ANSWER BOOK INTERNAL

No. 29781

H.T. No. 2024SA0125

Name of the Examination Con III Btech I sem internal

Course Btech Branch Civil Date 2/12/21

Concrete Technology Lab Signature of the Investigator
2/12/21

START WRITING FROM HERE

Aim: To determine the compressive strength of concrete of M20 grade

Apparatus: Cement, trowels, coarse and fine aggregates, concrete testing machine, water, non-porous plate, mould [universal testing machine or concrete testing machine can be used], meter scale.

Procedure:

- ① First, mix the cement, coarse & fine aggregates in proper proportions on a non-absorbant, non-porous, water tight surface using trowels.
- ② Water percentage is derived from normal or standard consistency test.

- ② All the materials are mixed until the uniform colour of mix is obtained.
- ③ Then, the mix is filled in mould to make a concrete cube of size $150 \times 150 \times 150 \text{ mm}$.
- ④ The air entrapped in the mould should be released by tapping.
- ⑤ The top surface of the mould is smoothed.
- ⑥ Now the blocks (moulds) are kept for 24 hrs under moist conditions to maintain room temp of $21 \pm 2^\circ \text{C}$.
- ⑦ Then, after this time the blocks are un moulded carefully.
- ⑧ Now, the cubes are ready & kept for curing, this is done under moist condition. For this concrete blocks are submerged in water.
- ⑨ Then the blocks are tested under JTM or CTM after measuring the

Testing of concrete under CTM:

- ① Now the blocks are kept under the Universal testing machine.
- ② The load at failure is to be noted
- ③ For this the load is slowly applied on blocks
- ④ Slowly load is increased @ 98kN
- ⑤ The failure graph is noted.
- ⑥ Points of failures are noted.

Observations:

Precautions

- ① The temperature should be maintained to room temp $27 \pm 2^\circ\text{C}$
- ② Relative humidity 65 ± 2 .

Observations

Grade of concrete = M20

Size of cube = 150×150

Percentage of water = $P = 34\%$.

_____ this concrete blocks

weight of cement = (2 kg)
weight of sand = 8.75 kg (5:1:5)
weight of ~~cement~~ aggregate = 7 kg

Calculation:

Compressive strength of concrete
 $= \frac{\text{Load}}{\text{Area}}$

Area of block = 150 mm x 150 mm

Load = 94 kN = 94×10^3 N

$$= \frac{94 \times 10^3}{22500}$$

$$= 4.18 \text{ N/mm}^2$$

Results

The compressive strength of given
concrete 4.18 N/mm²

The compressive strength of M₂₀ shall not
be less than 18 N/mm² for M₂₀

$$f_{ck} = 20 \text{ N/mm}^2$$