



## Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

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Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. 08645 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 28-38-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

To  
The Dean -Academics  
K I. Deemed University  
Vaddeswaram

Dear Sir,

**Sub: Minutes of the 9<sup>th</sup> BOS meeting-Department of Civil Engineering held on 28<sup>th</sup> June 2018 held in M 212 Reg.,**

The 9<sup>th</sup> BOS of Department of civil engineering for 2018-19 Academic Year is conducted on 28-06-2018 in M212. The details of minutes and annexures of BoS conducted is attached below.

Thanking You,

Yours sincerely

  
29/06/18

**BOS Chair**

Chairman BOS

**Dr. P. POLU RAJU**

HEAD

Department of Civil Engineering  
Koneru Lakshmaiah Educational Foundation  
(Deemed to be University)  
Vaddeswaram Guntur District.



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Minutes of the 9<sup>th</sup> BOS meeting, Civil Engineering Department held on 28<sup>th</sup> June 2018 held in M 212

### AGENDA ITEMS

Point No.	Agenda Item	Resolution
CE_BOS_01	To consider and approve the curriculum for 2018-19 admitted batch of B.Tech & M.Tech admitted batch as per the suggestions and feedback received from stake holders discussed in DAC	Approved and Recommended to Academic council.
CE_BOS_02	To consider and approve the revisions proposed by the course coordinators in syllabus / Course Outcomes /experiments / teaching pedagogies for the courses to be offered in 2018-19 odd and even semesters.	Approved and Recommended to Academic council.
CE_BoS_03	To consider and approve the curriculum structure for M.Tech SE, CTM admitted students	Approved and Recommended to Academic council.
CE_BoS_04	To consider and approve the new M.Tech program "Geo-Informatics" offered in A.Y-2018-19 batch admitted students.	Approved and Recommended to Academic council.
CE_BOS_05	To consider and approve the value-added courses for 2018 admitted batch	Approved and Recommended to Academic council.
CE_BOS_06	To approve the points discussed in DAC meeting	Approved and Recommended to Academic council.
CE_BOS_07	To approve the feedback from stakeholders regarding 2018-19 batch admitted students	Approved and Recommended to Academic council.

  
12/06/18  
**Dr. F. POLU RAJU**  
HEAD  
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### RESOLUTIONS

#### Detailed Description of Resolutions Made:

**CE\_BOS\_01:** Curriculum for 2018-19 (upcoming batch) B.Tech & M.Tech admitted batches have been approved by BoS members and recommended to Academic council. Course structure of B.Tech 2018-19 admitted batches are available in **Annexure-1**

**CE\_BOS\_02:** The revisions proposed by the course coordinators in syllabus /experiments / teaching pedagogies for the courses to be offered in 2018-19 admitted batches have been approved by BoS members and recommended to Academic council. Modified Syllabi of 2018-219 batch have been furnished in **Annexure-2**

**CE\_BOS\_03:** Curriculum structures for M.Tech Structural Engineering, Construction Technology and Management for 2018-19 admitted batch have been approved by BoS members and recommended to Academic council and structure is attached in **Annexure -3.**

**CE\_BOS\_04:** A new M.Tech program entitled “**Geo Informatics**” is introduced from A.Y.2018-19 for B.Tech civil engineering passed out students and have been approved by BoS members and recommended to Academic council. Structure and syllabus is attached in **Annexure -4**

**CE\_BOS\_05:** The value-added courses for 2019 admitted batch are approved by BoS members and recommended to Academic council. List of courses is attached in **Annexure-5**

**CE\_BOS\_06:** The points discussed in DAC meeting were approved by BoS members and recommended to Academic council. DAC minutes and proofs are mentioned in **Annexure-6**

**CE\_BOS\_07:** Feedback from stakeholders regarding 2018-19 admitted batch and feedback on DAC minutes have been approved by BoS members and recommended to Academic council. Action Taken Report is attached **Annexure-7**

  
29/06/18  
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## BOS MEMBERS & EXTERNAL STAKEHOLDERS

S. No	Name of the Person	Institution	Department of the Person	Designation of the person	Position of the person in the meeting
1	Dr. P. Polu Raju	K L E F	CIVIL	Professor, Department Chair/ HoD	BOS Chairman
2	Dr. G. Appa Rao	IIT Madras	CIVIL	Professor	External Academic BOS Member
3	Er. C.A. Prasad	METERY Engineering & Consultancy Pvt. Ltd.	METERY Engineering & Consultancy Pvt. Ltd.	Director	External Industry BOS Member
4	Dr. A. Siva Sankar	K L E F	CIVIL	Professor & RPAC Chairman	BOS Member
5	Dr. K. Raja Sekhar Reddy	K L E F	CIVIL	Associate Professor & A/HOD	BOS Member
6	Dr. B. Kameswara Rao	K L E F	CIVIL	Professor	BOS Member
7	Dr. P. Sundara Kumar	K L E F	CIVIL	Professor	BOS Member
8	Dr. A. Aravindan	K L E F	CIVIL	Professor	BOS Member
9	Dr. V. Ranga Rao	K L E F	CIVIL	Professor	BOS Member
10	Mr. A. V. Rao	K L E F	CIVIL	Associate Professor	BOS Member
11	Dr. Sanjeet Kumar	K L E F	CIVIL	Associate Professor	BOS Member

  
**DR. P. POLU RAJU**  
HEAD

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7	Dr. P. Sundara Kumar	K L E F	CIVIL	Professor	BOS Member
8	Dr. A. Aravindan	K L E F	CIVIL	Professor	BOS Member
9	Dr. P. Polu Raju	K L E F	CIVIL	Associate Professor	BOS Member
10	Mr. A. V. Rao	K L E F	CIVIL	Associate Professor	BOS Member
11	Dr. Sanjeet Kumar	K L E F	CIVIL	Associate Professor	BOS Member



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12	Dr. T. Reshma	K L E F	CIVIL	Associate Professor	Internal Alumini BOS Member
13	Dr. Dinesh Singh	K L E F	CIVIL	Associate Professor	BOS Member
14	Dr. D. Vamsi Krishna	K L E F	CIVIL	Associate Professor	BOS Member
15	Mr. K. Hemantha Raja	K L E F	CIVIL	Assistant Professor	BOS Member
16	Mr. K. Shyam Chamberlin	K L E F	CIVIL	Assistant Professor	BOS Member
17	Dr. K. Naga Chaitanya	K L E F	CIVIL	Associate Professor	BOS Member
18	Mr. B. G. Rahul	K L E F	CIVIL	Assistant Professor	BOS Member

*Dr. P. Polu Raju*  
29/06/18

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### Annexure - 1: B.Tech Y18 curriculum Structure

<b>B.Tech 2018-19 Admitted Category wise Courses, Credits and Contact hours Count</b>					
SI No	Course Category	Short Name	courses	Minimum Credits	Contact Hours
1	Basic Sciences	BS	8	22	27
2	Engineering Sciences	ES	7	23	31
3	Humanities & Social Sciences	HSS	10	16	30
4	Professional Core	PC	17	65	78
5	Professional Electives	PE	5	15	15
6	Co-Curricular	COCUR	4	1	6
7	Skilling	SKILL	8	9	36
8	Project Courses	PR	4	16	56
9	Open Electives	OE	4	11	11
<b>Total</b>			<b>67</b>	<b>178</b>	<b>290</b>

### Structure for B. Tech 2018-19 Admitted Students

The following structure is approved for B. Tech Civil Engineering 2018-19 admitted students.

S.NO	CATEGORY	C.CODE	Course Name	L	T	P	S	CR	CH
1	BS	18CY1001	Engineering Chemistry	3	0	2	0	4	5
4	BS	18SC1103	Single Variable Calculus and Matrix Algebra	3	0	0	0	3	3
5	BS	18SC1104	Foundations of Computational Mathematics	0	0	2	0	1	2
6	BS	18SC1105	Logic and Reasoning	0	0	2	0	1	2
12	BS	18MT1201	Multivariate Calculus	3	0	2	0	4	5
15	BS	18PH1002	Physics for Civil Engineers	3	0	2	0	4	5
24	BS	18MT2007	Transform & Discrete Mathematics	2	1	0	0	3	3
53	BS	18BT1001	Biology for Engineers	2	0	0	0	2	2
9	COCUR	18GN1107	Cocurricular Activity -1	0	0	0	2	0.5	2
10	COCUR	18GN1101	Counselling-1	0	0	1	0	0	1
18	COCUR	18GN1208	Cocurricular Activity -2	0	0	0	2	0.5	2
19	COCUR	18GN1202	Counselling-2	0	0	1	0	0	1
3	ES	18SC1101	Problem Solving and Computer Programming	3	0	2	0	4	5
7	ES	18CE1002	Engineering Graphics & Design for Civil Engineers	0	0	4	0	2	4
13	ES	18SC1202	Data Structures	3	0	2	0	4	5

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14	ES	18CE1201	Engineering Mechanics	3	0	0	0	3	3
16	ES	18CE1003	Workshop Practice for civil engineers	0	0	4	0	2	4
25	ES	18CE2102	Solid Mechanics	3	0	2	0	4	5
26	ES	18CE2103	Fluid Mechanics	3	0	2	0	4	5
2	HSS	18UC1101	Basic English	0	0	4	0	2	4
11	HSS	18UC1202	English Proficiency	0	0	4	0	2	4
21	HSS	18UC2103	Professional Communication Skills	0	0	4	0	2	4
22	HSS	18UC0007	Indian Heritage and Culture	2	0	0	0	0	2
23	HSS	18UC0010	Universal Human Values & Professional Ethics	2	0	0	0	2	2
37	HSS	18UC2204	Aptitude Builder -1	0	0	4	0	2	4
44	HSS	18UC0009	Ecology & Environment	2	0	0	0	2	2
45	HSS	18UC3105	Aptitude Builder -2	0	0	4	0	2	4
57	HSS	18UC0008	Indian Constitution	2	0	0	0	2	2
66	HSS	18UC0011	Entrepreneurship	2	0	0	0	0	2
64	OE		Open Elective - 1	3	0	0	0	3	3
65	OE		Open Elective - 2	3	0	0	0	3	3
67	OE	OE	Foreign /Non Native Language Elective	2	0	0	0	2	2
62	OE-3	18MB4056	Resources Safety and Quality Management (ME)	3	0	0	0	3	3
27	PC	18CE2104	Surveying	3	0	2	0	4	5
28	PC	18CE2105	Construction Materials & Concrete Technology	3	0	2	0	4	5
30	PC	18CE2201	Structural Analysis	3	1	0	0	4	4
31	PC	18CE2202	Building Planning, Drawing & Construction Management	3	0	2	0	4	5
32	PC	18CE2203	Hydraulics and hydraulic Machines	3	0	2	0	4	5
33	PC	18CE2204	Engineering Geology	3	0	2	0	4	5
34	PC	18CE2205	Environmental Engineering	3	0	2	0	4	5
35	PC	18CE2206	Soil Mechanics	3	0	2	0	4	5
38	PC	18CE3101	Design of Reinforced Concrete Structures	3	0	2	0	4	5
39	PC	18CE3102	Water Resources Engineering	3	1	0	0	4	4
40	PC	18CE3103	Transportation Engineering	3	0	2	0	4	5
41	PC	18CE3104	Foundation Engineering	3	1	0	0	4	4
42	PC	18CE3105	AI & ML Applications in Civil Engineering	2	0	0	4	3	6
48	PC	18CE3201	Quantity Surveying Estimation	3	0	2	0	4	5
49	PC	18CE3202	Advanced Structural Analysis	3	0	0	0	3	3
50	PC	18CE3203	Design of Steel Structures	3	1	0	0	4	4
58	PC	18CE4101	Form Work	3	0	0	0	3	3
51	PE		Professional Elective - 1	3	0	0	0	3	3
52	PE		Professional Elective - 2	3	0	0	0	3	3
59	PE		Professional Elective - 3	3	0	0	0	3	3
60	PE		Professional Elective - 4	3	0	0	0	3	3
61	PE		Professional Elective - 5	3	0	0	0	3	3
47	PR	18IE2246	Industrial Training	0	0	4	0	2	4

P. Raju  
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55	PR	18IE3247	Term Paper	0	0	4	0	2	4
63	PR	18IE4048/ 18IE4050	Project (Part I) / Practice School	0	0	0	24	6	24
68	PR	18IE4049/ 18IE4050/ 18IE4051	Project (Part II) / Practice School/ Internship	0	0	0	24	6	24
8	SKILL	18SC1106	Technical Skill -1 (coding)	0	0	0	6	1.5	6
17	SKILL	18SC1207	Technical Skill -2 (coding)	0	0	0	6	1.5	6
29	SKILL	18TS2101	Skilling for Engineers-1	0	0	0	4	1	4
36	SKILL	18TS2102	Skilling for Engineers-2	0	0	0	4	1	4
43	SKILL	18TS2103	Skilling for Engineers-3	0	0	0	4	1	4
46	SKILL	18TP3101C	Technical Proficiency & Training -1	0	0	0	4	1	4
54	SKILL	18TS2104	Skilling for Engineers-4	0	0	0	4	1	4
56	SKILL	18TP3202C	Technical Proficiency & Training -2	0	0	0	4	1	4
<b>TOTAL CREDITS</b>								<b>178</b>	

### PROFESSIONAL ELECTIVES

S.No	PE	Course Code	Course Title	L	T	P	S	Cr	CH
1	PE 1	18CE3211	PRE-FABRICATED STRUCTURES	3	0	0	0	3	3
2	PE 1	18CE3252	Ground Improvement Techniques	3	0	0	0	3	3
3	PE 1	18CE3215	Intelligent Transportation Systems	3	0	0	0	3	3
4	PE 2	18CE3221	Masonry Structures	3	0	0	0	3	3
5	PE 2	18CE4160	Advanced Foundation Engineering	3	0	0	0	3	3
6	PE 2	18CE3225	Pavement Materials & Design	3	0	0	0	3	3
7	PE 3	18CE3231	Prestressed Concrete	3	0	0	0	3	3
8	PE 3	18CE3233	Rural Water Supply and Onsite Sanitation Systems	3	0	0	0	3	3
9	PE 3	18CE3235	Railway Engineering Airport Planning and Design	3	0	0	0	3	3
10	PE 4	18CE4141	Bridge Engineering	3	0	0	0	3	3
11	PE 4	18CE4145	Traffic Engineering and Management	3	0	0	0	3	3
12	PE 5	18CE4155	Urban Transportation Planning.	3	0	0	0	3	3
13	PE 5	18CE4151	Sustainable Construction Technologies	3	0	0	0	3	3

**Dr. P. RAJU** Page | 8  
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14	PE 5	18CE4163	Geosynthetics and Reinforced Soil Structures	3	0	0	0	3	3
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### LIST OF OEPN ELECTIVES

S.No	OE	Course Code	Course Title	L	T	P	S	Cr	CH
1	OE 1	18EM40B1	Linux Programming	3	0	0	0	3	3
2	OE 1	18BT40A1	IPR & Patent Laws	3	0	0	0	3	3
3	OE 1	18CS40A6	Fundamentals of DBMS	3	0	0	0	3	3
4	OE 1	18OE40G1	Cosmetic Technology	3	0	0	0	3	3
5	OE 1	18EC40C9	Nano Electronics	3	0	0	0	3	3
6	OE 2	18ME40B4	Robotics	3	0	0	0	3	3
7	OE 2	18EC40A9	Image Processing	3	0	0	0	3	3
8	OE 2	18OE40G3	Energy Waste to Wealth	3	0	0	0	3	3
9	OE 2	18EE40B4	Energy Estimation & Audit	3	0	0	0	3	3
10	OE 2	18OE40G2	Dietary Supplements	3	0	0	0	3	3

*Dr. P. Polu Raju*  
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**ANNEXURE – 2:** New courses and revisions proposed by the course coordinators and other stake holders in syllabus / Course Outcomes /experiments / teaching pedagogies for the courses to be offered in 2018-19 odd and even semesters. The changes were approved and recommended to Academic council.

### NEW COURSES: B.TECH


No	Detailed Description	Resolution Passed
1	A new course “Building and Construction Management (18CE2202)” is to be introduced in B.Tech 2-1 semester to meet the technology and industry requirements.	Approved and added in B.Tech 2-1 semester
2	Technical Proficiency and Training-1 and Technical Proficiency and Training-2 are to be introduced as a part of skilling courses to meet the Entrepreneurship, Skill development and industry requirements	Approved and added in B.Tech 5 <sup>th</sup> and 6 <sup>th</sup> semesters

### REVISIONS- M. TECH – SE

No	Detailed Description	Resolution Passed
1	Proposed to introduce new topic in “Fracture Mechanics”	Added “Principles of Non Linear Fracture Mechanics”
2	Proposed to introduce new topic in “Green Buildings”	Modified “CO4 – Indoor Environment and quality Health”

### New Courses - Ph.D Civil Engineering

No	Detailed Description	Resolution Passed
1	Proposed to introduce new course “Advanced Building Construction & Materials”	Approved and Recommended to Academic Council
2	Proposed to introduce new course “Advanced strength of materials”	Approved and Recommended to Academic Council
3	Proposed to introduce new course “Advanced Structural Design and Systems”	Approved and Recommended to Academic Council

  
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## Existing and Revised Syllabus

### (New Course)

## **BUILDING & CONSTRUCTION MANAGEMENT**

Course Code: 18CE2202

L-T-P-S: 3-0-2-0

Pre-requisite: NIL

Credits: 4

### **Mapping of Course Outcomes to Program Outcomes: The students will be able to**

CO No.	Course Outcomes	PO	BTL
1	Understand about building bye-laws for construction of buildings, different types of buildings and walls	1,4	2
2	Understand about the different types of masonry and flooring	1,4	2
3	Understand about the types of roofs, arches and weathering courses	1,4	2
4	Understand about the different types stairs, building components and types of form work for building components	1,4	2

### **Syllabus:**

**Brick Masonry:** Technical terms; Types of bonds in brickwork and their suitability. Stone Masonry: Technical terms; Classification of stone masonry.


**Dampness and Damp Proofing:** Introduction, Methods of preventing dampness; Damp proofing materials and their classification; Methods of providing DPC under different situations.

**Floors:** Technical terms; Different types of floors – concrete, mosaic, terrazzo, stone floors, ceramic tile floors, vinyl floors and wood floors. Roofs: Technical terms; Classification of roofs; Steel sloping roofs; Roof covering materials; Types of flat roofs. Scaffolding, Shoring, Under Pinning and Form Work: Types of scaffolding; Types of shoring; Methods of underpinning; Types of formwork; Centering

**Building Planning:** Introduction to Buildings, Classification of Buildings, National Building Code Building Planning: Selection of Site, Orientation, Ventilation, Furniture requirements, Roominess, Sanitation, Lighting, Space for equipment for air-conditioning, Space for machinery etc.; Aspect and prospect, Privacy, Elegance and economy; Climatic considerations; Materials selection, Wall thickness and Scales

**Building Bye-Laws & Regulations:** Objectives of Building Bye-Laws, Building regulations; Calculation of Plinth Area (PA), floor area and carpet area; Floor Area Ratio (FAR), Floor Space Index (FSI), Height of Buildings as per local code book

**Construction Equipment:** Classification of construction equipment; Concreting plant and equipment; Factors affecting the selection; Factors affecting cost of owning and operating the equipment. Quality Control: Importance of quality; Elements of quality; Organization for quality control; Quality assurance techniques; Quality control circles; Total quality management

  
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**Construction Management:** Introduction, Construction projects, Objectives of Construction management; Steps involved in Project management, Project failures. Planning: Steps involved in planning; Objectives of planning; Principles of planning; Advantages and Limitations of planning, Stages of planning. Scheduling: Scheduling, Methods of scheduling; Bar charts; Mile stone charts; Controlling; Job layout; Factors affecting job layout; Project work break down; Activities involved.

**Project Management Through Networks:** Objectives of network techniques; Fundamentals of network analysis; Events; Activities; Dummies; Advantages of network techniques over conventional techniques. Program Evaluation and Review Technique (PERT): Introduction; Time estimates; Earliest expected time; Latest allowable occurrence time; Slack; Critical path; Probability of completion time for a project.

**Critical Path Method (CPM) & Cost Control:** Introduction; Earliest event time; Latest event time; Activity time; Float; Critical activities and critical path; Difference between CPM and PERT, Direct cost; Indirect cost; Total project cost

### Textbook:

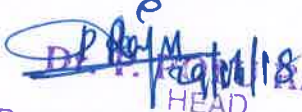
1. Varghese P.C, " Building construction", Prentice hall of India (P) Ltd, New Delhi 2<sup>nd</sup> Edition 2008
2. Seetharaman.S, " Construction Engineering and Management", Umesh Publications, Nai Sarak, Delhi, 2008

### Reference Books:

1. Punmia B. C, " Building construction", Laxmi Publications, New Delhi 5<sup>th</sup> Edition
2. Sengupta.B & Guha.H "Construction Management & Planning", Tata McGraw – Hill Publishing Co. Ltd., New Delhi.

### List of Experiments:

1. Draw the Sign Conventions for Engineering Materials, Water supply & Sanitary fixtures and Electrical Installations etc. using Manual & Auto cad.
2. Draw the English bond & Flemish bond for one, one and half brick walls using Auto cad.
3. Draw the Doors, Windows and Ventilators using Auto cad.
4. Draw the Residential Building and School Building line diagrams using Auto cad.
5. Draw the Commercial Building and Hospital Building line diagrams using Auto cad.
6. Draw the Sloped roof building with Load Bearing walls using Auto cad
7. Draw the Flat Roof Building with Framed construction using Auto cad
8. Draw the Stair Case Plan, Sectional elevations including T- Beam, Landing Beam & landing slab using Auto cad
9. Draw the Plan, section & elevation for given line plans of Single storied building using Auto cad
10. Draw the Plan, section & elevation for given line plans of Double storied building using Auto cad

  
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(New Course)

## Technical Proficiency and Training 1

Course code:18TP3101C

L-T-P-S: 0-0-0-4

Pre-requisites: NIL

Credits: 1

### Mapping of Course Outcomes (CO) to Program outcomes:

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Analyze the knowledge of building mix design and execution in sites, and SFD-BMD-Deflection of various types of beam.	PO1,PO3,PO4	4
CO2	Analyze of various footing using SAFE software.	PO1,PO3,PO6,PO7	4
CO3	Analyze the knowledge on design of highways, sedimentation tank and RC elements	PO1,PO3,PO4	4
CO4	Apply the knowledge of Construction activity on Safety Precautions and Site Inspections	PSO2,PO1,PO11,PSO1	3

### List of Experiments:

1. Unit Conversions, Reaction on different types of beams (Simply supported, Cantilever, Fixed, Continuous)
2. Concrete Mix Design without supplementary cementitious materials
3. Concrete Mix Design with supplementary cementitious materials
4. Design of Isolated Footings and Combined Footings using SAFE
5. Design of Mat and Pile Footings using SAFE
6. Geometric design of Highways
7. Design of sedimentation Tank
8. Detailing of RC Structural Elements
9. Construction Safety Precautions and Measurements
10. Quality Inspection (Site)

  
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(New Course)

### Technical Proficiency & Training -2

Course code:18TP3202C

L-T-P-S: 0-0-0-4

Pre-requisites:NIL

Credits: 1

#### Mapping of Course Outcomes (CO) to Program outcomes:

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Design of Multi-storey building-Manually ,Knowledge about the flooring, painting and the measurement book which are essential at site location.	PO3,PO5, PSO1,PO1,PO2	4
CO2	Basic Design of the Earthwork calculation, Design and detail drawing of Irrigation Structures and Construction site inspection mainly the rod bending etc...which were essential at Construction Site.	PSO1,PO1, PO2,PO3,PO5	4
CO3	Design of form work,Description about the form work.To Analyse the Preventive measures for water proofing, Construction Material its testing at site and laboratory.	PO2,PO5,PO1	4
CO4	Design & Analysis of the Multi storied building by Software ,Knowledge about the Masonry Structures and the knowledge on the Pre-Engineered Materials	PSO1,PO1, PO2,PO3,PO5	4

#### Syllabus :

Design of Multi Storied Residential Building (Manual Calculation),Types of Flooring and the process of flooring also the types of painting and its usage for different members,Familiarity of Measurement Book (M-Book) Earthwork Calculation for Foundation /Canal (Cutting &Filling),Design and Detailing of Irrigation Structures, Construction site Inspection Mainly Rod bending ,Overlapping of R.C joints etc. Preventive Measures to be taken for Water - Proofing in different cases, Testing of the Materials at Site Location, Description about the Form Work. Analysis and Design of a Multi Storied Residential Building using Software-

  
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Tekla etc, Brief Introduction about the Masonry works, Brief Introduction of the Pre-Engineered Materials that are prescribed for Structures.

### Text Books :

1. Structural Design of Multi Storeyed Building 2/e (PB) by U.H. VARYANI
2. Illustrated Design of Reinforced Concrete Buildings by V. L. Shah
3. Design of R C C Buildings using Staad Pro V8i with Indian Examples English by Author T S Sarma
4. Types of Floor Laminations: Learn the Facts Behind Laminating Floors by Betsy Hernadi (Author)
5. Concrete Technology- V. N. Vazirani, S. P. Chandola- KHANNA PUBLISHERS
6. Estimating and Costing in Civil Engineering: Theory and Practice Including Specifications and Valuations-B.N.Datta - by UBS Publishers & Distributors
7. Testing of Construction Materials- Ravi Kumar Sharma
8. Foam Engineering: Fundamentals and Applications- Paul Stevenson - Wiley; 1st edition (March 5, 2012)
9. Building with Masonry: Brick, Block & Concrete / For Pros by Pros- by Richard Kreh- Taunton Press (November 1, 1998)
10. Prefabricated Structures- Author:Dr. Jebamalar- Publisher:Magnus Publications

### Reference Books :

1. Civil Engineering Materials and their Testing- by Hasan S D
2. Prefabricated structures- by m pradeepkumar (author)- shanlax publications (editor),

  
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(Existing Syllabus)

### Fracture Mechanics

Course Code :20CE52C1

L-T-P-S : 3-0-0-0

Pre-requisite: NIL

Credits: 3

Mapping of Course Outcome with Program Outcome:

CO	Course Outcome	PO	BTL
CO 1	Understanding the basic concepts of Fracture and Linear Elastic Fracture Mechanics (LEFM)	PO1	3
CO 2	Understanding the concept of Crack Tip Plasticity	PO1	3
CO 3	Understanding the concept Elastic Plastic Fracture Mechanics (EPFM)	PO1	3
CO 4	Understanding the concept of Fatigue Crack Growth and practical problems of fracture mechanics	PO1	3

**Introduction to fracture mechanics** of concrete Structural failure based on material performance; Concepts of linear elastic fracture mechanics; Fracture mechanics of concrete


**Principles of linear elastic fracture mechanics**, Airy stress functions for problems in elasticity; Complex stress function; Elastic stress and displacement fields at crack tip; Stress intensity factors and crack opening displacements for useful geometries; Superposition of stress intensity factors; Plastic zone at crack tip; Griffith's fracture theory; Strain energy release rate for crack propagation; Relationship between stress intensity factor and strain energy release rate; Design based on linear elastic fracture mechanics

**Structure and fracture process** of concrete constituents and microstructure of concrete; Fracture behaviour and strain localization of concrete; Fracture process zone and toughening mechanisms; Experimental determination of fracture zone; Influence of fracture process zone on fracture behaviour of concrete

**Non-linear fracture mechanics** for Mode I Quasi-Brittle Fracture general description of quasi-brittle fracture; Fictitious approach – Energy dissipation for fictitious crack, Fictitious crack model by Bazant and Oh, Determination and influence of  $s(w)$  relationship, Some comments on fictitious crack approach; Effective elastic approach – Energy dissipation for effective-elastic crack, Two- parameter fracture model by Jenq and shah, Size effect model by Bazant and Kazemi, Effective crack model by Karihaloo and Nallathambi, Effective crack model by Refai and Swartz, Some comments on effective-elastic crack approach; Comparison between Fictitious and effective-elastic crack approaches; Finite element analysis – Discrete crack approach, Smeared crack approach.

#### Text Books :

1. Fracture Mechanics of Concrete: Applications of Fracture Mechanics to Concrete, Rock and Other Quasi-Brittle Materials by Surendra P. Shah, Stuart E. Swartz, Chengsheng Ouyang, Publisher : Wiley , 1995.
2. Analysis of Concrete Structures by Fracture Mechanics by L. Elfgren, Publisher: Routledge, 1990.
3. Fracture mechanics – Applications to concrete , Edited by Victor C.Li and Z.P.Bazant, ACI SP118.
4. Elements of fracture mechanics by Prashant Kumar, Wheeler Publishing, 1999.

  
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(New Syllabus)

### Fracture Mechanics

Course Code :20CE52C1

Pre-requisite: NIL

L-T-P-S : 3-0-0-0

Credits: 3

#### Mapping of Course Outcome with Program Outcome:

CO	Course Outcome	PO	BTL
CO 1	Understanding the basic concepts of Fracture and Linear Elastic Fracture Mechanics (LEFM)	PO1	3
CO 2	Understanding the concept of Crack Tip Plasticity	PO1	3
CO 3	Understanding the concept Elastic Plastic Fracture Mechanics (EPFM)	PO1	3
CO 4	Understanding the concept of Fatigue Crack Growth and practical problems of fracture mechanics	PO1	3

**Introduction to fracture mechanics** of concrete Structural failure based on material performance; Concepts of linear elastic fracture mechanics; Fracture mechanics of concrete

**Principles of linear elastic fracture mechanics**, Airy stress functions for problems in elasticity; Complex stress function; Elastic stress and displacement fields at crack tip; Stress intensity factors and crack opening displacements for useful geometries; Superposition of stress intensity factors; Plastic zone at crack tip; Griffith's fracture theory; Strain energy release rate for crack propagation; Relationship between stress intensity factor and strain energy release rate; Design based on linear elastic fracture mechanics

**Principles of non-linear fracture mechanics** energy principles for crack propagation in non-linear materials; J-integral for non-linear elastic materials; Fracture resistance (R curve); Crack tip opening displacement;

**Structure and fracture process** of concrete constituents and microstructure of concrete; Fracture behaviour and strain localization of concrete; Fracture process zone and toughening mechanisms; Experimental determination of fracture zone; Influence of fracture process zone on fracture behaviour of concrete

**Non-linear fracture mechanics** for Mode I Quasi-Brittle Fracture general description of quasi-brittle fracture; Fictitious approach – Energy dissipation for fictitious crack, Fictitious crack model by Bazant and Oh, Determination and influence of  $s(w)$  relationship, Some comments on fictitious crack approach; Effective elastic approach – Energy dissipation for effective-elastic crack, Two-parameter fracture model by Jenq and shah, Size effect model by Bazant and Kazemi, Effective crack model by Karihaloo and Nallathambi, Effective crack model by Refai and Swartz, Some comments on effective-elastic crack approach; Comparison between Fictitious and effective-elastic crack approaches; Finite element analysis – Discrete crack approach, Smeared crack approach.

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### Text Books :

1. Fracture Mechanics of Concrete: Applications of Fracture Mechanics to Concrete, Rock and Other Quasi-Brittle Materials by Surendra P. Shah, Stuart E. Swartz, Chengsheng Ouyang, Publisher : Wiley , 1995.
2. Analysis of Concrete Structures by Fracture Mechanics by by L. Elfgren, Publisher: Routledge, 1990.
3. Fracture mechanics – Applications to concrete , Edited by Victor C.Li and Z.P.Bazant, ACI SP118.
4. Elements of fracture mechanics by Prashant Kumar, Wheeler Publishing, 1999.

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(Existing)

### GREEN BUILDINGS

Course Code: 18CE51E2

L-T-P-S: 3-0-0-0

Prerequisites: - NIL

Credits: 3

#### Course Objective:

The objective of this course is to expose the student to concepts of embodied, operational and life cycle energy, minimizing energy consumption by optimal design. The course also intends to make student aware of ECBC, LEED, GRIHA etc.

**Mapping of Course Outcomes to Program Outcomes:** The students will be able to

CO No.	Course Outcomes	PO	BTL
1	Understand Necessity and importance of Sustainable/ Green Buildings, Grasp the construction practices of a sustainable Buildings.	5,6	2
2	Understanding the Green Building Rating Systems, Water & Energy efficiencies, Reduction in waste material during construction and Building Design	1,2,6	3
3	Understanding Air Conditioning and HVAC system design, Salient features of CII Godrej Green Business Center	5,6	3
4	Understanding Indoor Environment Quality and Occupational Health, Reasons for poor IAQ, Measures to achieve Acceptable IAQ levels,	3	2

#### Syllabus:

**Introduction:** What is Green Building, why to go for Green Building, Benefits of Green Buildings, Green Building Materials and Equipment in India, What are key Requisites for Constructing a Green Building, Important Sustainable features for Green Building,

#### **Green Building Concepts and Practices**

Indian Green Building Council, Green Building Moment in India, Benefits Experienced in Green Buildings, Launch of Green Building Rating Systems, Residential Sector, Market Transformation;

**Green Building Opportunities and Benefits:** Opportunities of Green Building, Green Building Features, Material and Resources, Water Efficiency, Optimum Energy Efficiency, Typical Energy Saving Approach in Buildings, LEED India Rating System and Energy Efficiency,

**Green Building Design:** Introduction, Reduction in Energy Demand, Onsite Sources and Sinks, Maximize System Efficiency, Use of Renewable Energy Sources. Ecofriendly captive power generation for factory, Building requirement,

  
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**Air Conditioning:** Introduction, CII Godrej Green business center, Design philosophy, Design interventions, Energy modeling, HVAC System design, Chiller selection, pump selection, Selection of cooling towers, Selection of air handling units, Precooling of fresh air, Interior lighting system, Key feature of the building. Eco-friendly captive power generation for factory, Building requirement.

### **Material Conservation**

Handling of non-process waste, waste reduction during construction, materials with recycled content, local materials, material reuse, certified wood, Rapidly renewable building materials and furniture;

**Tools:** Design Builder/OpenBuildings/eQuest : Assessment and optimization of building energy requirements.

### **Textbooks:**

1. Handbook on Green Practices published by Indian Society of Heating Refrigerating and Air conditioning Engineers, 2009.
2. Green Building Handbook by Tomwoolley and Samkimings, 2009.

### **Reference Books:**

1. Complete Guide to Green Buildings by Trish riley
2. Standard for the design for High Performance Green Buildings by Kent Peterson, 2009

### **Case Study**

Students must visit minimum of 5 construction Sites practicing green building principles and shall submit the reports on various green building materials and green building practices that are being implemented with respect to building rating systems by IGBC and LEED.

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(NEW SYLLABUS)

### GREEN BUILDINGS

Course Code: 18CE51E2

L-T-P-S: 3-0-0-0

Prerequisites: - NIL

Credits: 3

#### Course Objective:

The objective of this course is to expose the student to concepts of embodied, operational and life cycle energy, minimizing energy consumption by optimal design. The course also intends to make student aware of ECBC, LEED, GRIHA etc.

**Mapping of Course Outcomes to Program Outcomes:** The students will be able to

CO No.	Course Outcomes	PO	BTL
1	Understand Necessity and importance of Sustainable/ Green Buildings, Grasp the construction practices of a sustainable Buildings.	5,6	2
2	Understanding the Green Building Rating Systems, Water & Energy efficiencies, Reduction in waste material during construction and Building Design	1,2,6	3
3	Understanding Air Conditioning and HVAC system design, Salient features of CII Godrej Green Business Center	5,6	3
4	Understanding Indoor Environment Quality and Occupational Health, Reasons for poor IAQ, Measures to achieve Acceptable IAQ levels,	3	2

#### Syllabus:

**Introduction:** What is Green Building, why to go for Green Building, Benefits of Green Buildings, Green Building Materials and Equipment in India, What are key Requisites for Constructing a Green Building, Important Sustainable features for Green Building,

**Green Building Concepts and Practices:** Indian Green Building Council, Green Building Moment in India, Benefits Experienced in Green Buildings, Launch of Green Building Rating Systems, Residential Sector, Market Transformation;

**Green Building Opportunities and Benefits:** Opportunities of Green Building, Green Building Features, Material and Resources, Water Efficiency, Optimum Energy Efficiency, Typical Energy Saving Approach in Buildings, LEED India Rating System and Energy Efficiency,

**Green Building Design:** Introduction, Reduction in Energy Demand, Onsite Sources and Sinks, Maximize System Efficiency, Use of Renewable Energy Sources. Ecofriendly captive power generation for factory, Building requirement,

**Air Conditioning:** Introduction, CII Godrej Green business center, Design philosophy, Design interventions, Energy modeling, HVAC System design, Chiller selection, pump

  
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selection, Selection of cooling towers, Selection of air handling units, Precooling of fresh air, Interior lighting system, Key feature of the building. Eco-friendly captive power generation for factory, Building requirement.

**Material Conservation:** Handling of non-process waste, waste reduction during construction, materials with recycled content, local materials, material reuse, certified wood, Rapidly renewable building materials and furniture;

**Indoor Environment Quality and Occupational Health:** Air conditioning, Indoor air quality, Sick building syndrome, Tobacco smoke control, Minimum fresh air requirements avoid use of asbestos in the building, improved fresh air ventilation, Measure of IAQ, Reasons for poor IAQ, Measures to achieve Acceptable IAQ levels,

**Tools: Design Builder/OpenBuildings/eQuest : Assessment and optimization of building energy requirements.**

### Textbooks:

1. Handbook on Green Practices published by Indian Society of Heating Refrigerating and Air conditioning Engineers, 2009.
3. Green Building Handbook by Tomwoolley and Samkimings, 2009.

### Reference Books:

1. Complete Guide to Green Buildings by Trish riley
2. Standard for the design for High Performance Green Buildings by Kent Peterson, 2009

### Case Study

Students must visit minimum of 5 construction Sites practicing green building principles and shall submit the reports on various green building materials and green building practices that are being implemented with respect to building rating systems by IGBC and LEED.

  
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### New Courses – Ph.D in Civil Engineering

#### Advanced Building Construction & Materials

##### UNIT I

Materials- Cement, Aggregates, mixing water soundness of aggregate- Fresh and hardened concrete: Admixtures- types of admixtures- purposes of using admixtures- chemical composition- effect of admixtures on fresh and hardened concretes- Natural admixtures.

##### UNIT II

Non destructive evaluation: Importance- Concrete behavior under corrosion, disintegrated mechanisms- moisture effects and thermal effects – Visual investigation- Acoustical emission methods- Corrosion activity measurement- chloride content – Depth of carbonation- Impact echo methods- Ultrasound pulse velocity methods- Pull out tests.

##### UNIT III

Fibre reinforced concrete- Properties of constituent materials- Mix proportions, mixing and casting methods-Mechanical properties of fiber reinforced concrete- applications of fibre reinforced concretes.

Light weight concrete- Introduction- properties of light weight concrete- No fines concrete- design of light weight concrete.

##### UNIT IV

Flyash concrete- Introduction- classification of flyash- properties and reaction mechanism of flyash- Properties of flyash concrete in fresh state and hardened state- Durability of flyash concretes.

##### UNIT V

High performance concretes- Introduction- Development of high performance concretes- Materials of high performance concretes- Properties of high performance concretes.

  
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### Advanced strength of materials

#### UNIT-I

##### Two-dimensional problems in rectangular coordinates

Plane stress ; Plane strain; Differential equations of equilibrium; Boundary conditions; Compatibility equations; Stress function; Governing differential equation; Solution by Polynomials; End effects – Saint-Venant's Principle; Determination of displacements; Bending of a cantilever loaded at the end; Bending of a beam by uniform load.

#### UNIT-II

##### Two-dimensional problems in polar coordinates

General equations in polar coordinates; Stress distribution symmetrical about an axis; Effect of circular holes on stress distribution in plates; Concentrated force at a point of a straight boundary; Concentrated force acting on a beam; Stresses in a circular disc, general solutions of the two dimensional problem in polar coordinates, applications of the general solutions in polar coordinates.

#### UNIT-III

##### Strain energy methods

Total strain energy; Principle of virtual work; Griffith's theory of rupture; Castigliano's theorem;

Principle of least work (Stationary potential energy), applications of the principle of least work rectangular plates, shear lag.

#### UNIT-IV

##### Analysis of stress and strain in three dimensions

Stress at a point – components of stress; Principal stresses; Stress ellipsoid and stress director surface; Determination of principal stresses; Stress invariants; Determination of maximum shear stresses; Octahedral shear stress; strain at a point – Components of strain; differential equations of equilibrium, the principle of superposition.

#### UNIT-V

##### Torsion

Torsion of straight bars – Saint Venant's theory; Elliptic cross section; Membrane analogy; Torsion of a bar of narrow rectangular cross-section; Torsion of rolled profile sections; Torsion of thin tubes

##### Text Books:


1. Theory of Elasticity by Timoshenko, S. and Goodier J.N., McGraw Hill Book Co., Newyork, 1988.

##### Reference Books

1. Sadhu Singh, "Theory of Elasticity", Khanna Publishers, New Delhi 1988.

2. Hearn , E.J. "Mechanics of Materials", Vol.2, Pergamon Press, Oxford, 1985

3. Irving H.Shames and James, M.Pitarresi, "Introduction to Solid Mechanics", Prentice Hall of India Pvt. Ltd., Newl Delhi -2002.

  
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### Advanced Structural Design and Systems

#### UNIT-I

Introduction: Analysis and design of portal frames, Design example for hinged and fixed frame.

#### UNIT-II

Reinforced concrete deep beams: Introduction to Deep Beams Parameters influencing design; IS code provisions; design of simply supported and continuous beam

#### UNIT-III

Elevated water tanks: Introduction, Analysis & Design of INTZ Tanks including staging and continuous deep beams.

#### UNIT-IV

Earthquake resistant design: Concept of Earthquake resistant design, provisions of seismic code IS 1893 (Part-I), Response spectrum, Design spectrum, Design of buildings, Reinforcement detailing, Provisions of IS 13920

#### UNIT-V

Introduction to plastic analysis: stress strain relationship Ultimate load design, Plastic bending of beams, Shape Procedure for plastic analysis, Design consideration of Mild steel, Elastic design versus factor, Load factor, Plastic analysis,

#### Text Book:

Advanced Reinforced Concrete Design, by N.Krishna Raju, CBS publishers, 2009.

#### Reference Books:

1. Advanced Reinforced Concrete Design by Varghese, Pentice Hall India, 1st edition 2004.
2. Advanced Reinforced Concrete Design (vol-II) by S. S. Bhavikatti, New age international, 2nd edition, 2009.
3. Design of steel structures by L.S Negi Tata Mc Graw Hill publishing company Limited, 2nd edition, 1997
4. Earthquake Resistant Design of structures by Pankaj Agarwal and Manish Shrikande PHI Learning Private Limited. 2006.

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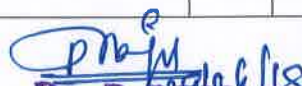
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### Annexure - 3:

#### M.Tech Structural Engineering Curriculum

SEMESTER-1								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1	18CE5101	Applied Mathematics	3	1	0	0	4	4
2	18CE5102	Theory of Elasticity	3	1	0	0	4	4
3	18CE5103	Structural Dynamics	3	0	2	0	4	5
4	18CE5104	Advanced Pre stressed Concrete	3	0	2	0	4	5
5	18CE51A1	Repair and Rehabilitation of Structures	3	0	0	0	3	3
	18CE51A2	Design of Offshore Structures						
6	18CE51B1	Geotechnical Earthquake Engineering	3	0	0	0	3	0
	18CE51B2	Stability of Structures						
7	18IE5149	SEMINAR	0	0	4	0	2	4
Total			18	2	8	0	24	25
SEMESTER-2								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1	18CE5205	Finite Element Analysis	3	0	2	0	4	5
2	18CE5206	Bridge Engineering	3	1	0	0	4	4
3	18CE5207	Earthquake Resistant Design of Structures	3	0	2	0	4	5
4		18CE5208						
5	18CE52C1	Industrial Structures	3	0	0	0	3	3
	18CE52C2	Design of Tall Structures						
	18CE52C3	Fracture Mechanics						
6	18CE52D1	Advanced Design of Structures	3	0	0	0	3	3
	18CE52D3	Green Buildings						
7	18IE5250	Term Paper	0	0	4	0	2	4
Total			18	2	8	0	24	28
SEMESTER-3								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1		Project	0	0	36	0	18	36
SEMESTER-4								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1		Project	0	0	36	0	18	36
<b>GRAND TOTAL</b>			<b>36</b>	<b>4</b>	<b>88</b>	<b>0</b>	<b>84</b>	<b>125</b>

  
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### M.Tech Construction Technology and Management

SEMESTER-1								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1	18CE5119	Construction Planning Scheduling and Management	3	0	2	0	4	5
2	18CE5120	Statistical Methods for Management	3	1	0	0	4	4
3	18CE5121	Green Buildings	3	0	2	0	4	5
4	18CE5122	Construction Materials & Concrete Technology	3	1	0	0	4	4
5	18CE51I3	Special Concretes	3	0	0	0	3	3
6	18CE51J1	Construction Personnel Management	3	0	0	0	3	3
7	18IE5149	SEMINAR	0	0	4	0	2	4
Total			18	2	8	0	24	28
SEMESTER-2								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1	18CE5221	Mechanized Construction and Machinery	3	0	2	0	4	5
2	18CE5222	Project Formulation Appraisal	3	1	0	0	4	4
3	18CE5223	Construction Law and Regulations	3	1	0	0	4	4
4	18CE5224	Quality Management and Safety Management System in Construction	3	0	2	0	4	5
5	18CE52K4	Form Work for Construction Structures	3	0	0	0	3	3
6	18CE52L4	Resource Management and Control in Construction	3	0	0	0	3	3
7	18IE5250	Architectural Thesis	0	0	4	0	2	4
Total			18	2	8	0	24	28
SEMESTER-3								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1	18IE6050	Dissertation	0	0	36	0	18	36
SEMESTER-4								
S.No	Course Code	Course Title	L	T	P	S	Cr	CH
1	18IE6050	Dissertation	0	0	36	0	18	36
<b>GRAND TOTAL</b>			<b>36</b>	<b>4</b>	<b>88</b>	<b>0</b>	<b>84</b>	<b>128</b>

  
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## Annexure -4: M.Tech Curriculum structure for Geo Informatics

SEMESTER- I								
S.No	Course code	Course Title	L	T	P	S	Cr	CH
1	18CE5109	Fundamentals of Geospatial Technology	3	0	2	0	4	5
2	18CE5110	Geographical Information System	3	0	2	0	4	5
3	18CE5111	Advanced computer Programming and Statistics	3	2	0	0	4	5
4	18CE5112	Photogrammetry	3	2	0	0	4	5
5		Elective – I	3	0	0	0	3	3
6		Elective – II	3	0	0	0	3	3
7	18IE5149	Seminar	0	0	4	0	2	4
		<b>TOTAL</b>	<b>18</b>	<b>4</b>	<b>8</b>	<b>0</b>	<b>24</b>	<b>30</b>
SEMESTER- II								
S.No	Course code	Course Title	L	T	P	S	Cr	CH
1	18CE5213	Digital Image Processing	3	0	2	0	4	5
2	18CE5214	GIS Data Analysis & Modelling	3	0	2	0	4	5
3	18CE5215	Geodesy and GPS	3	2	0	0	4	5
4	18CE5216	Geospatial Applications	3	2	0	0	4	5
5		Elective – III	3	0	0	0	3	3
6		Elective – IV	3	0	0	0	3	3
7	18IE5250	Term Paper	0	0	4	0	2	4
		<b>Total</b>	<b>18</b>	<b>4</b>	<b>8</b>	<b>0</b>	<b>24</b>	<b>30</b>
SEMESTER- III & IV								
S.No	Course code	Course Title	L	T	P	S	Cr	CH
1	18IE6050	Dissertation	0	0	72	0	36	72
<b>GRAND TOTAL</b>			<b>36</b>	<b>8</b>	<b>88</b>	<b>0</b>	<b>84</b>	<b>132</b>

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## Elective Courses

S.No	Course code	Course Title	Periods				Credits
			L	T	P	S	
<b>Elective-1</b>							
1	18CE51E1	Principles of Earth & Environment Sciences	3	0	0	0	3
2	18CE51E2	Geoinformatics for Water Resource Management	3	0	0	0	3
3	18CE51E3	Data base Management system (DBMS)	3	0	0	0	3
4	18CE51E4	Topographical Surveying	3	0	0	0	3
<b>Elective-2</b>							
1	18CE51F1	Advanced Surveying and cartography	3	0	0	0	3
2	18CE51F2	Environmental Geoinformatics	3	0	0	0	3
3	18CE51F3	Structural Analysis using Geomatics	3	0	0	0	3
4	18CE51F4	Geospatial Technology for Transport Engineering	3	0	0	0	3
<b>Elective-3</b>							
1	18CE52G1	Statistics and Adjustment Computations	3	0	0	0	3
2	18CE52G2	Cadastral survey' and information system	3	0	0	0	3
3	18CE52G3	Engineering Survey Methodology and Instrumentation	3	0	0	0	3
4	18CE52G4	Geospatial Technology for Natural Resources & Disaster Management	3	0	0	0	3
<b>Elective-4</b>							
1	18CE52H1	Coordinate systems and Map Projections	3	0	0	0	3
2	18CE52H2	Principles of Geomatics	3	0	0	0	3
3	18CE52H3	Geospatial Technology for Rural Development	3	0	0	0	3
4	18CE52H4	Urban Water Management using Geomatics	3	0	0	0	3

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### ANNEXURE-5: VALUE ADDED COURSES

The following value added courses are identified for the academic year 2018-19 and approved by all DAC members and recommended to BOS.

#### Value Added Courses

S.No	Name of the course	Focussed on	Regulation	Duration
1	3DS MAX	Employability	Y17	40 hours

### Annexure -6: DAC MINUTES

#### DAC Agenda Items

Item No.	Agenda Item	Resolution
CE_DAC_01	Proposal of B.Tech 2018 batch structure along with Employability, Entrepreneurship and skill development categorizations.	Recommended to 9 <sup>th</sup> BoS
CE_DAC_02	Addition of new courses and revisions to existing curriculum and syllabi for Y18 admitted batches.	Recommended to 9 <sup>th</sup> BoS
CE_DAC_03	Proposal of M.Tech program entitled “Geo Informatics” from A.Y.2018-19	Recommended to 9 <sup>th</sup> BoS
CE_DAC_04	To consider the approval of proposal for launching certificate courses for 2018-19 admitted batch	Recommended to 9 <sup>th</sup> BoS
CE_DAC_05	Any other points with the permission of chair.	Recommended to 9 <sup>th</sup> BoS

#### Description of resolutions made:

##### Agenda Point CE\_DAC\_01

DAC has approved the revised course structure for 2018-19 admitted students as attached in Annexure-I.

**CE\_DAC\_02: Restructuring of existing curriculum and syllabi for Y18 admitted batches.**

  
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The following changes have been made in the courses/ Lab Experiments for Y18 batch and approved by all members and recommended to BOS.

### NEW COURSES: B.TECH

No	Detailed Description	Resolution Passed
1	A new course "Building and Construction Management (18CE2202)" is to be introduced in B.Tech 2-1 semester to meet the technology and industry requirements.	Approved and added in B.Tech 2-1 semester
2	Technical Proficiency and Training-1 and Technical Proficiency and Training-2 are to be introduced as a part of skilling courses	Approved and added in B.Tech 5 <sup>th</sup> and 6 <sup>th</sup> semesters


### REVISIONS- M. TECH – SE

No	Detailed Description	Resolution Passed
1	Proposed to introduce new topic in "Fracture Mechanics"	Added "Principles of Non-Linear Fracture Mechanics"
2	Proposed to introduce new topic in "Green Buildings"	Modified "CO4 – Indoor Environment and quality Health"

### New Courses - Ph.D Civil Engineering

No	Detailed Description	Resolution Passed
1	Proposed to introduce new course "Advanced Building Construction & Materials"	Approved and recommended to BOS
2	Proposed to introduce new course "Advanced strength of materials"	Approved and recommended to BOS
3	Proposed to introduce new course "Advanced Structural Design and Systems"	Approved and recommended to BOS

**CE\_DAC\_03:** Proposal of M.Tech program entitled "Geo Informatics" is introduced from A.Y.2018-19 to civil engineering Students. List of courses and syllabus attached in **Annexure-3** - is approved by all DAC members and recommended to BOS.

  
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**CE\_DAC\_04:** The following value-added courses are identified for Y18 admitted students for and approved by all DAC members and recommended to BOS.

S.NO	Course Code	Course Name	L	T	P	S	Cr
1	18CC3005C	Total Station	0	0	0	8	0
2	18CC3006	REVIT	0	0	0	8	0
3	18CC3170	CYPECAD	0	0	0	8	0

**CE\_DAC\_05:** Any other Points with the permission of chair

No Other points were raised by DAC Members

### Annexure-7: Summary of Stakeholders Feedback and Action Taken Report

Academic Peers				
Sl.No.	Academic Peers Details	Recommendations / Suggestion(s)	Analysis	Action Taken
1	Dr.G.Appa Rao	Add the course " Building and Construction Management "	A new course "Building and Construction Management (18CE2202) " is to be introduced in B.Tech 2-1 semester to meet the technology and industry requirements.	To be added in B.Tech 2-1 semester and recommended to DAC & BOS
2	Dr.G.Appa Rao	Add the course "Advanced Construction Technology" in Ph.D Curriculum	Advanced Construction Technology is suggested to add in Ph.D curriculum	Recommended to DAC & BOS
3	Dr.G.Appa Rao	Add the course "Advanced strength of materials" in Ph.D Curriculum	Advanced strength of materials is suggested to add in Ph.D curriculum	Recommended to DAC & BOS
Alumni				
Sl.No.	Alumni Details	Recommendations / Suggestion(s)	Analysis	Action Taken
1	Er. Prabhu Teja AEE, VJA	Add the course "Advanced Structural Design and Systems" in Ph.D Curriculum	Advanced Structural Design and Systems is suggested to add in Ph.D curriculum	Recommended to DAC & BOS

  
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	Er. Prabhu Teja AEE, VJA	Specialization streams	Vastness of the Syllabus had been observed.	Specialization Streams and the subjects are according to the market demand and are verified before including them to the semester.
2	Er. Naveen Kumar, AEE VJA	Sequence of the units in the course.	The sequence of the unit is depend upon GATE and APPSC syllabus.	NA
<b>Faculty</b>				
Sl.No.	Faculty Details	Recommendations / Suggestion(s)	Analysis	Action Taken
1	Dr. V. Ranga Rao	Indoor environment and quality assessment is required in green buildings course	Indoor environment and quality health can be added in CO4	Recommended to DAC and BOS
2	Mr. K.Venkatash	choose different topics in Project	Water related problems chosen by more batches	will be ensured that students should choose different topics
<b>Industry Personnel</b>				
Sl.No.	Industry Personnel Details	Recommendations / Suggestion(s)	Analysis	Action Taken
1	Er. C.A. Prasad, METEY Engineering & Consultancy Pvt. Ltd	Technical skills are required to meet the current industry requirements	Technical Proficiency and Training-1 and Technical Proficiency and Training-2 are to be introduced as a part of skilling courses	To be added in B.Tech 5 <sup>th</sup> and 6 <sup>th</sup> semesters and recommended to DAC & BOS
2	Er. C.A. Prasad, METEY Engineering & Consultancy Pvt. Ltd	Include non linear fracture analysis topic in the Fracture Mechanics course	non linear fracture analysis is important and should be available	To be added "Principles of Non Linear Fracture Mechanics" and recommended to DAC & BOS
<b>Parent</b>				
Sl.No.	Parent Details	Recommendations / Suggestion(s)	Analysis	Action Taken
	Mr.D.Ram Mohan Rao	How do you rate the program that your ward is undergoing in terms of the load of the courses in different semesters	Curriculum is prepared in such a way that the total contact hours were not increased beyond 40	NA

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Department of Civil Engineering  
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	Mr.P.Madhavi	Take to site frequently	SITE Visits on various construction stages should be planned	Site activity included in social internship course
1	Mr.A.Sambasiva Rao	How do you rate the courses in terms of their relevance to the latest technologies or future technologies	CE being Technical course, should concentrate more on field instead of class room	Site activity included as one of the ALM in social internship course
<b>Student</b>				
Sl.No.	Student Details	Recommendations / Suggestion(s)	Analysis	Action Taken
1	Mr. K.Rohit	Sequence of the topics in the units	Arrangement of the topics in the units were excellent	Detail analysis has been done before the arrangement of the topic into the units.
2	Mrs. K.Keerthi	How do you rate the electives offered in relation to the Technological advancements	All electives are prepared by concentrating on technological advancements	Professional Electives are available in curriculum

  
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### Annexure – 8: B.Tech Courses Focused on Employability/Entrepreneurship/Skill Development

S.No	Category	Course Code	Course Title	L	T	P	S	Cr	CH	New Course /Revised Course / Retained Course	Changes Proposed by	Focused on Employability /Entrepreneurship /Skill Development
1	BS	18CY1001	Engineering Chemistry	3	0	2	0	4	5	Retained	No Changes	Employability
2	BS	18SC1103	Single Variable Calculus and Matrix Algebra	3	0	0	0	3	3	Retained	No Changes	Skill Development
3	BS	18SC1104	Foundations of Computational Mathematics	0	0	2	0	1	2	Retained	No Changes	Skill Development
4	BS	18SC1105	Logic and Reasoning	0	0	2	0	1	2	Retained	No Changes	Employability
5	BS	18MT1201	Multivariate Calculus	3	0	2	0	4	5	Retained	No Changes	Skill Development
6	BS	18PH1002	Physics for Civil Engineers	3	0	2	0	4	5	Retained	No Changes	Employability
7	BS	18MT2007	Transform & Discrete Mathematics	2	1	0	0	3	3	Retained	No Changes	Skill Development
8	BS	18BT1001	Biology for Engineers	2	0	0	0	2	2	Retained	No Changes	Skill Development
9	COCUR	18GN1107	Cocurricular Activity -1	0	0	0	2	0.5	2	Retained	No Changes	Skill Development
10	COCUR	18GN1101	Counselling-1	0	0	1	0	0	1	Retained	No Changes	Skill Development
11	COCUR	18GN1208	Cocurricular Activity -2	0	0	0	2	0.5	2	Retained	No Changes	Skill Development
12	COCUR	18GN1202	Counselling-2	0	0	1	0	0	1	Retained	No Changes	Skill Development
13	ES	18SC1101	Problem Solving and Computer Programming	3	0	2	0	4	5	Retained	No Changes	Skill Development
14	ES	18CE1002	Engineering Graphics & Design for Civil Engineers	0	0	4	0	2	4	Retained	No Changes	Employability
15	ES	18SC1202	Data Structures	3	0	2	0	4	5	Retained	No Changes	Skill Development
16	ES	18CE1201	Engineering Mechanics	3	0	0	0	3	3	Retained	No Changes	Entrepreneurship
17	ES	18CE1003	Workshop Practice for civil engineers	0	0	4	0	2	4	Retained	No Changes	Skill Development
18	ES	18CE2102	Solid Mechanics	3	0	2	0	4	5	Retained	No Changes	Employability
19	ES	18CE2103	Fluid Mechanics	3	0	2	0	4	5	Retained	No Changes	Employability
20	HSS	18UC1101	Basic English	0	0	4	0	2	4	Retained	No Changes	Employability

  
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21	HSS	18UC1202	English Proficiency	0	0	4	0	2	4	Retained	No Changes	Employability
22	HSS	18UC2103	Professional Communication Skills	0	0	4	0	2	4	Retained	No Changes	Employability
23	HSS	18UC0007	Indian Heritage and Culture	2	0	0	0	0	2	Retained	No Changes	Skill Development
24	HSS	18UC0010	Universal Human Values & Professional Ethics	2	0	0	0	2	2	Retained	No Changes	Employability
25	HSS	18UC2204	Aptitude Builder -1	0	0	4	0	2	4	Retained	No Changes	Employability
26	HSS	18UC0009	Ecology & Environment	2	0	0	0	2	2	Retained	No Changes	Employability
27	HSS	18UC3105	Aptitude Builder -2	0	0	4	0	2	4	Retained	No Changes	Employability
28	HSS	18UC0008	Indian Constitution	2	0	0	0	2	2	Retained	No Changes	Skill Development
29	HSS	18UC0011	Entrepreneurship	2	0	0	0	0	2	Retained	No Changes	Entrepreneurship
30	OE	OE	Foreign /Non Native Language Elective	2	0	0	0	2	2	Retained	No Changes	Skill Development
31	OE-3	18MB4056	Resources Safety and Quality Management (ME)	3	0	0	0	3	3	Retained	No Changes	Employability
32	PC	18CE2104	Surveying	3	0	2	0	4	5	Retained	No Changes	Employability
33	PC	18CE2105	Construction Materials & Concrete Technology	3	0	2	0	4	5	Retained	No Changes	Employability
34	PC	18CE2201	Structural Analysis	3	1	0	0	4	4	Retained	No Changes	Employability
35	PC	18CE2202	Building Planning, Drawing & Construction Management	3	0	2	0	4	5	New Course	Dr.G.Appa Rao	Entrepreneurship
36	PC	18CE2203	Hydraulics and hydraulic Machines	3	0	2	0	4	5	Retained	No Changes	Employability
37	PC	18CE2204	Engineering Geology	3	0	2	0	4	5	Retained	No Changes	Employability
38	PC	18CE2205	Environmental Engineering	3	0	2	0	4	5	Retained	No Changes	Employability
39	PC	18CE2206	Soil Mechanics	3	0	2	0	4	5	Retained	No Changes	Employability
40	PC	18CE3101	Design of Reinforced Concrete Structures	3	0	2	0	4	5	Retained	No Changes	Entrepreneurship
41	PC	18CE3102	Water Resources Engineering	3	1	0	0	4	4	Retained	No Changes	Employability
42	PC	18CE3103	Transportation Engineering	3	0	2	0	4	5	Retained	No Changes	Employability

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43	PC	18CE3104	Foundation Engineering	3	1	0	0	4	4	Retained	No Changes	Employability
44	PC	18CE3105	AI & ML Applications in Civil Engineering	2	0	0	4	3	6	Retained	No Changes	Entrepreneurship
45	PC	18CE3201	Quantity Surveying Estimation	3	0	2	0	4	5	Retained	No Changes	Entrepreneurship
46	PC	18CE3202	Advanced Structural Analysis	3	0	0	0	3	3	Retained	No Changes	Employability
47	PC	18CE3203	Design of Steel Structures	3	1	0	0	4	4	Retained	No Changes	Entrepreneurship
48	PC	18CE4101	Form Work	3	0	0	0	3	3	Retained	No Changes	Employability
49	PR	18IE2246	Industrial Training	0	0	4	0	2	4	Retained	No Changes	Skill Development
50	PR	18IE3247	Term Paper	0	0	4	0	2	4	Retained	No Changes	Skill Development
51	PR	18IE4048/ 18IE4050	Project (Part I) / Practice School	0	0	0	24	6	24	Retained	No Changes	Skill Development
52	PR	18IE4049/ 18IE4050/ 18IE4051	Project (Part II) / Practice School/ Internship	0	0	0	24	6	24	Retained	No Changes	Skill Development
53	SKILL	18SC1106	Technical Skill - 1 (coding)	0	0	0	6	1.5	6	Retained	No Changes	Skill Development
54	SKILL	18SC1207	Technical Skill - 2 (coding)	0	0	0	6	1.5	6	Retained	No Changes	Skill Development
55	SKILL	18TS2101	Skilling for Engineers-1	0	0	0	4	1	4	Retained	No Changes	Skill Development
56	SKILL	18TS2102	Skilling for Engineers-2	0	0	0	4	1	4	Retained	No Changes	Skill Development
57	SKILL	18TS2103	Skilling for Engineers-3	0	0	0	4	1	4	Retained	No Changes	Skill Development
58	SKILL	18TP3101C	Technical Proficiency & Training -1	0	0	0	4	1	4	New Course	Er. C.A. Prasad	Skill Development
59	SKILL	18TS2104	Skilling for Engineers-4	0	0	0	4	1	4	Retained	No Changes	Skill Development
60	SKILL	18TP3202C	Technical Proficiency & Training -2	0	0	0	4	1	4	New Course	Er. C.A. Prasad	Skill Development
61	PE 1	18CE3211	PRE-FABRICATED STRUCTURES	3	0	0	0	3	3	Retained	No Changes	Employability
62	PE 1	18CE3252	Ground Improvement Techniques	3	0	0	0	3	3	Retained	No Changes	Employability
63	PE 1	18CE3215	Intelligent Transportation Systems	3	0	0	0	3	3	Retained	No Changes	Employability
64	PE 2	18CE3221	Masonry Structures	3	0	0	0	3	3	Retained	No Changes	Employability

*Prajan*  
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65	PE 2	18CE4160	Advanced Foundation Engineering	3	0	0	0	3	3	Retained	No Changes	Employability
66	PE 2	18CE3225	Pavement Materials & Design	3	0	0	0	3	3	Retained	No Changes	Skill Development
67	PE 3	18CE3231	Prestressed Concrete	3	0	0	0	3	3	Retained	No Changes	Employability
68	PE 3	18CE3233	Rural Water Supply and Onsite Sanitation Systems	3	0	0	0	3	3	Retained	No Changes	Employability
69	PE 3	18CE3235	Railway Engineering Airport Planning and Design	3	0	0	0	3	3	Retained	No Changes	Employability
70	PE 4	18CE4141	Bridge Engineering	3	0	0	0	3	3	Retained	No Changes	Employability
71	PE 4	18CE4145	Traffic Engineering and Management	3	0	0	0	3	3	Retained	No Changes	Employability
72	PE 5	18CE4155	Urban Transportation Planning.	3	0	0	0	3	3	Retained	No Changes	Employability
73	PE 5	18CE4151	Sustainable Construction Technologies	3	0	0	0	3	3	Retained	No Changes	Employability
74	PE 5	18CE4163	Geosynthetics and Reinforced Soil Structures	3	0	0	0	3	3	Retained	No Changes	Entrepreneurship

Overall % change in syllabus = **10%**

% of Courses focused on Employability = **51.35%**

% of Courses focused on Entrepreneurship = **10.8%**

% of Courses focused on Skill Development = **37.8%**

  
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### M.Tech Structural Engineering courses focussing on Employability, Entrepreneurship and Skill Development

S.No	Course Code	Course Title	L	T	P	S	Cr	CH	New Course /Revised Course / Retained Course	Changes Proposed by	Focused on Employability /Entrepreneurship /Skill Development
1	18CE5101	Applied Mathematics	3	1	0	0	4	4	Retained	No Changes	Employability
2	18CE5102	Theory of Elasticity	3	1	0	0	4	4	Retained	No Changes	Employability
3	18CE5103	Structural Dynamics	3	0	2	0	4	5	Retained	No Changes	Entrepreneurship
4	18CE5104	Advanced Prestressed Concrete	3	0	2	0	4	5	Retained	No Changes	Entrepreneurship
5	18CE51A1	Repair and Rehabilitation of Structures	3	0	0	0	3	3	Retained	No Changes	Employability
6	18CE51A2	Design of Offshore Structures							Retained	No Changes	Entrepreneurship
7	18CE51B1	Geotechnical Earthquake Engineering	3	0	0	0	3	0	Retained	No Changes	Employability
8	18CE51B2	Stability of Structures							Retained	No Changes	Employability
9	18IE5149	SEMINAR	0	0	4	0	2	4	Retained	No Changes	Skill Development
10	18CE5205	Finite Element Analysis	3	0	2	0	4	5	Retained	No Changes	Employability
11	18CE5206	Bridge Engineering	3	1	0	0	4	4	Retained	No Changes	Entrepreneurship
12	18CE5207	Earthquake Resistant Design of Structures	3	0	2	0	4	5	Retained	No Changes	Entrepreneurship
13	18CE5208	Theory of Plates and Shells	3	1	0	0	4	4	Retained	No Changes	Employability
14	18CE52C1	Industrial Structures	3	0	0	0	3	3	Retained	No Changes	Entrepreneurship
15	18CE52C2	Design of Tall							Retained	No Changes	Entrepreneurship

*Pragna*  
D. 1. 1 29/06/18





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		Structures									
16	18CE52C3	Fracture Mechanics	3	0	0	0	3	3	Revised	Er. C.A. Prasad	Entrepreneurship
17	18CE52D1	Advanced Design of Structures	3	0	0	0	3	3	Retained	No Changes	Employability
18	18CE52D3	Green Buildings							Revised	Dr. V. Ranga Rao	Employability
19	18IE5250	Term Paper	0	0	4	0	2	4	Retained	No Changes	Skill Development
20	18IE6050	Project	0	0	36	0	18	36	Retained	No Changes	Skill Development

Overall % change in syllabus = 2%

% of Courses focused on Employability=47.3%

% of Courses focused on Entrepreneurship=36.8%

% of Courses focused on Skill Development = 15.7%

### M.Tech CTM - Courses Focused on Employability/Entrepreneurship/Skill Development

S.No	Course Code	Course Title	L	T	P	S	Cr	CH	New Course /Revised Course / Retained Course	Changes Proposed by	Focused on Employability /Entrepreneurship /Skill Development
1	18CE5119	Construction Planning Scheduling and Management	3	0	2	0	4	5	Revised	Industry Person	Employability
2	18CE5120	Statistical Methods for Management	3	1	0	0	4	4	Retained	No Changes	Employability
3	18CE5121	Green Buildings	3	0	2	0	4	5	Revised	Industry Person	Employability
4	18CE5122	Construction Materials & Concrete Technology	3	1	0	0	4	4	Retained	No Changes	Employability
5	18CE51I3	Special Concretes	3	0	0	0	3	3	Retained	No Changes	Entrepreneurship
6	18CE51J1	Construction Personnel Management	3	0	0	0	3	3	Retained	No Changes	Entrepreneurship

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7	18IE5149	SEMINAR	0	0	4	0	2	4	Retained	No Changes	Skill Development
8	18CE5221	Mechanized Construction and Machinery	3	0	2	0	4	5	Revised	Industry Person	Employability
9	18CE5222	Project Formulation Appraisal	3	1	0	0	4	4	Retained	No Changes	Employability
10	18CE5223	Construction Law and Regulations	3	1	0	0	4	4	Retained	Industry Person	Entrepreneurship
11	18CE5224	Quality Management and Safety Management System in Construction	3	0	2	0	4	5	Revised	Industry Person	Entrepreneurship
12	18CE52K4	Form Work for Construction Structures	3	0	0	0	3	3	Retained	No Changes	Employability
13	18CE52L4	Resource Management and Control in Construction		0	0	0	3	3	Retained	No Changes	Entrepreneurship
14	18IE5250	Architectural Thesis		0	4	0	2	4	Retained	No Changes	Skill Development
15	18IE6050	Dissertation		0	36	0	18	36	Retained	No Changes	Skill Development

% of Courses focused on Employability= **46.67%**

% of Courses focused on Entrepreneurship=**33.33%**

% of Courses focused on Skill Development = **20%**

  
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### M.Tech G.I Courses Focused on Employability/Entrepreneurship/Skill Development

S.No	Course code	Course Title	L	T	P	S	Cr	CH	New Course /Revised Course / Retained Course	Changes Proposed by	Focused on Employability /Entrepreneurship /Skill Development
1	18CE5109	Fundamentals of Geospatial Technology	3	0	2	0	4	5	New	NA	Employability
2	18CE5110	Geographical Information System	3	0	2	0	4	5	New	NA	Entrepreneurship
3	18CE5111	Advanced computer Programming and Statistics	3	2	0	0	4	5	New	NA	Employability
4	18CE5112	Photogrammetry	3	2	0	0	4	5	New	NA	Employability
5	18IE5149	Seminar	0	0	4	0	2	4	New	NA	Skill Development
6	18CE5213	Digital Image Processing	3	0	2	0	4	5	New	NA	Employability
7	18CE5214	GIS Data Analysis & Modelling	3	0	2	0	4	5	New	NA	Employability
8	18CE5215	Geodesy and GPS	3	2	0	0	4	5	New	NA	Skill Development
9	18CE5216	Geospatial Applications	3	2	0	0	4	5	New	NA	Skill Development
10	18IE5250	Term Paper	0	0	4	0	2	4	New	NA	Skill Development
11	18IE6050	Dissertation	0	0	72	0	36	72	New	NA	Skill Development
12	18CE51E1	Principles of Earth & Environment Sciences	3	0	0	0	3	3	New	NA	Entrepreneurship
13	18CE51E2	Geoinformatics for Water Resource Management	3	0	0	0	3	3	New	NA	Employability
14	18CE51E3	Data base Management system (DBMS)	3	0	0	0	3	3	New	NA	Employability
15	18CE51E4	Topographical Surveying	3	0	0	0	3	3	New	NA	Entrepreneurship

*Prasanna*  
12/06/18

**Dr. P. POLU RAJU**  
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Department of Civil Engineering  
Koneru Lakshmaiah Educational Foundation  
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Vaddeswaram Guntur District.



## Koneru Lakshmaiah Education Foundation

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Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. 08645 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

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16	18CE51F1	Advanced Surveying and cartography	3	0	0	0	3	3	New	NA	Employability
17	18CE51F2	Environmental Geoinformatics	3	0	0	0	3	3	New	NA	Employability
18	18CE51F3	Structural Analysis using Geomatics	3	0	0	0	3	3	New	NA	Entrepreneurship
19	18CE51F4	Geospatial Technology for Transport Engineering	3	0	0	0	3	3	New	NA	Employability
20	18CE52G1	Statistics and Adjustment Computations	3	0	0	0	3	3	New	NA	Entrepreneurship
21	18CE52G2	Cadastral survey' and information system	3	0	0	0	3	3	New	NA	Entrepreneurship
22	18CE52G3	Engineering Survey Methodology and Instrumentation	3	0	0	0	3	3	New	NA	Entrepreneurship
23	18CE52G4	Geospatial Technology for Natural Resources & Disaster Management	3	0	0	0	3	3	New	NA	Employability
24	18CE52H1	Coordinate systems and Map Projections	3	0	0	0	3	3	New	NA	Employability
25	18CE52H2	Principles of Geomatics	3	0	0	0	3	3	New	NA	Employability
26	18CE52H3	Geospatial Technology for Rural Development	3	0	0	0	3	3	New	NA	Employability
27	18CE52H4	Urban Water Management using Geomatics	3	0	0	0	3	3	New	NA	Entrepreneurship

Overall % change in syllabus = **100%**

% of courses focussing on Employability = **51.8 %**

% of courses focussing on Entrepreneurship = **29.6 %**

% of courses focussing on Skill Development = **18.5 %**

*Pragna*  
29/06/18  
**Dr. P. POLU RAJU**  
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### Ph.D. Courses focussing on Employability, Entrepreneurship

S.NO	Paper	Code	Course Name	New Course /Revised Course / Retained Course	Changes Proposed by	Focused on Employability /Entrepreneurship /Skill Development
1.	P-II	15 CE 201	Repair and Rehabilitation of Structures	Retained	No Changes	Employability
2.	P-II	15 CE 202	Finite Element Analysis	Retained	No Changes	Skill Development
3.	P-II	15 CE 203	Optimization of Structures	Retained	No Changes	Employability
4.	P-II	15 CE 204	Structural Dynamics	Retained	No Changes	Skill Development
5.	P-II	15 CE 205	Advanced Treatments of Water and Wastewater	Retained	No Changes	Employability
6.	P-II	15 CE 206	Water Quality and Environment	Retained	No Changes	Skill Development
7.	P-II	15 CE 207	Hydrologic Elements and Analysis	Retained	No Changes	Employability
8.	P-II	15 CE 208	Geosynthetics	Retained	No Changes	Employability
9.	P-II	15 CE 209	Geotechnical Earthquake Engineering	Retained	No Changes	Employability
10.	P-II	15 CE 210	Traffic Engineering	Retained	No Changes	Skill Development
11.	P-II	15 CE 211	Advanced Building Construction & Materials	New Course	Dr.G.Appa Rao	Employability
12.	P-II	15 CE 212	Advanced strength of materials	New Course	Dr.G.Appa Rao	Employability
13.	P-III	15 CE 301	Advanced Concrete Technology	Retained	No Changes	Employability
14.	P-III	15 CE 302	Advanced Design of Structures	Retained	No Changes	Employability
15.	P-III	15 CE 303	Theory of Elasticity	Retained	No Changes	Skill Development
16.	P-III	15 CE 304	Principles of Gis, Gps and Remote Sensing Applications In Civil Engineering	Retained	No Changes	Skill Development
17.	P-III	15 CE 305	Surfaces Hydrologic Systems	Retained	No Changes	Employability
18.	P-III	15 CE 306	River Hydraulics	Retained	No Changes	Employability
19.	P-III	15 CE 307	Watershed and Wetland Management	Retained	No Changes	Employability

*Dr. P. Polu Raju*  
29/06/18

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20.	P-III	15 CE 308	Ground Improvement Techniques	Retained	No Changes	Skill Development
21.	P-III	15 CE 309	Pavement Construction and Management	Retained	No Changes	Employability
22.	P-III	15 CE 310	Environmental Impact Assessment	Retained	No Changes	Skill Development
23.	P-III	15 CE 311	Advanced Structural Design and Systems	New Course	Er. Prabhu Teja AEE, VJA	Skill Development

% change in Syllabus = 12 %

% of courses focussing on Employability = 60.8 %

% of courses focussing on Entrepreneurship = 39.2 %

**Dr. P. POLU RAJU**  
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