



**Koneru Lakshmaiah Education Foundation**

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38; Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

To  
The Dean -Academics  
K L Deemed University  
Vaddeswaram

Dear Sir,

**Sub: Minutes of the 15<sup>th</sup> BOS meeting- Civil Engineering Department held on 05-12-2020 held online from 3:00PM to 5:00 PM - Reg.**

This is to inform you that Civil Engineering Department had conducted Board of Studies meeting on 05-12-2020. Enclosing the meeting minutes, Annexures and resolutions passed and Introduction of new courses and syllabus change for few courses.

Thanking You,

Yours sincerely

**Dr. CH. Hanumantha Rao,**

Chairman BOS – CE

**Head**

**Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.**



Minutes of the BOS meeting, Civil Engineering Department held on 5<sup>th</sup> December 2020 held online from 3:00PM to 5:00 PM

AGENDA ITEMS

AGENDA and RESOLUTIONS

AGENDA ITEM-1

No	AGENDA ITEM Description	Resolution Passed
1	Feedback on the curriculum Recommendations - Implementation in BoS for A.Y. 2020-21	The Committee of BoS approved and recommended Feedback on the curriculum.
2	<b>U.G. (B. Tech - Civil Engineering):</b> Program structure and Syllabus with industry integration for the AY: 2020-21 admitted students and make recommendations to the Academic Council of KLU for approval of the same.	The Committee of BoS approved and recommended the curriculum structure and syllabus of B. Tech Civil Engineering for the admission of A.Y. 2020-21.
3	<b>P.G. (M. Tech - Structural Engineering, M. Tech - Construction Technology and Management):</b> Program structure and Syllabus with industry integration for the AY: 2020-21 admitted students make recommendations to the Academic Council of KLU for approval of the same.	The Committee of BoS approved and recommended the Odd & Even semester courses and syllabus of B. Tech Civil Engineering & M. Tech (SE & CTM) for the A.Y. 2020-21
4	<b>P.G. (M. Tech - Geo-Technical Engineering):</b> Introduction of New Program structure M.Tech GTE and Syllabus with industry integration for the AY: 2020-21 admitted students	The Committee of BoS approved and recommended the Odd & Even semester courses and syllabus of M.Tech -GTE for the A.Y. 2020- 21.
5	To cover the core topics of GATE syllabus in Curriculum	Gate Syllabus is added in various electives and core subjects in the curriculum
6	Suggested to implement "Industrial Visit" programs once in a month	Industrial visits are arranged one per semester as per the academic calendar
7	To release examination results in time for their wards	Intimation will be given to Examination section for the releasing of results in time

Head

Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122, 2577715, 2576129.

#### AGENDA ITEM-2

	AGENDA ITEM Description	Resolution Passed
1	Suggested to cover the basic concepts in professional core courses	Basics concepts were incorporated in the introduction part in each professional core courses
2	Suggested to give more weightage for transportation engineering domain also as lot of works related to transportation are Proposed	Weightage is given to transportation engineering domain courses and one skill component is also added
3	Suggested to make students to be strong in pavement materials and other construction materials. Incorporate all innovative materials being used in construction in the syllabus	Pavement materials and other construction materials were added in one of the elective in transportation engineering
4	suggested to have two standard text books to be prescribed for every course	As per the suggested, Two standard textbooks are added for every course
5	suggested to incorporate few courses that cover communication skills required for civil engineers in construction industry	Communication skills related courses are introduced in the curriculum
6	Suggested to include <b>Pre fabricated structures</b> and precast as one of the chapter in B.Tech.	As per BOS recommendations, <b>Pre fabricated structures</b> as one elective in B.Tech Civil Engineering.
7	Suggested to include <b>Foundation Engineering</b> as elective in place of Advanced Foundation Engineering, also add relevant IS codes in the concerned courses	As per BOS recommendations, Foundation Engineering is added as elective in place of Advanced Foundation Engineering
8	Suggested to include <b>Forensics in Civil Engineering</b> as elective and one of the chapter should be of Contraction of pre cast composite floor	As per BOS recommendations, Forensics in Civil Engineering is added as elective and one of the chapters Contraction of pre cast composite floor is added
9	<b>Estimation and costing</b> – preparation of estimation as per state government and SSR to be included as one of the topic	As per BOS recommendations, SSR is added in the QSE course
10	In <b>Surveying</b> course DGPS to be added as one of the topic	As per BOS recommendations, SSR is added in Surveying course
11	<b>Introduction to Design", Design thinking and</b>	Design thinking and innovation 1 &2



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-30-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph. +91 - 866 - 3500122, 2577715, 2576129.

	innovation 1 &2 and Computational thinking design will be offered in First Year odd semester for 2020 admitted batch	and Computational thinking design are added in First year for Y20 Batch
12	Mechanics course should be offered in First Year odd semester for 2020-21 admitted batch where the design thinking, flipped teaching pedagogies will be delivered	Mechanics course is added in First year odd semester for 2020-21 admitted batch
13	In order to improve design skills, Machine Drawing and Workshop Practice courses will be integrated	Design Tools Workshop course covers design skills, Machine Drawing and Workshop Practice
14	Mathematics for Computing" and "Mathematics for Engineers" courses should be offered in First and Second Semesters for 2020-21 admitted batch	Mathematics for Computing" and "Mathematics for Engineers are added first and second semesters for 2020-21 admitted batch
15	In M.Tech-SE, the course "Theory of elasticity" should be changed to "Advanced Mechanics of solids	"Theory of elasticity" has been changed to "Advanced Mechanics of solids in M.Tech - SE Curriculum as per recommendations
16	the course "Applied mathematics" should be replaced with "Advanced Concrete Technology" containing theory and lab	"Applied mathematics" has been replaced with "Advanced Concrete Technology" in M.Tech - SE Curriculum as per recommendations
17	The course "Pre-Engineered Structures" should be added as elective course	"Pre-Engineered Structures" has been added as elective course in M.Tech - SE Curriculum as per recommendations
18	the course "Design & Detailing of RC Structures" should be introduced as an elective course	"Design & Detailing of RC Structures" has been introduced as an elective course in M.Tech - SE Curriculum as per recommendations
19	The syllabus in the "Design of tall structure" is to be updated by incorporating advanced analysis methods	advanced analysis method has been added in Design of tall structures as per recommendations
20	Green buildings syllabus is to be updated as per the current construction practices	Green buildings syllabus is updated as per the current construction practices
21	Introduce "eQuest/DesignBuilder" software tool to estimate Operational energy consumption of a green building in Green Buildings course	eQuest/DesignBuilder software tool is added in Green Buildings course

*[Signature]*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESARAM, Guntur Dist,



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph. +91 - 866 - 3500122, 2577715, 2576129

22	Introduce a new course titled "Building Information Modeling" in the first semester of M. Tech-C.T.M	"Building Information Modeling" has been added in the first semester of M. Tech-C.T.M
23	To introduce new course "Emerging Construction Technologies" as professional elective course in the second semester of M. Tech C.T.M	"Emerging Construction Technologies" as professional elective course has been added in M.Tech CTM
24	introduce new course named "Sustainable Construction Materials and Methods" isbe introduced in first semester of C.T.M	"Sustainable Construction Materials and Methods" has been added M.Tech CTM
25	introduce a new course titled "Lean Construction Technology" in the first semester of M. Tech C.T.M	"Lean Construction Technology"has been added M.Tech CTM
26	introduce a new software tool as practical component in the core course "Mechanized Construction and Machinery" of M. Tech C.T.M	A new software tool has been added in "Mechanized Construction and Machinery" of M. Tech C.T.M
27	Introduce the new professional elective course "Project Risk Management"	the new professional elective course "Project Risk Management", was added in M.Tech CTM
28	Detailed Project Report (DPR) should incorporated in second semester with case studies in M.Tech-GTE	Detailed Project Report (DPR) is incorporated in second semester with case studies in M.Tech-GTE
29	Introduce a new course "Construction Planning Scheduling and Control" in M. Tech C.T.M	"Construction Planning Scheduling and Control" in M. Tech C.T.M has been added
30	Introduce an elective "Preengineering construction and technology" in M. Tech C.T.M	Preengineering construction and technology" in M. Tech C.T.M has been added
31	Introduce a new elective "Design of Offshore Structures" in M.Tech SE	Design of Offshore Structures" in M.Tech SE has been added

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

#### Detailed Description on the discussion happened in meeting for passing the resolution (Annexure number and Point number in the Annexure)

Point No	Resolution Passed	Detailed Description	Annex. No
1	Basics concepts were incorporated in the introduction part in each professional core courses	Dr.G. Apparao (Professor-IIT Madras) suggested to cover the basic concepts in professional core courses and all members agreed for the same	1
2	Weightage is to be given to transportation engineering domain courses and one skill component is also added	Mr.Y.Ramana (Industry expert) suggested to give more weightage for transportation engineering domain also as lot of works related to transportation and all members agreed for the same	1
3	<b>Pavement materials</b> and other construction materials were added in one of the elective in transportation engineering	Mr.Y.Ramana (Industry expert) suggested to make students to be strong in pavement materials and other construction materials and to incorporate all innovative materials being used in construction in the syllabus and all members agreed for the same	1
4	Two standard textbooks are added for every course	Dr.G. Apparao (Professor-IIT Madras) suggested to maintain two standard textbooks, and all agreed for the same	1
5	Communication skills related courses are introduced in the curriculum	Mr.D.Naveen Kumar (Alumni) suggested to keep communication skills related courses and professor incharge academics replied that they are available already.	1
6	<b>Pre fabricated structures</b> as elective is introduced in M.Tech S.E.	Dr.G. Apparao (Professor-IIT Madras) suggested to include <b>pre fabricated structures</b> as one elective with <b>precast</b> as <b>one chapter</b> and all members agreed for the same	1
7	Foundation Engineering is added as elective in place of Advanced Foundation Engineering	Dr.G. Apparao (Professor-IIT Madras) suggested to include Foundation Engineering as elective in place of Advanced Foundation Engineering, also add relevant IS codes in the concerned courses and all members agreed for the same	1
8	Forensics in Civil Engineering is added as elective and one of the chapter as	Dr.G. Apparao (Professor-IIT Madras) suggested to include Forensics in Civil	1



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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

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

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122, 2577715, 2576129.

	Contraction of pre cast composite floor is added	Engineering as elective and one of the chapter should be of Contraction of pre cast composite floor and all members agreed for the same	
9	SSR is added in the QSE course	Alumni Mr.Prabhu Teja suggested to add SSR in QSE course and all members agreed for the same	I
10	DGPS is added in Surveying course	Alumni Mr.Prabhu Teja suggested to add DGPS in Surveying course and all members agreed for the same	I
11	Design thinking and innovation 1 &2 and Computational thinking design are added in First year for Y20 Batch	Dr.G. Apparao (Professor-IIT Madras) suggested that "Introduction to Design", "Design thinking and innovation 1 &2 and Computational thinking design" will be offered in First Year odd semester for 2020 admitted batch and all members agreed for the same	I
12	Mechanics course is added in First year odd semester for 2020-21 admitted batch	Dr.G. Apparao (Professor-IIT Madras) suggested that Mechanics course is added in First year odd semester for 2020-21 admitted batch and all members agreed for the same	I
13	Design Tools Workshop course covers design skills, Machine Drawing and Workshop Practice	Dr.G. Apparao (Professor-IIT Madras) suggested to have a course which covers design skills, Machine Drawing and Workshop Practice and professor in charge academics replied that they are available already	I
14	"Mathematics for Computing" and "Mathematics for Engineers" are added first and second semesters for 2020-21 admitted batch	Dr.G. Apparao (Professor-IIT Madras) suggested that "Mathematics for Computing" and "Mathematics for Engineers" courses should be offered in First and Second Semesters for 2020-21 admitted batch and all members agreed for the same	I
15	"Theory of elasticity" has been changed to "Advanced Mechanics of solids" in M.Tech - SE Curriculum as per recommendations	Dr.G. Apparao (Professor-IIT Madras) suggested that In M.Tech-SE, the course "Theory of elasticity" should be changed to "Advanced Mechanics of solids" and all members agreed for the same	I
16	"Applied mathematics" has been replaced with "Advanced Concrete	Dr.G. Apparao (Professor-IIT Madras) suggested that the course "Applied	I



### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph. +91 - 866 - 3500122, 2577715, 2578129.

	Technology" in M.Tech - SE Curriculum as per recommendations	mathematics" should be replaced with "Advanced Concrete Technology" containing theory and laband all members agreed for the same	
17	Pre-Engineered Structures" has been added as elective course in M.Tech - SE Curriculum as per recommendations	Dr.G. Apparao (Professor-IIT Madras) suggested that The course "Pre-Engineered Structures" should be added as elective courseand all members agreed for the same	I
18	Design & Detailing of RC Structures" has been introduced as an elective coursecourse in M.Tech - SE Curriculum as per recommendations	Dr.G. Apparao (Professor-IIT Madras) suggested that the course "Design & Detailing of RC Structures" should be introduced as an elective courseand all members agreed for the same	I
19	advanced analysis methodshas been added in Design of tall structureas per recommendations	Dr.G. Apparao (Professor-IIT Madras) suggested that the syllabus in the "Design of tall structure" is to be updated by incorporating advanced analysis methods	I
20	Green buildings syllabusis updated as per the current construction practices	Dr.G. Apparao (Professor-IIT Madras) suggested thatGreen buildings syllabus is to be updated as per the current construction practicesand all members agreed for the same	I
21	eQuest/DesignBuildersoftware tool is added in Green Buildings course	Mr.Y.Ramana (Industry expert) suggested to Introduce "eQuest/DesignBuilder" software tool to estimate Operational energy consumption of a green building in Green Buildings courseand all members agreed for the same	I
22	"Building Information Modeling" has been added in the first semester of M. Tech-C.T.M	Mr.Y.Ramana (Industry expert) suggested to introduce a new course titled "Building Information Modeling" in the first semester of M. Tech-C.T.M and all members agreed for the same	I
23	"Emerging Construction Technologies" as professional elective course has been added in M.Tech CTM	Mr.Y.Ramana (Industry expert) suggested To introduce new course "Emerging Construction Technologies" as professional elective course in the second semester of M. Tech C.T.M and all members agreed for the same	I

  
Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADDESWARAM, Guntur Dist.





### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 602 Ph: +91 - 866 - 3500122, 2577715, 2576129

24	"Sustainable Construction Materials and Methods" has been added M.Tech CTM	Mr.Y.Ramana (Industry expert) suggested that introduce new course named "Sustainable Construction Materials and Methods" is be introduced in first semester of C.T.Mall members agreed for the same	1
25	"Lean Construction Technology" has been added M.Tech CTM	Mr.Y.Ramana (Industry expert) suggested that introduce a new course titled "Lean Construction Technology" in the first semester of M. Tech C.T.M and all members agreed for the same	1
26	A new software tool has been added in "Mechanized Construction and Machinery" of M. Tech C.T.M	Mr.Y.Ramana (Industry expert) suggested that to introduce a new software tool as practical component in the core course "Mechanized Construction and Machinery" of M. Tech C.T.M and all members agreed for the same	1
27	Three new professional elective course "Project Risk Management", was added in M.Tech CTM	Mr.Y.Ramana (Industry expert) suggested to Introduce the new professional elective course "Project Risk Management", "Operational Research" and all members agreed for the same	1
28	Detailed Project Report (DPR) is incorporated in second semester with case studies in M.Tech-GTE	Dr.G. Apparao (Professor-IIT Madras) suggested to add Detailed Project Report (DPR) in second semester and all members agreed for the same	1
29	"Construction Planning Scheduling and Control" in M. Tech C.T.M has been added	Dr.G.Apparao (Professor-IIT Madras) suggested to add Construction Planning Scheduling and Control" in M. Tech C.T.M and all members agreed for the same	1
30	Preengineering construction and technology" in M. Tech C.T.M has been added	Dr.G. Apparao (Professor-IIT Madras) suggested to add Preengineering construction and technology" in M. Tech C.T.M and all members agreed for the same	1
31	Design of Offshore Structures" in M.Tech SE has been added	Dr.G. Apparao (Professor-IIT Madras) suggested to add Design of Offshore Structures" in M.Tech SE and all members agreed for the same	1

*CRM*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

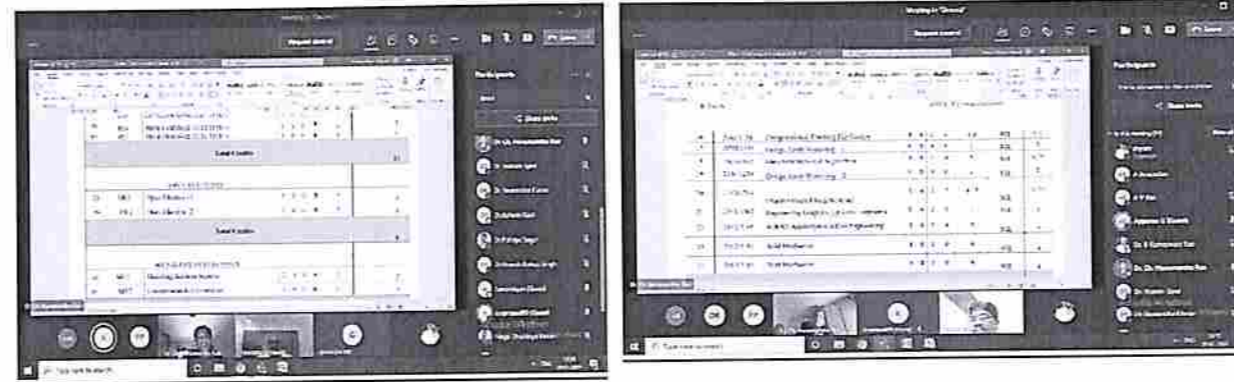
Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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

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

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: 491 - 666 - 3500122, 2577715, 2576129

#### Screenshots of BOS meeting:



BOS MEETING held on 05-12-2020

#### List of BOS Members Present

S.No	FULL NAME	DESIGNATION	ORGANIZATION	POSITION IN THE MEETING
1	Dr. G. Appa Rao	Professor	IIT Madras	External Academic BOS Member
2	Mr. Y.V Ramana	CEO	Vijay Nirman Company PVT LTD	External Academic BOS Member
3	Mr .M.H. Reddy	DEE (H & B)	APCRDA	External Industry BOS Member
4	Mr .N.V.K. Prasad	Dy. Superintendent Engineer	Public Health Dept., Guntur	External Industry BOS Member
5	Dr. CH.Hanumantha Rao	Professor, Department Chair/ HoD	Civil	BOS Chairman
6	Dr.Venkataram	Dean- Academics	Civil	Patron - Dean- Academics
7	Dr. B. Kameswara Rao	Professor	Civil	Internal member
8	Dr. A. Aravindan	Professor	Civil	Internal member
9	Dr. A. V. Rao	Professor	Civil	Internal member
10	Dr. Sanjeet Kumar	Associate Professor	Civil	Internal member
11	Dr. K. Naga Chaitanya	Associate	Civil	Internal member

*Ch*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist,



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

		Professor		
12	Dr. Veerendra.C. Khed	Associate Professor	Civil	Internal member
13	Dr.Umesh K Singh	Associate Professor	Civil	Internal member
14	Dr.Ashwin Raut	Associate Professor	Civil	Internal member
15	Dr.D.Karthik	Assistant Professor	Civil	Internal member
16	Mr. K. Shyam Chamberlin	Assistant Professor	Civil	Internal member
17	Mr. K. Hemantha Raja	Deputy HoD-CE & Assistant Professor	Civil	Internal member
18	Mr. B. G.Rahul	Assistant Professor	Civil	Internal member
19	Mr .D.Naveen	APCRDA	Civil	Alumni Member
20	Mr .P. Prabhu Teja	Water Resource Dept., KLRSP Division No.1, VJA	Civil	Alumni Member

*C.R.*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)  
 Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified  
 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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph. +91 - 866 - 3500122, 2577715, 2576129.

#### Program Structure for B.Tech Civil Engineering

SNO	COURSE CODE	COURSE NAME	Course Category	L	T	P	S	Cr	Pre	New Course/Revised Course/ Retained Course	Changes Proposed by	Focused on Employability/Entrepreneurship/Skill Development	Justification
1	20UC1101	Integrated Professional English	HSS	0	0	4	0	2	NIL	Retained Course	No Changes	Employability	Covers the soft, verbal and reasoning skills Concepts which helps the students for attaining better employment
2	20UC1202	English Proficiency	HSS	0	0	4	0	2	NIL	Retained Course	No Changes	Employability	Covers the soft, verbal and reasoning skills Concepts which helps the students for attaining better employment
3	20UC2103	Professional Communication Skills	HSS	0	0	4	0	2	NIL	Retained Course	No Changes	Employability	Covers the soft, verbal and reasoning skills Concepts which helps the students for attaining better employment
4	20UC2204	Corporate Communication Skills	HSS	0	0	4	0	2	NIL	Retained Course	No Changes	Employability	Covers the soft, verbal and reasoning skills Concepts which helps the students for attaining better employment
5	20UC3005	Aptitude Builder	HSS	0	0	4	0	2	NIL	Retained Course	No Changes	Entrepreneurship	Covers the soft, verbal and reasoning skills Concepts which helps the students for attaining better employment
6	19FL3054	Foreign Language Elective	HSS	2	0	0	0	2	NIL	Retained Course	No Changes	Employability	Covers various Foreign language courses which helps the students to develop the skills
7	20MT1101	Mathematics For Computing	BS	2	2	0	2	4.5	NIL	Retained Course	No Changes	Skill Development	Covers the applications of mathematics in Civil Engineering courses which helps the students for attaining better employment

*Handwritten signature*

Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-35-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122, 2577715, 2576129.

8	20SC1102	Introduction To Design	BS	1	0	0	4	2	NIL	Retained Course	No Changes	Skill Development	
9	20SC1203	User Centric Design Techniques	BS	1	0	0	4	2	NIL	Retained Course	No Changes	Employability	
10	20SC2104	Design Thinking And Innovation	BS	1	0	0	4	2	NIL	Retained Course	No Changes	Entrepreneurship	Covers design thinking and innovation of the products which helps the students to develop the skills
11	19BT1001	Biology For Engineers	BS	2	0	0	0	2	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
12	19MT2102	Mathematics For Engineers	BS	2	1	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
13	19MT2007	Probability And Optimization Techniques	BS	2	1	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
14	19PH1010	Mechanics	SE	3	1	0	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
15	19CE2205	Geology	SE	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
16	20SC1101	Computational Thinking For	ES	3	0	2	6	5.5	NIL	Retained Course	No Changes	Skill Development	

*Chand*  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWARAM, Guntur Dist.



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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified  
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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

Design													
17	20ME1103	Design Tools Workshop - I	ES	0	0	4	0	2	NIL	Retained Course	No Changes	Employability	Covers the design tools workshop Concepts which helps the students for attaining better employment
18	20SC1202	Data Structures & Algorithm	ES	3	0	2	3	4.75	NIL	Retained Course	No Changes	Skill Development	Covers the programming Concepts which helps the students for attaining better employment
19	19SC1209	Design Tools Workshop - II	ES	0	0	4	0	2	NIL	Retained Course	No Changes	Employability	Covers the design tools workshop Concepts which helps the students for attaining better employment
20	19SC1203	Object Oriented Programming	ES	3	0	2	3	4.75	NIL	Retained Course	No Changes	Skill Development	Covers the programming Concepts which helps the students for attaining better employment
21	19CE1002	Engineering Graphics For Civil Engineers	ES	0	0	2	0	1	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
22	19CE2105	AI & ML Applications in Civil Engineering	ES	2	0	0	4	3	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
23	19CE2101	Solid Mechanics	ES	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

*[Signature]*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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

Phone No. 08845 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122; 2577715; 2576129.

24	19CE2102	Fluid Mechanics	ES	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
25	19CE2103	Surveying	PC	3	0	2	0	4	NIL	Revised Course	Mr.Prabhu Teja	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
26	19CE2104	Construction Materials & Concrete Technology	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
27	19CE2201	Structural Analysis	PC	3	1	0	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
28	19CE2202	Building Planning, Drawing & Construction Management	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
29	19CE2203	Hydraulics & Hydraulic Machines	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
30	19CE2204	Environmental Engineering	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

  
 Head  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWAREM, Guntur Dist



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002, Ph. +91 - 866 - 3500122, 2577715, 2576129.

31	19CE3101	Design Of Reinforced Concrete Structures	PC	3	0	2	0	4	19C E22 01	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
32	19CE3103	Transportation Engineering	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
33	19CE2206	Geotechnical Engineering	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
34	19CE3201	Quantity Surveying Estimation	PC	3	0	2	0	4	NIL	Revised Course	Mr.Prabhuteja	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
35	19CE3102	Water Resources Engineering	PC	3	1	0	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
36	19CE3202	Design Of Steel Structures	PC	3	1	0	0	4	19C E22 01	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
37	20TS3101	Technical Proficiency / Entrepreneurial Incubation	SKE	0	0	0	12	3	NIL	Retained Course	No Changes	Skill Development	Covers the Management of various products concepts which helps the students for becoming Entrepreneurship

*Chh*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADDESARAM, Guntur Dist





### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122, 2577715, 2576129.

38	20TS3202	Technical Proficiency / Technopreneurs hip	SKE	0	0	0	12	3	NIL	Retained Course	No Changes	Skill Development	Covers core courses concepts which helps the students to develop the skills
39	20TS4103	Technical Proficiency / Entrepreneurial Skilling	SKE	0	0	0	12	0	NIL	Retained Course	No Changes	Skill Development	Covers the Management of various products concepts which helps the students for becoming Entrepreneurship
40	20TS4204	Technical Proficiency / Entrepreneurial Skilling	SKE	0	0	0	12	0	NIL	Retained Course	No Changes	Skill Development	Covers the Management of various products concepts which helps the students for becoming Entrepreneurship
41	20IE2050	Social Internship	PR	0	0	0	8	2	NIL	Retained Course	No Changes	Employability	Covers community service concepts which helps the students to develop the skills
42	20IE3050	Technical Internship	PR	0	0	0	8	2	NIL	Retained Course	No Changes	Entrepreneurship	Covers core course concepts which helps the students to develop the skills
43		Design Studio Elective	PR	0	0	0	10	2.5	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
44	20IE3150	Midgrade Capstone Project 1	PR	0	0	0	8	2	NIL	Retained Course	No Changes	Entrepreneurship	Covers Industrial process concepts which helps the students to develop the skills
45	20IE3250	Midgrade Capstone Project 2	PR	0	0	0	8	2	NIL	Retained Course	No Changes	Entrepreneurship	Covers Industrial process concepts which helps the students to develop the skills
46	20IE4150	Capstone Project 1	PR	0	0	0	24	6	NIL	Retained Course	No Changes	Entrepreneurship	Covers Industrial process concepts which helps the students to develop the skills
47	20IE4250	Capstone Project 2	PR	0	0	0	24	6	NIL	Retained Course	No Changes	Entrepreneurship	Covers Industrial process concepts which helps the students to develop the skills

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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

Phone No: 08845 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002, Ph: +91 - 866 - 3500122, 2577715, 2576129.

48	19IE4050	Practice School	PR	0	0	0	24	6	NIL	Retained Course	No Changes	Entrepreneurship	Covers Industrial process concepts which helps the students to develop the skills
49	19IE4051	Internship	PR	0	0	0	24	6	NIL	Retained Course	No Changes	Entrepreneurship	Covers Industrial process concepts which helps the students to develop the skills
50	PE1	PROFESSIONAL ELECTIVE-1	PE	3	0	0	4	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
51	PE2	PROFESSIONAL ELECTIVE-2	PE	3	0	0	4	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
52	PE3	PROFESSIONAL ELECTIVE-3	PE	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
53	PE4	PROFESSIONAL ELECTIVE-4	PE	3	0	0	12	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
54	PE5	PROFESSIONAL ELECTIVE-5	PE	3	0	0	8	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
55	OE1	Open Elective - 1	OE	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

56	OE2	Open Elective - 2	OE	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
57	ME1	Modeling Business Systems	ME	2	0	0	0	2	NIL	Retained Course	No Changes	Employability	Covers the Management of various products concepts which helps the students for becoming Entrepreneurship
58	ME2	Entrepreneurship Essentials	ME	2	0	0	0	2	NIL	Retained Course	No Changes	Employability	Covers the Management of various products concepts which helps the students for becoming Entrepreneurship
59	19CE3211	Advanced Structural Analysis	PE1	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
60	19CE3221	Advanced Design of Reinforced Concrete Structures	PE2	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
61	19CE3231	Prestressed concrete	PE3	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
62	19CE4141	Bridge engineering	PE4	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

*Chd*

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist



**Koneru Lakshmaiah Education Foundation**

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

63	19CE4151	Sustainable construction technologies	PE5	3	0	0	0	3	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
64	19CE3212	Foundation engineering	PE1	3	0	0	0	3	NIL	New Course	Dr.G.Apparao	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
65	19CE3222	Ground improvement techniques	PE2	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
66	19CE3232	Design of earth retaining structures	PE3	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
67	19CE4142	Geotechnical earthquake engineering	PE4	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
68	19CE4152	Forensics in Civil Engineering	PE5	3	0	0	0	3	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
69	19CE3213	Sustainable engineering & technology	PE1	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

*Ch*  
ficed

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

70	19CE3223	Environmental impact assessment and life cycle analyses	PE2	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
71	19CE3233	Solid Waste Management and Landfills	PE3	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
72	19CE3214	River engineering	PE4	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
73	19CE3224	Urban water hydrology and hydraulics	PE5	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
74	19CE3216	Construction Contracts	PE1	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
75	19CE3226	Resource Safety And Quality Management	PE2	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
76	19CE3236	Form Work	PE3	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

*CLB*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)  
 Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified  
 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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

77	19CE4146	Engineering Economy	PE4	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
78	19CE4156	Advanced Construction Technology	PE5	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
79	19CE3215	Intelligent transportation systems	PE1	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
80	19CE3225	Pavement materials & design	PE2	3	0	0	0	3	NIL	Revised Course	Mr.M.V.Ramana	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
81	19CE3235	Traffic engineering and management	PE3	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
82	19CE4145	Urban transportation systems planning.	PE4	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies
83	19CE4155	Railway engineering airport planning and design	PE5	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies

*CRS*  
HEAD

Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

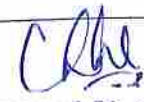
Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.  
Phone No. 08645 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-35-38, Museum Road, Governorpet, Vijayawada - 520 002 Ph: +91 - 866 - 3500122, 2577715, 2578129.

Percentage of Syllabus Revision =20%  
 Percentage of Courses focusing on Employability =77.1 %  
 Percentage of Courses focusing on Entrepreneurship =10.8%  
 Percentage of Courses focusing on Skill Development =12.04%

#### Program Structure for M.Tech Structural Engineering

SNO	COURSE CODE	COURSE NAME	Course Category	L	T	P	S	Cr	Pre	New Course/Revised Course/Retained Course	Changes Proposed by	Focused on Employability/Entrepreneurship/Skill Development	Justification
1	20CE5101	Advanced Mechanics of Solids	PC	3	1	0	0	4	NIL	New Course	Dr.G. Apparao	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
2	20CE5102	Advanced Prestressed Concrete	PC	3	1		0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
3	20CE5103	Advanced Concrete Technology	PC	3	0	2	0	4	NIL	New Course	Dr.G. Apparao	Entrepreneurship	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

4	20CE5104	Structural Dynamics	OC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
5	20CE51A1	Pre-Engineered Structures	PE-I	3	0	0	0	3	NIL	New Course	No Changes	Entrepreneurship	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
6	20CE51A2	Design of Offshore structures	PE-I	3	0	0	0	3	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
7	20CE51B1	Design & Detailing of Structures	PE-II	3	0	0	0	3	NIL	New Course	Dr.G. Apparao	Entrepreneurship	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
8	20CE51B2	Repair and Rehabilitation of structures	PE-II	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
9	20CE5149	Seminar	PR	0	0	4	0	2	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies

*CRhe*  
fieda

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADDESWARAM, Guntur Dist





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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified  
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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

10	20CE5205	Theory of Plates and Shells	PC	3	1	0	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
11	20CE5206	Finite Element Analysis	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Entrepreneurship	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
12	20CE5207	Stability of structures	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
13	20CE5208	Earthquake resistance design of structures	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Entrepreneurship	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
14	20CE52C1	Fracture Mechanics	PE-III	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
15	20CE52C2	Design of Tall Structures	PE-III	3	0	0	0	3	NIL	Revised Course	Dr.G. Apparao	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies

*(Signature)*  
Head  
Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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. 29-36-38, Museum Road, Govenorpet, Vijayawada - 520 002, Ph. +91 - 866 - 3500122, 2577715, 2576129.

16	20CE52D1	Sustainable Buildings	PE-IV	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
17	20CE52D2	Structural Health monitoring	PE-IV	3	0	0	0	3	NIL	Retained Course	No Changes	Entrepreneurship	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
18	20IE5250	Term Paper	PR	0	0	4	0	2	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies
19	20IE6050	Dissertation	PR	0	0	72	0	36	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies

Percentage of Syllabus Revision	=10%
Percentage of Courses focusing on Employability	=52.6%
Percentage of Courses focusing on Entrepreneurship	=31.57%
Percentage of Courses focusing on Skill Development	=15.78%

*CRH*

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified


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: 29-38-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

#### Program Structure for M.Tech Construction Technology & Management

SNO	COURSE CODE	COURSE NAME	Course Category	L	T	P	S	Cr	Pre	New Course/Revised Course/Retained Course	Changes Proposed by	Focused on Employability/Entrepreneurship/Skill Development	Justification
1	20CE5121	Construction Planning Scheduling and Control	PC	3	0	2	0	4	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
2	20CE5122	Sustainable Construction Materials and Methods	PC	3	0	2	0	4	NIL	New Course	No Changes	Entrepreneurship	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
3	20CE5123	Lean Construction Practices	PC	3	1	0	0	4	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
4	20CE5124	Building Information Modeling	PC	3	0	2	0	4	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWARAM, Guntur Dist.



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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified  
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: 29-38-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

													companies
5	20CE51E1	Material Procurement Management	PE-I	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
6	20CE51E2	Green Buildings	PE-I	3	0	0	0	3	NIL	Revised Course	No Changes	Entrepreneurship	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
7	20CE51F1	Construction Personnel Management	PE-II	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
8	20CE51F2	Pre-Engineering Construction and Technology	PE-II	3	0	0	0	3	NIL	New Course	No Changes	Entrepreneurship	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
9	20IE5149	Seminar	PC	0	0	4	0	2	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies

*CAH*  
Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: 91 - 866 - 3500122, 2577715, 2576129.

10	20CE5225	Mechanized Construction and Machinery	PC	3	0	2	0	4	NIL	Revised Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
11	20CE5226	Project Formulation Appraisal	PC	3	1	0	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
12	20CE5227	Construction Laws and Regulations	PC	3	1	0	0	4	NIL	Retained Course	No Changes	Entrepreneurship	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
13	20CE5228	Quality Management and Safety Management Systems in Construction	PC	3	0	2	0	4	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
14	20CE52G1	Statistical Methods in Construction	PE-III	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

15	20CE52G2	Project Risk Management	PE-III	3	0	0	0	3	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
16	20CE52H1	Emerging Construction Technologies	PE-IV	3	0	0	0	3	NIL	New Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
17	20CE52H2	Resource Management and Control in Construction	PE-IV	3	0	0	0	3	NIL	Retained Course	No Changes	Employability	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
18	20IE5250	Term Paper	PR	0	0	4	0	2	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies
19	20IE6050	DISSERTATION	PR	0	0	72	0	36	NIL	Retained Course	No Changes	Skill Development	Covers the Engineering applications in Construction Technology and Management which helps the students for attaining better employment in core companies

*Chh*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADDESWARAM, Guntur Dist



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001:2015 Certified

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: 29-36-38, Museum Road, Govemrpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

Percentage of Syllabus Revision =25%  
 Percentage of Courses focusing on Employability = 63.15%  
 Percentage of Courses focusing on Entrepreneurship = 21.05%  
 Percentage of Courses focusing on Skill Development = 15.78%

#### Program Structure for M.Tech Geotechnical Engineering

SNO	COURSE CODE	COURSE NAME	Course Category	L	T	P	S	Cr	Pre	New Course/Revised Course/Retained Course	Changes Proposed by	Focused on Employability/Entrepreneurship/Skill Development	Justification
1	20CE5161	Advanced Soil Mechanics	PC	3	0	2	0	4	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
2	20CE5162	Advanced Foundation Engineering	PC	3	0	2	0	4	NIL	New Course	NA	Entrepreneurship	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
3	20CE5163	Ground Improvement Techniques	PC	3	0	2	0	4	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

		& Geosynthetics											
													Engineering which helps the students for attaining better employment in core companies
4	20CE5164	Rock Mechanics and Tunneling	PC	3	0	2	0	4	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
5	20CE51U1	RS & GIS Applications in Civil Engineering	PE-I	3	0	0	0	3	NIL	New Course	NA	Entrepreneurship	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
6	20CE51U2	Finite Element Method	PE-I	3	0	0	0	3	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
7	20CE51V1	Stability Analysis of Slopes	PE-II	3	0	0	0	3	NIL	New Course	NA	Entrepreneurship	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
8	20CE51V2	Design of Highways and Airfield pavements	PE-II	3	0	0	0	3	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical Engineering which helps the

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWARAM, Guntur Dist.





### Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)  
 Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified  
 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: 29-35-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

9	20 IE 5148	Seminar	PR	0	0	4	0	2	NIL	New Course	NA	Skill Development	students for attaining better employment in core companies
10	20CE5268	Soil Dynamics & Geotechnical Earthquake Engineering	PC	3	0	2	0	4	NIL	New Course	NA	Entrepreneurship	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
11	20CE5269	Geo-environmental Engineering	PC	3	0	2	0	4	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
12	20CE5270	Design of Earth & Earth retaining structures	PC	3	0	2	0	4	NIL	New Course	NA	Entrepreneurship	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies
13	20CE5271	Sub- surface Investigations	PC	3	0	2	0	4	NIL	New Course	NA	Employability	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better

*CRH*  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADDESWARAM, Guntur Dist





**Koneru Lakshmaiah Education Foundation**

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

													companies
19	20IE6050	Dissertation	PR	0	0	72	0	36	NIL	New Course	NA	Skill Development	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies

Percentage of Syllabus Revision = 100%

Percentage of Courses focusing on Employability = 57.89%

Percentage of Courses focusing on Entrepreneurship = 26.31%

Percentage of Courses focusing on Skill Development = 15.78%

**Course wise Syllabus revision of approved structure as mentioned in point 1**

S.no	Course Code	Course Title	Existing Syllabus	New Syllabus	Topics added/removed/replaced	Changes in Course Outcome(s)	Justification for the modifications	Revision (%)
1	19CE3225	Pavement Materials and Design	<u>O PAVEMENT MATERIALS AND DESIGN.docx</u>	<u>N PAVEMENT MATERIALS AND DESIGN.docx</u>	Aggregates and bitumen materials have been added	No Change	to make students to be strong in pavement materials	2%

*Chh*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-58, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

2	19CE4151	Sustainable Construction Technologies	New Course	<u>SCT.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
3	19CE3212	Foundation engineering	New Course	<u>FOUNDATION ENGINEERING.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
4	19CE4152	Forensics in Civil Engineering	New Course	<u>Forensics in Civil Engineering.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
5	19CE3201	Quantity Surveying Estimation & Valuation	<u>Q QUANTITY SURVEYING ESTIMATION &amp; VALUATION.docx</u>	<u>N QUANTITY SURVEYING ESTIMATION &amp; VALUATION.docx</u>	SSR Added	No Change	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	1%
6	19CE2103	Surveying	<u>O_Surveying.docx</u>	<u>N_SURVEYING.docx</u>	DGPS Added	No Change	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	1%
7	20 CE 5101	Advanced Mechanics of Solids	New Course	<u>Advanced Solid Mechanics.docx</u>	Added:Plasticity: Plastic Deformation: Strain Hardening, Idealized Stress- Strain curve, Yield Criteria, von Mises Yield Criterion, Tresca Yield Criterion, Plastic Stress-Strain Relations, Principle of Normality and Plastic Potential, Isotropic Hardening.	CO-4 Able to analyse the Plasticity deformations of stress and strain	This topic very useful for the students who are interested in research (Ph.D.) Also the course name "Theory of elasticity" has been changed to "Advanced Structural Mechanics	3%

  
**Department of Civil Engineering**  
**Koneru Lakshmaiah Education Foundation**  
**(Deemed to be University)**  
**VADESWARAM, Guntur Dist.**



### Koneru Lakshmaiah Education Foundation

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


Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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

Phone No. 08845 - 350200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Govenmpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

8	20CE5103	Advanced Concrete Technology	New Course	<u>ACT.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
9	20CE51A1	Pre-Engineered Structures	New Course	<u>Pre engineered structures.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
10	20CE51B1	Design & Detailing of Structures	New Course	<u>Design &amp; Detailing of Structures.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
11	20 CE 52C2	Design of Tall Structures	<u>O Design of Tall Structures.docx</u>	<u>N Design of Tall Structures .docx</u>	Added: Analysis and design application using Structural engineering Software	CO-4 Dynamic analysis and model analysis	This topic very useful for the students for the current industrial requirements	2%
12	20 CE 52D1	Green Buildings	<u>Green Building Y18.docx</u>	<u>N Green Buildings.docx</u>	Added: Quality assurance is added Removed: Air Conditioning	CO-4 Understanding Indoor Environment Quality and Occupational Health. Reasons for poor IAQ.	This topic very useful for the students for the Research purposes related to structural Engineering	100%

  
 Department of Civil Engineering  
 Koneru Lakshmalah Education Foundation  
 (Deemed to be University)  
 VADDESARAM, Guntur Dist.



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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified  
 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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph. ♦91 - 866 - 3500122, 2577715, 2576129.

						Measures to achieve Acceptable IAQ levels,		
13	20CE52H1	Emerging Construction Technologies	New Course	<u>EMERGING CONSTRUCTION TECHNOLOGIES</u> ES.docx	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%
14	20CE5122	Sustainable Construction Materials And Methods	New Course	<u>SUSTAINABLE CONSTRUCTION MATERIALS AND METHODS</u> .docx	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100
15	20CE5123	Lean Construction Practices	New Course	<u>Lean Construction Practices</u> .docx	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100
16	20CE5225	Mechanized Construction And Machinery	<u>O_MCM.docx</u>	<u>N_MECHANIZED CONSTRUCTION AND MACHINERY</u> .docx	Software tools added	CO 5 modified	Covers the software applications in Civil concepts which helps the students for attaining better employment in core companies	100%
17	20CE52G2	Project Risk Management	New Course	<u>pROJECT RISK MANAGEME NT</u> NT.docx	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Civil concepts which helps the students for attaining better employment in core companies	100%

*C. Lakshmaiah*  
Head

**Department of Civil Engineering**  
**Koneru Lakshmaiah Education Foundation**  
 (Deemed to be University)  
 VADDESWAREM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002, Ph. +91 - 866 - 3500122, 2577715, 2576129.

18	20CE5121	Construction Planning Scheduling and Control	New Course	<u>CONSTRUCTION PLANNING SCHEDULING AND CONTROL.doc</u> x	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Construction Technology & Management which helps the students for attaining better employment in core companies	100%
19	20CE5124	Building Information Modeling	New Course	<u>BUILDING INFORMATION MODELING.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Construction Technology & Management which helps the students for attaining better employment in core companies	100%
20	20CE51A2	Design of offshore structures	New Course	<u>Design of offshore Structures.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Structural Engineering which helps the students for attaining better employment in core companies	100%
21	20CE51F2	Pre-Engineering Construction and Technology	New Course	<u>Pre-Engineering Construction and Technology.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Construction Technology & Management which helps the students for attaining better employment in core companies	100%
22	20CE5161	Advanced Soil Mechanics	New Course	<u>ADVANCED SOIL MECHANICS.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%
23	20CE5162	Sub-surface Investigations	New Course	<u>Sub-surface Investigations.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%

*CRK*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADDESWARAM, Guntur Dist.



### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

24	20CE5163	Geo-environmental Engineering	New Course	<u>Geoenvironmental Engineering.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%
25	20CE5164	Ground Improvement Techniques	New Course	<u>Ground Improvement Techniques.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%
26	20CE5265	Soil Dynamics & Geotechnical Earthquake Engineering	New Course	<u>Geotechnical Earthquake Engineering.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%
27	20CE5266	Geo Synthetics and Design of Retaining Walls	New Course	<u>Geo Synthetics and Design of Retaining Walls.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%
28	20CE5267	Design of Earth & Earth retaining structures	New Course	<u>Design of Earth &amp; Earth retaining structures.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%
29	20CE5268	Advanced Foundation Engineering	New Course	<u>Advanced Foundation Engineering.docx</u>	CO1,CO2,CO3,CO4 Added	NA	Covers the Engineering applications in Geotechnical Engineering which helps the students for attaining better employment in core companies	100%

*Handwritten Signature*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
YADDESARAM, Guntur Dist.





### Koneru Lakshmaiah Education Foundation

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

Accredited by NAAC as 'A++' Approved by AICTE ISO 9001-2015 Certified

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: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2577715, 2576129.

#### VALUE ADDED CERTIFICATE COURSES OFFERED

S.NO	Batch	Course Code	Course Name	Certification by	Semester	Type	JUSTIFICATION
1	Y17	-	ETABS	APSSDC	ODD	SKILLING	Covers the civil engineering techniques associated with industry and helps the students to enhance their knowledge
2	Y17	-	Revit Architecture	APSSDC	ODD	SKILLING	
3	Y18	18CC3005	TOTAL STATION	LSIT Chennai	EVEN	SKILLING	
4	Y18	18CC3006	Revit Architecture	AUTODESK	EVEN	SKILLING	
5	Y19	19CC3002	TOTAL STATION	LSIT Chennai	EVEN	SKILLING	

BOS CHAIRMAN

Dr.CH.HANUMANTHA RAO  
Head


Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWAREM, Guntur Dist.

KLEF									
2020-21 COURSE STRUCTURE									
SNO	COURSE CODE	COURSE NAME	L	T	P	S	Cr	Pre Req	CE
<b>I HUMANITIES &amp; SOCIAL SCIENCES</b>									
1	20UC1101	Integrated Professional English	0	0	4	0	2	NIL	2
2	20UC1202	English Proficiency	0	0	4	0	2	NIL	2
3	20UC2103	Professional Communication Skills	0	0	4	0	2	NIL	2
4	20UC2204	Corporate Communication Skills	0	0	4	0	2	NIL	2
5	20UC3005	Aptitude Builder	0	0	4	0	2	NIL	2
6		Foreign Language Elective	2	0	0	0	0	NIL	0
7	20UC0007	Indian Heritage And Culture	2	0	0	0	0	NIL	0
8	20UC0008	Indian Constitution	2	0	0	0	0	NIL	0
9	20UC0009	Ecology & Environment	2	0	0	0	0	NIL	0
10	20UC0010	Universal Human Values & Professional Eth	2	0	0	0	0	NIL	0
11	20UC0011	ENTREPRENEURSHIP	2	0	0	0	0	NIL	0
<b>Total Credits</b>									12
<b>II BASIC SCIENCES</b>									
12	20MT1101	Mathematics For Computing	2	2	0	2	4.5	NIL	4.5
13	20SC1102	Introduction To Design	1	0	0	4	2	NIL	2
14	20SC1203	User Centric Design Techniques	1	0	0	4	2	NIL	2
15	20SC2104	Design Thinking And Innovation	1	0	0	4	2	NIL	2
16	19BT1001	Biology For Engineers	2	0	0	0	2	NIL	2
17	19MT2102	Mathematics For Engineers	2	1	0	0	3	NIL	3
18	19MT2007	Probability And Optimization Techniques	2	1	0	0	3	NIL	3
<b>SCIENCE ELECTIVE - 1</b>									
19	19PH1010	Mechanics	3	1	0	0	4	NIL	4
<b>SCIENCE ELECTIVE - 2</b>									
20	19CE2205	Geology	3	0	2	0	4	NIL	4
<b>Total Credits</b>									26.5
<b>III ENGINEERING SCIENCES</b>									
21	20SC1101	Computational Thinking For Design	3	0	2	6	5.5	NIL	5.5
22	20ME1103	Design Tools Workshop - I	0	0	4	0	2	NIL	2
23	20CS1202	Data Structures and Algorithms	3	0	2	4	5	NIL	4.75
24	19SC1209	Design Tools Workshop - II	0	0	4	0	2	NIL	2
25	19SC1203	Object Oriented Programming	3	0	2	3	4.75	NIL	4.75
26	19CE1002	Engineering Graphics For Civil Engineers	0	0	2	0	1	NIL	1
27	19CE2105	AI & ML Applications in Civil Engineering	2	0	0	4	3	NIL	3
28	19CE2101	Solid Mechanics	3	0	2	0	4	NIL	4
29	19CE2102	Fluid Mechanics	3	0	2	0	4	NIL	4
<b>Total Credits</b>									31
<b>PROFESSIONAL CORE COURSES</b>									
25	19CE2103	Surveying	3	0	2	0	4	NIL	4
26	19CE2104	Construction Materials & Concrete Technol	3	0	2	0	4	NIL	4
27	19CE2201	Structural Analysis	3	1	0	0	4	NIL	4
28	19CE2202	Building Planning, Drawing & Construction	3	0	2	0	4	NIL	4
29	19CE2203	Hydraulics & Hydraulic Machines	3	0	2	0	4	NIL	4
30	19CE2204	Environmental Engineering	3	0	2	0	4	19CE2201	4
31	19CE3101	Design Of Reinforced Concrete Structures	3	0	2	0	4	NIL	4
32	19CE3103	Transportation Engineering	3	0	2	0	4	NIL	4
33	19CE2206	Geotechnical Engineering	3	0	2	0	4	NIL	4
34	19CE3201	Quantity Surveying Estimation	3	0	2	0	4	NIL	4


35	19CE3102	Water Resources Engineering	3	1	0	0	4	NIL	4
36	19CE3202	Design Of Steel Structures	3	1	0	0	4	19CE2201	4
<b>Total Credits</b>									48
<b>SKILLING COURSES</b>									
37	20TS3101	Technical Proficiency / Entrepreneurial Incu	0	0	0	12	3	NIL	3
38	20TS3202	Technical Proficiency / Technopreneurship	0	0	0	12	3	NIL	3
39	20TS4103	Technical Proficiency / Entrepreneurial Skill	0	0	0	12	0	NIL	0
40	20TS4204	Technical Proficiency / Entrepreneurial Skill	0	0	0	12	0	NIL	0
<b>Total Credits</b>									6
<b>PROJECT</b>									
SNO	COURSE CODE	COURSE NAME	L	T	P	S			
41	20IE2050	Social Internship	0	0	0	8	2	NIL	2
42	20IE3050	Technical Internship	0	0	0	8	2	NIL	2
43		Design Studio Elective	0	0	0	10	2.5	NIL	2.5
44	20IE3150	Midgrade Capstone Project 1	0	0	0	8	2	NIL	2
45	20IE3250	Midgrade Capstone Project 2	0	0	0	8	2	NIL	2
46	20IE4150	Capstone Project 1	0	0	0	24	6	NIL	6
47	20IE4250	Capstone Project 2	0	0	0	24	6	NIL	6
48	19IE4050	Practice School	0	0	0	24	6	NIL	6
49	19IE4051	Internship	0	0	0	24	6	NIL	6
<b>Total Credits</b>									34.5
<b>PROFESSIONAL ELECTIVES</b>									
53	PE1	PROFESSIONAL ELECTIVE-1	3	0	0	0	3		3
54	PE2	PROFESSIONAL ELECTIVE-2	3	0	0	0	3		3
55	PE3	PROFESSIONAL ELECTIVE-3	3	0	0	0	3		3
56	PE4	PROFESSIONAL ELECTIVE-4	3	0	0	0	3		3
57	PE5	PROFESSIONAL ELECTIVE-5	3	0	0	0	3		3
<b>Total Credits</b>									15
<b>OPEN ELECTIVES</b>									
58	OE1	Open Elective -1	3	0	0	0	3		3
59	OE2	Open Elective -2	3	0	0	0	3		3
<b>Total Credits</b>									6
<b>MANAGEMENT ELECTIVES</b>									
60	ME1	Modelling Business Systems	2	0	0	0	2		2
61	ME2	Entrepreneurship Essentials	2	0	0	0	2		2
<b>Total Credits</b>									4
<b>Grand Total Credits</b>									171

  
**Head**  
**Department of Civil Engineering**  
**Koneru Lakshmalah Education Foundation**  
**(Deemed to be University)**  
**VADESWARAM, Guntur Dist.**

SEMESTER - 1										
S.No	Course Code	Course Name	Category	L	T	P	S	Credits	CH	Pre requisite
1	20MT1101	Mathematics for Computing	BS	2	2	0	2	4.5	6	
2	20SC1101	Computational Thinking for Design	ES	3	0	2	6	5.5	11	
3	20UC1101	Integrated Professional English	HSS	0	0	4	0	2	4	
4	20ME1103	Design Tools Workshop - I	ES	0	0	4	0	2	5	
5	20SC1102	Introduction to Design	BS	1	0	0	4	2	4	
6	19PH1010	Mechanics	SEI	3	1	0	0	4	4	
Total				9	3	10	12	20	34	
SEMESTER - 2										
1	20UC1202	English Proficiency	HSS	0	0	4	0	2	4	
2	19SC1203	Object Oriented Programming	ES	3	0	2	3	4.75	8	
3	19MT2102	Mathematics for Engineers	ES	2	1	0	0	3	3	
4	20CS1202	Data Structures and Algorithms	ES	3	0	2	4	5	8	
5	19CE1002	Engineering Graphics for Civil Engineers	ES	0	0	2	0	1	2	
6	19SC1209	Design Tools for Workshop-II	BS	0	0	4	0	2	4	
Total				8	1	14	7	17.75	29	
SEMESTER - 3										
1	19BT1001	Biology For Engineers	BS	2	0	0	0	2	2	
2	20SC1203	User Centric Design Techniques	BS	1	0	0	4	2	5	NIL
3	19MT2007	Probability and Optimization Techniques	ES	2	1	0	0	3	3	NIL
4	20UC2103	Professional Communication Skills	HSS	0	0	4	0	2	4	NIL
5	19CE2101	Solid Mechanics	PC	3	0	2	0	4	5	NIL
6	19CE2102	Fluid Mechanics	PC	3	0	2	0	4	5	NIL
7	19CE2103	Surveying	PC	3	0	2	0	4	5	NIL
8	19CE2104	Construction Materials & Concrete Technology	PC	3	0	2	0	4	5	NIL
9	20IE2650	Social Internship	Project	0	0	0	8	2	4	NIL
Total				17	1	12	12	27	38	
SEMESTER - 4										
1	20SC2104	Design Thinking And Innovation	BS	1	0	0	4	2	5	NIL
2	20UC2204	Corporate Communication Skills	HSS	0	0	4	0	2	4	NIL
3	19CE2201	Structural Analysis	PC	3	1	0	0	4	4	NIL
4	19CE2202	Building Planning, Drawing & Construction Management	PC	3	0	2	0	4	5	NIL
5	19CE2203	Hydraulics & Hydraulic Machines	PC	3	0	2	0	4	5	NIL

  
 Department of Civil Engineering  
 Koneru Lakshmaiah Education Foundation  
 (Deemed to be University)  
 VADESWARAM

6	19CE2204	Environmental Engineering	PC	3	0	2	0	4	5	NIL
7	19CE2205	Geology	SC-2	3	0	2	0	4	5	NIL
8	20IE3050	Technical Internship	project	0	0	0	8	2	4	
Total				16	1	12	12	26	37	
<b>SEMESTER - 5</b>										
1	20UC3005	Aptitude Builder	HSS	0	0	4	0	2	4	NIL
	20UC0007	Indian Heritage And Culture	HSS	2	0	0	0	0	2	NIL
2	19CE3101	Design of Reinforced Concrete Structures	PC	3	0	2	0	4	5	19CE2201
3	19CE2206	GeoTechnical Engineering	PC	3	0	2	0	4	5	Nil
4	19CE3102	Water Resources Engineering	PC	3	1	0	0	4	4	NIL
5	19CE3103	Transportation Engineering	PC	3	0	2	0	4	5	NIL
6	20TS3101	Technical Proficiency / Entrepreneurial Incubation	TS	0	0	0	12	3	6	NIL
8	20IE3150	MIDGRADE CAPSTONE PROJECT 1	project	0	0	0	8	2	4	NIL
9		Design Studio Elective	project	0	0	0	10	2.5	5	NIL
Total				14	1	10	30	25.5	40	
<b>SEMESTER - 6</b>										
	20UC0008	Indian Constitution	HSS	2	0	0	0	0	2	
	20UC0009	Ecology & Environment	HSS	2	0	0	0	0	2	
1	19CE2105	AI & ML Applications in Civil Engineering	ES	2	0	0	4	3	6	NIL
2	19CE3201	Quantity Surveying Estimation	PC	3	0	2	0	4	5	NIL
3	19CE3202	Design of steel Structures	PC	3	1	0	0	4	4	19CE2201
4	20IE3250	MIDGRADE CAPSTONE PROJECT 2	project	0	0	0	8	2	4	NIL
5	20TS3202	Technical Proficiency / Technopreneurship	TS	0	0	0	12	3	6	NIL
6	PE-1	Professional Elective - 1	PE	3	0	0	0	3	3	NIL
7	PE-2	Professional Elective-2	Prof. Elec	3	0	0	0	3	3	NIL
8	PE-3	Professional Elective-3	Prof. Elec	3	0	0	0	3	3	NIL
Total				21	1	2	24	25	38	
<b>SEMESTER - 7</b>										
	20UC0010	Universal Human Values & Professional Et	HSS	2	0	0	0	0	2	
	20UC0011	ENTREPRENEURSHIP	HSS	2	0	0	0	0	2	
1	PE-4	Professional Elective-4	Prof. Elec	3	0	0	0	3	3	
2	PE-5	Professional Elective-5	Prof. Elec	3	0	0	0	3	3	
3	ME-1	Management Elective	ME	2	0	0	0	2	3	

  
 Department of Civil Engineering  
 Koneru Lakshmalah Education Foundation  
 (Deemed to be University)  
 VADESWARAM, Guntur Dist

4	20TS4103	Technical Proficiency / Entrepreneural Skilling	TS	0	0	0	12	0	6	NIL
5	20IE4150/	CAPSTONE PROJECT 1	project	0	0	0	24	6	12	
6	19IE4050	Practice School								
Total				12	0	0	36	14	31	
<b>SEMESTER-8</b>										
1	OE-1	Open Elective-1	OE	3	0	0	0	3	3	
2	OE-2	Open Elective-2	OE	3	0	0	0	3	3	
3	ME-2	Management Elective	ME	2	0	0	0	2	2	
7		French Language	HSS	2	0	0	0	2	2	NIL
4	20TS4204	Technical Proficiency / Entrepreneural Skilling	TS	0	0	0	12	0	6	
5	20IE4250/191 E4050 19IE4051	CAPSTONE PROJECT 2/ Practice School/ Internship	project	0	0	0	24	6	12	
Total				10	0	0	36	16	28	
<b>GRAND TOTAL</b>				<b>98</b>	<b>8</b>	<b>56</b>	<b>168</b>	<b>171</b>	<b>264</b>	

*CRhe*  
Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

ANNEXURE – I  
Syllabus for Revised/ Newly Added Courses

**ADVANCED CONCRETE TECHNOLOGY**

Course Code :20 CE 5103  
Pre-requisite: NIL

L-T-P-S : 3-0-2-0  
Credits: 4

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

CO No.	Course Outcomes	PO
CO 1	Able to analyse the Characteristics of the Concrete Making Materials	1,2,3,6
CO 2	Able to design Concrete Mixes as per the Different Codal Provisions	1,2,3,6
CO 3	Able to design Concrete Mixes for Special Concretes	1,2,3,6
CO 4	Able to analyse the Durability Issues of Concrete and the Service Life of Concrete.	1,2,3,6
CO 5	Able to Design the Concrete Mix for various structures and able to cast and test the structural elements	1,2,3,6

**Syllabus:**

**Concrete Ingredients:**

Composition of OPC – Manufacture – Modified Portland Cements – Hydration Process of Portland Cements – Structure of Hydrated Cement Pastes Mineral Admixtures – Slags – Pozzolanas and Fillers – Chemical Admixtures – Solutes – Retarders – Air Entraining Agents – Water Proofing Compounds – Plasticizers and Super Plasticizers Aggregates – Properties and testing of fine and course aggregates – combining of aggregates – Substitute material for aggregates – recent advancements.

**Concrete Mix Design:**

Mix Proportioning (As per IS method, ACI method, British Method)– Mixes incorporating Fly ash, Silica fume, GGBS.

**Mechanical Properties of Concrete:**

Interfacial Transition Zone – Fracture Strength – Compressive strength – Tensile strength - Impact strength - Bond strength, modulus elasticity, modulus of rupture.

**Special Concretes:**

High Performance Concrete – High strength concrete – variations in concrete strength Fibre Reinforced Concrete – Self Compacting Concrete – Polymer Concrete – High performance concrete – lightweight concrete – pervious Concrete- Introduction to heavy weight aggregate concrete, Introduction to geo-polymer concrete.

**Durability of Concrete:**

Factors affecting durability – Chemical Attack – Permeability – chloride penetration – water absorption – creep – Shrinkage, carbonation, corrosion. Service Life Prediction: Introduction to service life prediction. Design of Concrete for the required Service Life.

  
Head

**Department of Civil Engineering**  
**Koneru Lakshmaiah Education Foundation**  
**(Deemed to be University)**  
**ADDESWARAM, Guntur Dist.**

**Project based lab:**

Concrete Mix Design, casting and testing of structural element

**Prescribed Textbooks:**

1. Gambhir.M.L., Concrete Technology – Tata McGraw Hill Book Co. Ltd., Delhi, 2004.
2. Neville, A.M., Properties of Concrete, Longman, 1995.

**References:**

1. Santhakumar. A.R., Concrete Technology, Oxford University press, New Delhi. 2007.
2. MethaP.K. and Montreio P.J.M., Concrete Structure Properties and Materials, Prentice Hall, 1998.
3. Gupta.B.L. and Amit Gupta, Concrete Technology, Standard Publishers Distributer, New Delhi, 2004.

Head

Department of Civil Engineering  
Lakshmaiah Education Foundation

(DECLINED TO BE SIGNED)  
VADESWARAM, Guntur Dist.



Advanced Mechanics of Solids

Course Code :20 CE 5101  
Pre-requisite: NIL

L-T-P : 3-1-0  
Credits: 4

**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

**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.

**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

**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 .

**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

**Plasticity**

Plastic Deformation: Strain Hardening, Idealized Stress- Strain curve, Yield Criteria, von Mises Yield Criterion, Tresca Yield Criterion, Plastic Stress-Strain Relations, Principle of Normality and Plastic Potential, Isotropic Hardening.

**Text Books:**

Advanced Mechanics of Solids, Srinath L.S., Tata McGraw Hill,2000.  
Theory of Elasticity, Timoshenko S. and Goodier J. N., McGraw Hill, 1961.  
Solid Mechanics, Kazimi S. M. A., Tata McGraw Hill,1994.  
Theory of Elasticity, Sadhu Singh, Khanna Publishers, 2003.

**Reference Books:**

Elasticity, Sadd M.H., Elsevier, 2005.  
Engineering Solid Mechanics, Ragab A.R., Bayoumi S.E., CRC Press,1999.

Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESARAM, Guntur Dist.

Design & Detailing of Structures

Course Code : 20CE51B1

Pre-requisite: NIL

L-T-P : 3-0-0

Credits: 3

**Introduction:** Design and detailing of Continuous beam, slab, column and footing as per IS code provisions. Detailed design and drawing of portal frames, Design example for hinged and fixed frame.

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

**Analysis, design and detailing of flat slab, grid slab as per IS code provisions, cantilever and counterfort retaining walls as per IS code provisions.**

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



Head  
Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
MADDESWARAM, Guntur Dist

## EMERGING CONSTRUCTION TECHNOLOGIES

Course Code: 20CE52H1

L-T-P : 3-0-0

Prerequisites: - Nil -

Credits: 3

**Course Objective:**

This course covers the complete understanding of advanced construction techniques in sub structure super structure and repair construction. Course will create awareness on tall structure construction elements and techniques used for large span structures. Course also covers about the recent and advancement in construction techniques. The course also covers the recent advancement in concrete manufacturing and its application.

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

CO No.	Course Outcomes	PO	BTL
1	Understand the modern construction techniques used in the sub structure construction	3	2
2	Understand the concepts used in the construction of special structures	3	2
3	Apply mechanism/technique for strengthening and repair methods for different cases.	3,5	3
4	Demonstrate knowledge and understanding of the principles and concepts relevant to super structure construction for buildings	3,5	3

**Syllabus:**

GFRC Facade Panels System, Prefabricated Building, Vertical ICF Wall, Mechanical Concrete, Filterpave systems, FRP Rebar, FRP Deck: Rehabilitation of a Steel Truss Bridge, Concrete Lumber, Bone-shaped Short Fiber Composite, Slurry Infiltrated Mat Concrete, Alternative Material Dowel Bars for Rigid Pavement Joints, Snap Joint Technology for Composite Structures, Superpave System,

Modular FRP Composite Bridge Deck, Composite Column Reinforcement, Rapid In situ Load Testing, Carbon Fiber Reinforced Polymer (CFRP), Polymer Concrete Pipes, Use of Composite Piping Offshore, Recycled Plastic Composite Railroad Ties. High Performance Steel (HPS), Embedded Galvanic Anodes, DIS Seismic Isolator, Hydraulic Vibratory Pile Driver, Soft Trencher, Deep Mixing Method for Ground Improvement, Mortar less Concrete Block System, Post-tensioned Steel Structure

Attachment of Steel Decking using Mechanical Fasteners and Powder Actuated or Pneumatic Tools, Seismic Isolation Bearings, Bridge Lock-up Device System, Adjustable Steelwork Connectors, Precast Hybrid Moment Resistant Frames, Precast Concrete Beam to Column System (BSF)

Low Temperature Concrete Admixture, Use of Recycled Tire Rubber in Concrete, Steel Free Concrete Bridge Deck, Rapid Repair Products, Concrete Restoration & Protection System, Precast Inverted T Beam, Conductive Concrete, Smart Concrete.

Rapid Drying Concrete, Rapid-1 Hardening Accelerator Concrete Admixture, Reactive Powder Concrete, Mellose non-dispersible Underwater Concrete, Segment Precast Floating Draw Span, Self-Placing Concrete, Shrinkage Reducing Admixture for Concrete, Corrosion Inhibitors for Reinforced Concrete, High Performance Concrete(HPC).

Head

**Department of Civil Engineering**  
**Koneru Lakshmalah Education Foundation**  
**(Deemed to be University)**  
**WADDESWARA, Guntur Dist.**

**Text Books:**

1. Levitt. M., Precast concrete - Materials, Manufacture Properties and Usage, Applied Science Publs. 1982,
2. Konex.T., Handbook of Pre-cast Construction, Vol.1.2&3.

**References:**

1. Richardson,J.G., Pre-cast concrete Production, Cement and Concrete Association, London, 1973.
2. MadhavaRao.A-G., Modern Trends in Housing in Developing Countries, Oxford & UBH Publishing co., 1985. -
3. Lewicki.B., Building with Large Pre-fabrications, Elsevier Publishers.
4. Large Panel Prefabricated Constructions, Proc. of Advance Course conducted by SERC, Madras.
5. Bruggeling, A.S.G., &Huyghe.G.F., Prefabrication with Concrete, A.s.A., Balkema Publishers, Netherland, 1991.



**Head**  
**Department of Civil Engineering**  
**Koneru Lakshmalah Education Foundation**  
**(Deemed to be University)**  
**VADESWARAM, Guntur Dist.**

## FORENSICS IN CIVIL ENGINEERING

Course Code: 19CE4152

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

Pre-requisite:

Credits: 3

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

CO No.	Course Outcomes	PO	BTL
1	Apply forensic engineering to demonstrate structural and geotechnical failures	1,2,3,11/2	4
2	Understand reinforced concrete Structures and steel structure failures through case studies	1,2,3,11/2	4
3	Evaluate different geotechnical failures through case studies	1,2,3,11/2	4
4	Analyze reasons for geo-environmental and fluid and hydraulic failures	1,2,3/2	4

### Syllabus:

#### INTRODUCTION

Definition of a Forensic Engineer, Typical Clients, Types of Damage, Civil litigation, Important legal terms, Causes of failure, Preliminary information about failure, Data collection, Hierarchy of forensic investigation.

#### A FORENSIC STRUCTURAL INVESTIGATION

Load tests, Instrumentation, Dimensional measurements, concrete and masonry tests, Metal tests, Wood tests, Weld tests, water and air penetration tests, Heat loss tests.

#### FORENSIC GEOTECHNICAL INVESTIGATION

Bore hole logs, Penetration tests (SPT, CPT), Test Pits, In-place strength tests, Instrumentation, Dimensional Measurements, Seismic tests.

#### REINFORCED CONCRETE STRUCTURES CASE STUDIES

Skyline Plaza in Bailey's Crossroads, Bombing of the Oklahoma City Murrah Federal Building, The Pentagon Attack, Harbour Cay Condominium

#### STEEL STRUCTURES CASE STUDIES

The World Trade Center Attacks, Pittsburgh Convention Center Expansion Joint Failure, Minneapolis I - 35W Bridge Collapse, Hartford Civic Center Stadium Collapse

#### GEOTECHNICAL CASE STUDIES

Leaning tower of Pisa, Teton Dam, Vaiont Dam Reservoir Slope Stability Failure, Excavation failure, Reclamation bund failure, High way failure

#### GEO-ENVIRONMENTAL CASE STUDIES

Love Canal, Valley of the Drums, String fellow Acid Pits, Kettleman Hills Waste Landfill, North Battleford, Saskatchewan Water Treatment Failure

**FLUID MECHANICS AND HYDRAULICS CASE STUDIES:** Johnstown Flood, Malpasset Dam, Schoharie Creek Bridge, New Orleans Hurricane Katrina Levee

#### Text Books:

[T1] Robert, W. D., *Forensic Geotechnical and Foundation Engineering*, Second Edition, McGraw-Hill, NY, US, 2011.

[T2] Delatte, N. J., *Beyond Failure - Forensic case studies for Civil Engineers*, ASCE, US, 2009.

#### Reference Books:

[R1] Kenneth, L. C., *Forensic Engineering*, CRC Press, 2nd Edition, NY, US, 2000 [R2] Rao, V.V.S. and Babu, G. L. S., *Forensic Geotechnical Engineering*,

Developments in Geotechnical Engineering series, Springer, SG, 2016.

[R3] Paul, A.B., Pamalee, A. B., Norbert, J. D. and Kevin, M. P., *Failure case studies in civil Engineering-Structures, Foundations and Geoenvironment*, 2nd Edition, ASCE, Virginia, US, 2013

Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
MADESWARAM, Guntur Dist.

## FOUNDATION ENGINEERING

Course Code: 19CE3212

L- T- P: 3-0-0

Pre-requisite:

Credits: 3

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

CO No.	Course Outcomes	PO	BTL
1	Analyze Bearing capacity of soils at various field conditions.	1	4
2	Analyze the settlement analysis for different types of foundation	1,3	4
3	Analyze ground movements due to construction	1,3	4
4	Analyze retaining walls, cuts and excavations and sheet piles, slopes and underground structure.	1,3	4

### Syllabus:

**Site Investigations:** Various geotechnical field investigations, geotechnical field report.

**Bearing Capacity Of Shallow Foundations:** Introduction, Basic definitions, Principal modes of soil failures, Terzaghi's bearing capacity theory/ equation and its modifications for square, rectangular and circular foundation, Skempton's bearing capacity analysis for clays, Meyerhof's analysis, Hansen's bearing capacity theory, Vesic's bearing capacity theory, IS code recommendations for bearing capacity, Bearing capacity of granular soils based on SPT value and Static cone resistance, Bearing capacity of footings on layered soils, Factors influencing bearing capacity, Allowable bearing pressure. General requirements of foundations, Factors affecting location and depth of foundation, Choice of type of foundations, Steps involved in the proportioning of footings.

**Pile Foundations:** Use of piles, Types of piles, Construction, Selection of pile type, Types of foundations to suit subsoil conditions, Pile load capacity, Static formulae, Dynamic formulae, Load tests, on piles, Group action of piles, Load carrying capacity of pile groups, Negative skin friction, Piles subjected to uplift loads.

**Well Foundations:** Types of wells and caissons, components of well foundation, shapes of wells, depth of a well foundation, forces acting on a well foundation, lateral stability of well foundation, construction and sinking of a well.

**Settlement Analysis:** Consolidation settlement, immediate settlement, Corrections to settlement due to consolidation, Settlement in different soil types/Settlement from field tests, Allowable settlement, Settlement of pile group.

**Stability of Slopes:** Infinite slopes and translational slides, Definitions of factor of safety, Finite slopes-Forms of slip surface, Limiting equilibrium method and Critical stages in stability, Total stress and effective stress methods of analysis,  $\phi_u = 0$  Analysis (total analysis),  $c \phi$  analysis - method of slices, Location of the most critical circle, Friction circle method, Taylor's stability number.

**Earth Pressure and Retaining Walls:** Effect of wall movement on earth pressure, Earth pressure at rest, Rankine's theory of earth pressure, Coulomb's theory of earth pressure, Coulomb's equation for  $c = 0$  back fills, Cullman's graphical method, Passive earth pressures-Friction circle method, Design considerations retaining walls.

### Text Books:

1. Gopal Ranjan and ASR Rao, Basic and Applied Soil Mechanics New Age International Publishers, Second Edition, 2007.

### Reference Books:

1. J.E. Bowles, Foundation Analysis and Design MacGraw Hill, 1996.
2. V. N. S. Murthy, Soil Mechanics and Foundation Engineering CBS Publishers & Distributors, New Delhi.

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## Lean Construction Practices

Course Code: 20CE5123

Prerequisites: - NIL

L-T-P: 3-1-0

Credits: 4

### Course Objective:

The course aims to provide learners with an understanding of lean construction management and how these can be applied to construction projects from design phase through to construction. Furthermore, helps to understand, apply and analyse the productivity measurement systems, lean principles, practices in the construction projects. Additionally, explains the integrated application of lean with various tools and techniques through case studies.

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

CO No.	Course Outcomes	PO	BTL
1	Understand the elements of traditional construction management	4	2
2	Apply and analyse construction productivity measuring and improving techniques	1,2,3	4
3	Implement lean principles in order to improve the customer value for sustainable project business	1,4	3
4	Apply and analyse the lean practices	3,4	4
5	Understand the integrated applications of various IT tools and case studies	4,5	2

### SYLLABUS

#### TRADITIONAL CONSTRUCTION MANAGEMENT

Project – Management – Project Management – Project vs. Process – Management: Art/Science? – Project objectives – Scientific way of managing project objectives – Project Stakeholders, Construction Project Organisation, Project Phases, Level of effort, Relative ability to influence cost – Project Execution phases (EPC and Fast Track) – Project Scheduling Levels – Need for productivity measurement systems.

#### CONSTRUCTION PRODUCTIVITY

Productivity-basics – Levels of Productivity Models (economic, project, activity) – Productivity Measurement System – Planning control systems vs. Productivity measurement system – Framework for Productivity improvement – Productivity Analysis – Productivity Reporting – Productivity Assessment – Sources of lost time – Techniques for Measuring and Improving Productivity – work sampling (tour and crew-based), foreman delay survey, crew-balance charts, process chart

#### INTRODUCTION TO LEAN AND PRINCIPLES

History of Management Science – Toyota's 14 Management Principles – What is Lean – Core concept of Lean – Fundamental Lean Principles - Types of waste (Muda, Mura, and Muri) – Muda (8 waste) – Types of Muda – Mura and Muri – Tools to find waste (sampling, surveys) – Conventional Construction Management vs. Lean Construction – Lean Research groups, institutes and conferences.

Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

### **LEAN PROJECT DELIVERY PRACTICES**

Flow – Craft vs. Mass vs. Lean Production - Push and Pull Mechanism – Airplane Game (illustrating flow-pull-waste), Behaviour of two systems – bottleneck, WIP, idle times, throughput, cycle time – Discussions – Last Planner System™ / Collaborative Planning System (master, look-ahead, weekly, daily front line plan, productivity measurement), PPC Variance and Root Cause Analysis – Discussions – Value stream mapping (definitions, typical value stream, procedure, symbols) – Example with discussions.

### **LEAN TOOLS AND CASE STUDIES**

Building Information Modeling (BIM) – Location-based Management System (LBMS) – Construction Supply Chain Management – Integrated Lean Project Delivery (ILPD) – Case studies.

### **TOOLS**

VisiLean

Excel

### **TEXTBOOKS**

1. Patricia Tzortzopoulos, Mike Kagioglou and Lauri Koskela (2020), “Lean Construction – Core Concepts and New Frontiers”, Routledge, Taylor & Francis Group, London and New York.
2. Alarcon (1997), “Lean Construction”, A.A. Balkema Publishers, VT, USA.

### **REFERENCES**

1. Project Management Institute (PMI) (2017), “A Guide to the Project Management Body of Knowledge (PMBOK)”, 6<sup>th</sup> Edition.
2. Paul Akers (2014), “2 Second Lean”, FastCap Press.
3. Rother and Shook (1999), “Learning to See – VSM to create value and eliminate muda”, The Lean enterprise institute.

  
**Head**

**Department of Civil Engineering**  
**Koneru Lakshmalah Education Foundation**  
**(Deemed to be University)**  
**VADDESWAREM, Guntur Dist.**



## DESIGN OF TALL STRUCTURES

Course Code : 20CE52C2  
Pre-requisite: NIL

L-T-P : 3-0-0-0  
Credits: 3

CO No.	Course Outcomes	POs
1	Deciding the design criteria and loadings on tall structures and Introduction to structural forms	1,2,6
2	Analysis of Structural form	1,4,5,6
3	Analysis of shear wall structures, tubular and perforated structures	1,4,5,6
4	Dynamic analysis and model analysis	1,2,3,4,5,6

### Syllabus:

**DESIGN CRITERIA:** Introduction to Tall Buildings, Factors affecting growth, Height and structural form. The Tall Building Structure: Design process, Philosophy, scope and content Design philosophy, Loading, Sequential loading, Strength and Stability, Stiffness and drift limitations, Human Comfort criteria, Creep, Shrinkage and temperature effects, Fire, Foundation settlement and soil structure interaction: Gravity loading:-Methods of live load reduction, Impact gravity loading, Construction loading, Wind loading:-Simple static loading, Earthquake loading:-Equivalent lateral force procedure, Combination of loading:- Limit State design.

**STRUCTURAL FORM:** Introduction to Vertical and Horizontal Structural forms, Interior and exterior structural forms. **BRACED FRAMES:** Types of bracings, Behavior of bracings, and Behavior of bracing bents, Methods of analysis:-member force analysis, Drift analysis, Worked example for calculating drift by approximate methods, use large scale bracing. **RIGID-FRAME STRUCTURES:** Rigid frame behavior, Approximate determination of member forces caused by Gravity loading:-horizontal loading:- Approximate analysis for drift:-Components of drift, correction of excessive drift,

**SHEAR WALL STRUCTURES:** Types of shear walls, Behavior of shear wall structures, analysis of coupled frames, Frame with shear wall. **TUBULAR STRUCTURES:** Structural behavior of tubular structures:-Framed- tube structures, Bundled Tube structures, Braced-Tube structures, General three dimensional structural analysis, Simplified Analytical models for symmetrical Tubular structures:-Reduction of three dimensional frame tube to an equivalent plane frame. **PERFORATED CORES:** Types, Analysis, Pure torsion, bending and warping of cores

**MODEL ANALYSIS:** Wind & seismic effects on behavior of Tall Structures - Outlook of Design considerations and Characteristics of wind - Codal wind loads and cladding pressures on behavior of tall buildings - Introduction to Tall building behavior during earthquakes and seismic design philosophy: Principles of 3-D analysis of tall buildings, Modeling for analysis - Approaches for analysis - Assumptions involved in modeling - Reduction techniques - Application using Structural engineering Software.

### Reference Books:

1. Daniel Schodek & Martin Bechtold, Structures, Prentice Hall; 7 edition, 2013.
2. B. S. Taranath, Tall Buildings – Steel, Concrete, and Composite Design of Tall Buildings, TMH publications, 1997.
3. S.N. Manohar, Tall Chimneys: Design and Construction, Tata McGraw-Hill Pub. Co. 1985.

*CRM*

Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## GREEN BUILDINGS

Course Code :20 CE 52D1  
Pre-requisite: NIL

L-T-P : 3-0-0-0  
Credits: 3

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

### Syllabus

**Concept of green buildings:** Understand Necessity and importance of Sustainable Buildings, Benefits of Sustainable, Indian Green Building Council; Grasp the construction practices of a sustainable Buildings. Natural resources and material efficiency. Green Building Features

**Green Building Rating Systems:** Residential Sector, Opportunities of Green Buildings, Water efficiency, Energy efficiency and Reduction in Energy Demand and Interior lighting system Reduction in waste material during construction, Reduction, recycle and reuse (RRR) and Green Building Design LEED India Rating System,

**Energy efficiency systems:** Air Conditioning and HVAC system design, CII Godrej Green Business Center, Selection of cooling towers

**Quality assurance:** Indoor Environment Quality and Occupational Health Sick Building syndrome (SBS), Tobacco smoke control, Minimum fresh air requirements, improved fresh air ventilation, Measure of IAQ, Reasons for poor IAQ, Measures to achieve Acceptable IAQ level

### Text Books:

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

### BoS Approved 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

  
Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VAODESWARAM, Guntur Dist.

MECHANIZED CONSTRUCTION AND MACHINERY

Course Code: 20CE5225

L-T-P: 3-0-2

Prerequisites: - NIL

Credits: 4

**Course Objective:** To develop the skills to understand about the mechanized construction machinery, through standard types of equipment, earthmoving equipment, pumping equipment, pumping equipment and all certain construction handling equipment. Every project has one specific purpose, it starts at some specific moment and it is finished when its objectives have been fulfilled. Similarly management increases the productivity through equipment and skill.

CO No:	Course Outcome CO	PO	BTL
CO1	Understanding the basic concepts of Equipment Management and tools	1,4	2
CO2	Understand various construction equipment and study the efficient utilization of the same using scientific principles	1,4	2
CO3	Apply the knowledge for the selection of appropriate equipment	4	3
CO4	Understand the operation of Earthwork and various functions of machinery used for Earth moving, compaction, etc.	1	2
CO5	Write field report on machinery operation, cost and productivity by using project management tools like primavera/Candy/SAP etc	2	3

**Syllabus:**

**Equipment Management:**

Equipment Management, Costing, Optimum utilization and Equipment selection, depreciation, interest on capital, Manpower, Spare parts etc., Documentation, Logbooks, History Books, Periodical MIS Report

**Construction Equipment:**

Understanding basics, Capacity, Function & Efficiency of All Machinery, involving all machinery data, power use, fuel consumption and labor utilization. Special equipment, cost of owning and operating equipment, Work cycle time of any machine with corrective factors, depreciation of equipment, operative cost, inventory cost control, higher/rental- a) Average Investment value, b) Annual Ownership Cost, factors affecting selection of construction equipment, balancing of equipment. Study of equipment with reference to available types and their types and their capacities, factors affecting their performance

**Fundamentals of Earth Work Operations** - Earth Moving Operations-Types of Earthwork Equipment - Tractors, Motor Graders, Scrapers, Front end Loaders, Earth Movers -- capacity calculations.

**Equipment for compaction** - Types of pumps used in Construction - Equipment for Grouting - Pile Driving Equipment- Equipment of Erection and demolition.

**Equipment for Earthmoving Machinery**, Concreting Equipment, Material Handling Equipment such as cranes, boom, lift and maintenance transportation Equipment's.

Introduction to software tools: primavera/Candy/SAP

**Screening equipment**

Crushers – Feeders - Screening Equipment - Batching and Mixing Equipment – Hauling equipment - Pouring and Pumping Equipment – Ready mixed concrete carriers.

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

**Textbooks:**

1. Construction planning, Equipments and methods. R.L.Peurify, TMH, 1996

**Reference:**

1. "Construction Equipment and its Planning and Applications", Mahesh Varma, Metropolitan Book Co.(P) Ltd., New Delhi. India.
2. Construction Machinery and Equipment in India". (A compilation of articles Published in Civil Engineering and Construction Review) Published by Civil Engineering and Construction Review, New Delhi, 1991

**PRACTICAL COMPONENT**

List of Experiments supposed to finish in Open Lab Sessions:

Lab session no	List of Experiments
1	Introduction to the construction phases and equipment's specially used in construction sites
2	Tractors and Attachments in construction
3	Forklift in construction and utilization of equipment
4	Bulldozers in construction
5	Clamshell as Construction equipment
6	Drilling Equipment in construction
7	Roller Compactors as Construction equipment
8	Concreting Equipment's for Construction
9	Dragline as Construction equipment
10	Road construction & special equipment
11	Hydraulic excavators in construction sites
12	Trenching machines in construction

**Head**  
**Department of Civil Engineering**  
**Koneru Lakshmalah Education Foundation**  
**(Deemed to be University)**  
**VADESWARAM, Guntur Dist.**

## QUANTITY SURVEYING ESTIMATION & VALUATION

Course Code: 19CE3201

L-T-P: 3-0-2

Prerequisite: NIL

Credits: 4

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

CO No.	Course Outcomes	PO	BTL
1	Understand the fundamentals of estimation and provide hands on experience on estimation of quantities of building.	1,5	2
2	Prepare detailed estimate of quantities and costs for R.C.C structures, Roads, Canals	1,5	2
3	Prepare detailed specifications and provide exposure to rate analysis for different items of work.	1,5	2
4	Recognize the P.W.D working procedures, Contracts and tenders of a project and carry out building valuation.	1,5	2
5	Practical estimations of buildings, road works etc. by using a software package (M.S Excel)	11	3

### SYLLABUS:


**Procedure of Estimating:** Methods of estimating; Main items of work; Deduction for openings; Degree of accuracy. **Methods of Building Estimates:** Individual wall method; Centre line method; Arch masonry calculation. **Estimate of RCC works:** Estimate of RCC slab; RCC beam and RCC column with foundation. **Road Estimating:** Estimate of earthwork; Estimate of pitching of slopes; Estimate of earthwork of road from longitudinal sections; Estimate of earthwork in hill roads. **Canal Estimate:** Earthwork in canals—different cases; Breached sections/Breach closures **Specifications:** Purpose and method of writing specifications; Detailed Specifications for Brick work; R.C.C; Plastering; Mosaic Flooring; R. R. Stone Masonry. **Analysis of Rates:** SSR, Preparing analysis of rates for the following items of work: i) Concrete ii) RCC Works iii) Brick work in foundation and super structure iv) Plastering. preparing lead statements. **PWD accounts and procedure of works:** Organization of Engineering department; Work charged establishment; Contract; Tender; Tender notice; Tender Schedule; Earnest money; Security money; Measurement book; Administrative approval; Technical sanction; Plinth area; Floor Area; Carpet area; Approximate Estimate; Plinth area estimate; Revised Estimate; Supplementary estimate, cash flow allocations yearly. **Contracts:** Contract: types of contracts, Contract Law, EMD, Tenders, Acceptance of Contract, Breach of Contract, Cancellation of Contract, arbitration, Retendering – work order, running payment, Final Bill, Completion Certificate **Valuation:** Cost; Price & value; Methods of valuation; Out goings; Depreciation; Methods for estimating cost depreciation; Valuation of building.

### TEXT BOOKS:

1. Estimating & Costing in Civil Engineering by B.N. Dutta; U. B. S. Publishers & Distributors, New Delhi.
2. Valuation of Real properties by S. C. Rangwala; Charotar Publishing House, Anand.

### REFERENCE BOOKS:

1. Estimating & Costing by M. Chakraborty, S Chand Publishing House.
2. Estimating and Tendering for Construction Work, By Martin Brook, Elsevier Ltd., Burlington, MA - 2004

  
Head  
Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADDESWARAM, Guntur Dist.

PAVEMENT MATERIALS AND DESIGN

Course code: 19CE3225

L-T-P:3-0-0

Pre-requisites: NIL

Credits: 3

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

CO No.	Course Outcomes	PO	BTL
1	Understand the Soil Classification and characteristics & properties and tests on bitumen	1	1
2	Understand the characteristics of bituminous mixes & IRC and IS specifications and tests	1	1
3	Understand the Types and component parts of pavements & Understand the Stresses and deflections in homogeneous masses	1	2
4	understand the Pavement behaviour under transient traffic loads & Design the Pavements as per IRC	2	1

Syllabus:

Soil - Classification, characteristics, compaction, evaluation of soil strength; stabilized pavement materials; Aggregates: requirements, properties and tests on road aggregates for flexible and rigid pavements.

Bitumen: Origin, preparation, properties and tests, constitution of bituminous road binders; requirements; Criterion for selection of different binders. Bituminous Emulsions and Cutbacks: Preparation, characteristics, uses and tests.

Bituminous Mixes: Mechanical properties: Resilient modulus, dynamic modulus and fatigue characteristics of bituminous mixes, bituminous mix design methods and specifications. Weathering and Durability of Bituminous Materials and Mixes. Performance based Bitumen Specifications; Superpave mix design method: design example problems. Cement Concrete for Pavement Construction: Requirements, and design of mix for CC pavement, IRC and IS specifications and tests, joint filler and sealer materials.

Introduction: Types and component parts of pavements, Factors affecting design and performance of pavements. Highway and airport pavements. Stresses and Deflections in Flexible

Pavements: Stresses and deflections in homogeneous masses. Burmister's two-layer theory, three layer and multi-layer theories; wheel load stresses, various factors in traffic wheel loads; ESWL of multiple wheels. Repeated loads and EWL factors; sustained loads. Pavement behaviour under transient traffic loads. Flexible Pavement Design Methods for Highways and Airports: Empirical, semi-empirical and theoretical approaches, development, principle, design steps, advantages; design of flexible pavements as per IRC; Stresses in Rigid Pavements: Types of stresses and causes, factors influencing the stresses; general considerations in rigid pavement analysis, EWL; wheel load stresses, warping stresses, frictional stresses, combined stresses.

Rigid Pavement Design: Types of joints in cement concrete pavements and their functions, joint spacings; design of CC pavement for roads and runways as per IRC, design of joint details for longitudinal joints, contraction joints and expansion joints. IRC method of design by stress ratio method. Design of continuously reinforced concrete pavements; Maintenance, repair and rehabilitation of pavements including design of bituminous and concrete overlays as per IRC

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

**Text Book:**

1. Characterisations of Base Course Materials for Flexible Pavements Paperback – by Komsun Siripun, Hamid Nikraz, Peerapong Jitsangiam 4 Jan 2011.
2. Principles of pavement design – Yoder & Wit Zorac – Jhon Willey & Sons
3. Kadiyalai, L.R., 'Traffic Engineering and Transport Planning', Khanna Publishers.
4. Partha Chakraborty, 'Principles of Transportation Engineering, PHI Learning,

**Reference Book:**

1. Highway Engineering: Pavements, Materials and Control of Quality Hardcover – by Athanassios Nikolaides 28 Nov 2014.
2. Fred L. Mannering, Scott S. Washburn, Walter P. Kilareski, 'Principles of Highway Engineering and Traffic Analysis', 4th Edition, John Wiley
3. Srinivasa Kumar, R, Textbook of Highway Engineering, Universities Press, 2011.
4. Paul H. Wright and Karen K. Dixon, Highway Engineering, 7th Edition, Wiley Student Edition, 2009.

**Head**

**Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.**

## SURVEYING

Course code: 19CE2103

L-T-P: 3-0-2

Pre-requisite: NIL

Credits: 4

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

CO No:	CO	PO/PSO	BTL
1	Apply the knowledge of plane surveying for computation of bearings in a traverse	1,5/1	3
2	Calculate the differences in elevation using differential leveling techniques and preparation of contour plan	1,5/1	3
3	Computation of areas of field and volume of earthwork	1,5/1	3
4	Apply the knowledge of theodolite and tacheometric survey, and total station for calculation of height of building	1,5/1	3
5	Analyze surveying results to conceptualize the project	11/1	4

### SYLLABUS

**Surveying:** Introduction to surveying, Overview of plane surveying (chain, compass and plane table), Objectives, Principles and classifications.

**Distances and Direction** - Distance measurement conventions and methods; use of chain and tape, Electronic distance measurements, Meridians, Azimuths and Bearings, declination, computation of angle.

**Leveling and Contouring** - Concept and Terminology, adjustments- method of leveling. Characteristics and Uses of contours- methods of conducting contour surveys and their plotting.

**Computation of Areas and Volumes** - Area from field notes, computation of areas along irregular boundaries and area consisting of regular boundaries. Embankments and cutting for a level section and two level sections with and without transverse slopes, determination of the capacity of reservoir, volume of barrow pits.

**Theodolite** - Theodolite, description, uses and adjustments, measurement of horizontal and vertical angles. Principles of Electronic Theodolite, Trigonometrical leveling, Traversing.

**Tachometric Surveying** - Stadia and tangential methods of Tacheometry. Distance and Elevation formulae for Staff vertical position.

**Curves** - Types of curves, design and setting out of simple curves.

**Total Station:** Introduction – Accessories with description - Features of total station – Onboard software electronic data reading - Summary of total stations characteristics - Field procedure of total stations in topographic survey, Introduction Digital Global positioning system, Introduction to Geographic information system (GIS).

### Text Books:

1. Surveying and Levelling by R.Subramanian, Oxford University Press, 2<sup>nd</sup> edition, 2012
2. Surveying Vol - I, II, III - Dr. B.C . Punmia Laxmi publications, Delhi-6

### Reference Books:

1. Surveying and levelling part I & II by Kanetkar.T.P. & S.V.Kulkarni, Puna vidyarthi girha, Prakashan,23rd edition,1993.
2. Arora K. R, "Surveying Vol-I", Rajsons Publications Pvt. Ltd, 10th Edition, 2008.

  
Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.



### LIST OF EXPERMENTS

3. Determination of area of a polygon by a ranging and taking offsets.
4. Measuring distance between two stations by indirect ranging when they are obstacles.
5. Measuring of bearing of sides of the traverse and preparation of map.
6. Determination of elevation of various points with a level by (a) collimation method (b) rise & fall method
7. Measurement of horizontal and vertical angles using theodolite
8. Determination of a given area using total station.
9. Calculation of volume of earthwork using total station
10. Staking out the points in an area using total station
11. Measurement of height of the tower/building using total station
12. Measuring and plotting using Auto cad of a given area of land by total station



Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## PROJECT RISK MANAGEMENT

Course Code: 20CE52G2

L-T-P: 3-0-

0

Prerequisite: NIL

Credits:

3

### Course Objective

This course covers the area of risk management in the project context. It highlights the importance of risk management and the need for project managers to think ahead in this regard. It contains essential risk management theory and concepts as applicable to project environments including project risk planning, preparation and response. It also overviews the areas of risk identification, assessment, monitoring and control. Qualitative and quantitative risk analysis techniques will be presented to students within this course.

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

CO No.	Course Outcomes	PO	BTL
1	Identify the stages involved in a project and analyze the obligatory services to be taken up while performing a construction activity	1,3	2
2	Cultivate an idea on effective resource utilization and identify factors affecting job productivity	1,5	2
3	Apply the professional skills acquired in managing a construction project.	3	3
4	Gain the ability to attain an equilibrium among Innovation, Technology and Economic feasibility	3	3

### Syllabus:

#### Risk analysis

General – Importance of Risk, types of risks, quantifiable and un-quantified risks. Micro, market, project level risk analysis approach. Risk analysis and Management for projects (RAMP) – Identifying risk events. Probability distribution. Stages in Investment, life-cycle; determination of NPV and its standard deviation for perfectly co-related, moderately co-related and un-correlated cash flows. Dealing with uncertainties Sensitivity analysis, scenario analysis simulation, decision tree analysis, risk profile method, certainly equivalent method; risk adjusted discount rate method, certainty index method, point estimated method.

Use of risk prompts, use of Risk Assessment tables, details of RAMP process, utility of Grading of construction entities for reliable risk assessment. Risk Mitigation – by elimination, reducing, transferring, avoiding, absorbing or pooling. Residual risk, mitigation of un-quantified risk. Coverage of risk through CIDC's MOU with the Actuarial Society of India through risk premium such as (BIP) – Bidding Indemnity Policy (DIMO) – Delay in meeting obligation by client policy, (SOC) – Settlement of claims policy (LOP)- Loss of profit policy (TI). Transit Insurance policy (LOPCE) Loss of performance of construction equipment policy.

#### Reference Books

1. Project Risk Analysis And Management Guide By John Bartlett APM Publishing Limited, 2004 2nd Edition
2. Industrial Engineering And Management Of Manufacturing Systems.- Dr.Surendra Kumar Satya Prakashan
3. RAMP Handbook By Institution Of Civil Engineers And The Faculty And Institute Of Actuaries Thomas Telford Publishing, London.

  
Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## PRE-ENGINEERED STRUCTURES

Course Code :20 CE 5102

L-T-P : 3-0-2

Pre-requisite: NIL

Credits: 4

### **Introduction**

Prefabricates classification, foundation, columns, beams, roof and floor panels, wall panels, clay units, box prefabricates, erection and assembly. Design of prefabricated elements, Lift points beams, slabs, columns, wall panels, footings, design of joints to transfer axial forces, moments and shear forces

### **Design Of Industrial Buildings And Shell Roofs**

Components of single-storey industrial sheds with crane gantry systems, Design of R.C. Roof Trusses, Roof Panels, Design of R.C. crane-gantry girders, corbels and columns, wind bracing design. Cylindrical, Folded plate and hyper-prefabricated shells, Erection and jointing, joint design, hand book based design

### **Design Of Pre-Engineered Structures**

Introduction-section specification-Types of assemblies –analysis and design of pre-engineered structure connection details

### **Applications and Practical Orientation**

Designing and detailing of precast unit for factory structures, purlins, principal rafters, roof trusses, lattice girders, gable frames, single span single storied simple frames, single storied buildings, slabs, beams and columns.

### **Text book (s) :**

1. Gerostiza. C.Z., Hendrikson, C., Rehat D.R., "Knowledge Based Process Planning for Construction and Manufacturing", Academic Press, Inc., 2002.

### **Reference(s) :**

1. Lewicki B., "Building with Large Prefabricates", Elsevier Publishing Company, Amsterdam / London / Newyork, 1966.
2. Koncz.T. "Manual of Precast Concrete Construction", Vol.I II, III and IV, Berlin, 1971.
3. Mokka L., "Prefabricated Concrete for Industrial and Public Structures", Publishing house of Hungarian Academy of sciences, Budapest, 1964



**Head**

**Department of Civil Engineering**  
**Koneru Lakshmalah Education Foundation**  
**(Deemed to be University)**  
**VADDESARAM, Guntur Dist.**

## Construction Planning, Scheduling and Control

Course Code: 20CE5121

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

Prerequisites: - NIL

Credits: 4

### Course Objective:

The main objective of the course is to understand the Project Management, Management functions, Construction planning, Scheduling and controlling of a Project and project Management System.

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

CO No.	Course Outcomes	PO	BTL
1	Understand the concepts of project management for practical application	3	2
2	Apply mathematical logic in the planning and scheduling of a project	5	3
3	Apply concepts to estimate the project cost by using tools	5	3
4	Apply concepts to maintain the construction documents in the project	2	3
5	Plan, schedule, and control large-scale programs and individual projects by using Primavera/MS Project Tool	5	4

### SYLLABUS:

#### UNDERSTANDING PROJECT MANAGEMENT:

Project manager, organization structures, Organizing and staffing the project office and team, stages and phases involved in project management, techniques involved in project management

#### CONSTRUCTION PLANNING:


Project planning, milestone schedules, WBS, Network Techniques, critical path method, project evaluation review technique and Primavera, Resources leveling and smoothing.

#### CONSTRUCTION SCHEDULING

scheduling procedures, scheduling tools, construction activities in a project and their relationships, NETWORK ANALYSIS - Critical Path Method and Program Evaluation & Review Technique (PERT) and Range Estimating, The Role of the Scheduler in Construction Management, Technology Applications for Scheduling-Software Applications overview-primvera, MS Project Scheduling

#### COST CONTROL:

Introduction, Understanding Control, The Operating Cycle, Cost Account Codes, Budgets, The Earned Value Measurement System (EVMS)

  
Head  
Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

### **PROJECT MANAGEMENT INFORMATION SYSTEM:**

MIS reporting, Daily, Weekly and monthly reporting, Actual vs. Planned cost reports, Planning & Cost control document.

#### **Tools:**

**Primavera/MS Project: Project Scheduling and Project Management Information System**

#### **Textbooks:**

1. Chitkara, K.K. Construction Project Management: Planning, Scheduling and Control, Tata McGraw-Hill Publishing Company, New Delhi, 1998.

#### **References:**

1. Harold Kerzner Project Management CBS Publisers& Distributors 2nd Edition.
2. Frank Harris & Ronald McCaffer Modern Construction Management Blackwell science 4th Edition.
3. Roy Pilcher Principles of Construction Management McGraw Hill London.
4. Calin M. Popescu, ChotchaiCharoenngam, Project Planning, Scheduling and Control in Construction: An Encyclopedia of terms and Applications, Wiley, New York, 1995.
5. Chris Hendrickson and Tung Au, Project Management for Construction –Fundamental Concepts for Owners, Engineers, Architects and Builders, Prentice Hall, Pittsburgh, 2000.
6. Willis, E. M., Scheduling Construction Projects, John Wiley & Sons, 1986.
7. Halpin, D. W., Financial and Cost Concepts for Construction Management. John Wiley & Sons, New York, 1985



**Head**

**Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESARAM, Guntur Dist.**

## Pre-Engineering Construction and Technology

Course Code: 20CE51F2

L-T-P : 3-0-0

Prerequisites: - Nil -

Credits: 3

### Course Objective:

The main objective of the course is to understand production, construction design and stability of precast concrete structures. Various design and construction aspects considered in this course is precast beams, columns, shear walls and roof girder and connections

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

CO No.	Course Outcomes	PO	BTL
1	Understand the type of prefabricated elements and its importance	3,5	2
2	Understand the precast construction procedure	3,5	2
3	Understand the modular construction practices and its limitations and advantages	3,5	2
4	Apply knowledge in the choice of production setup and manufacturing methods	3,4,5	3

### Syllabus

#### General Principles of Prefabrication

Comparison with monolithic construction – Types of prefabrication – site and plant prefabrication - Economy of prefabrication – Modular coordination – Standardization – Planning for Components of prefabricated structures – Disuniting of structures – Design of simple rectangular beams and I beams – Handling and erection stresses – Elimination of erection stresses – Beams, columns – Symmetrical frames.

**Precast Systems:** Design Principles- Large Panel System - Frame System-Slab-Column System with Shear Wall- Precast sandwich Panels, Prestressed concrete solid flat slabs, Hollow core slab/panels, Prestressed concrete Double “T”, Bridge, Precast segmental Box Girders, Specifications and Seismic considerations

**Modular Construction Practices:** Introduction to Modular Construction, Modular coordination, Modular Standardization, Modular System Building, Limitation and Advantages of Modular Construction



Head  
Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

### **Production and Hoisting Technology**

Choice of production setup – manufacturing methods –stationary and mobile production – planning of production setup – storage of precast elements – dimensional tolerances – acceleration of concrete hardening. Equipment's for hoisting and erection – techniques for erection of different types of members like beams, slabs, wall panels and columns – vacuum lifting pads

#### **References:**

1. CBRI, Building materials and components, India, 1990
2. Gerostiza C.Z., Hendrikson C. and Rehat D.R., Knowledge based process planning for construction and manufacturing, Academic Press Inc., 1994
3. Koncz T., Manual of precast concrete construction, Vols. I, II and III, Bauverlag, GMBH, 1971.
4. Structural design manual, Precast concrete connection details, Socie



**Head**

**Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
MADESWARAM, Guntur Dist.**

## ADVANCED SOIL MECHANICS

Course Code: 20CE5161

L-T-P : 3-0-2

Prerequisites: - Nil -

Credits: 4

### SYLLABUS:

Origin, nature, and distribution of soils. Description of individual particle, Clay mineralogy, clay-water-electrolytes. Soil fabric and structure.

Effective stress principle. Steady state flow in soils. Effect of flow on effective stress. Determination of coefficient of permeability. Consolidation. one, two, three and radial consolidation. Various consolidation tests and determination of parameters. Stress-path.

Triaxial and direct shear tests. Shear behaviour of soils under static and dynamic loads. Factors affecting shear behaviour. Determination of parameters. Shear behavior of fine-grained soils. Pore pressure parameters. UU, CU, CD tests. Total and effective stress-strength parameters. Total and effective stress-paths.

Water content contours. Factors affecting strength: stress history, rate of testing, structure, and temperature. Anisotropy of strength, thixotropy, creep. Determination of in-situ undrained strength. Stress-strain characteristics of soils.

Determination modulus values. Critical state model, Engineering Behaviour of soils of India: Black cotton soils, alluvial silts and sands, laterites, collapsible and sensitive soil.

### TEXTBOOKS

1. Clay Mineralogy by R. E. Grim.
2. Critical State Soil Mechanics by Atkinson and Bransby.
3. Soil Mechanics by T. W. Lambe and R. V. Whitman

### REFERENCE BOOKS

1. Clay colloid Chemistry by H. Van Olphen.
2. Advanced Soil mechanics by Braja M. Das.
3. Soil behaviour and Critical State Soil Mechanics by D.M Wood

**Experiments :** (Include laboratory/field/Demonstration/Design activities):

1. Index and Engineering Properties Of soils
2. Determination of Swell Parameters – Differential Free Swell, Swell Pressure Tests.
3. Determination of Shear Parameters – Tri-axial Test, Direct Shear Test, Vane Shear test, Unconfined Compression Test.
4. Determination of Relative Density of granular soils.

  
Head

**Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.**



## Sub-surface Investigations

Course Code: 20CE5162

L-T-P : 3-0-2

Prerequisites: - NIL

Credits: 4

Syllabus: (Include Laboratory/Field/Demonstration/Design activities)

Introduction: Necessity and Importance of soil exploration, Method of sub surface exploration Test pits, Trenches, Caissons, Tunnels, and drifts, wash boring, Percussion drilling , Rotary drilling, Factors affecting the selection of a suitable method of boring. Extent of boring, Factors controlling spacing and depth of bore holes, Spacing and depth of various Civil engineering structures.

Indirect method of exploration, Seismic method, Electrical resistivity, Resistivity sounding and profiling, Qualitative and quantitative interpretation of test results, Comparison of resistivity and seismic surveys, Shortcomings. Stabilization of bore holes, Different method of stabilization of the bore holes, their relative merits, and demerits. Ground water Observation: Different method of ground water observation: Time lag in observation, sampling of ground water.

Sampling: Source of disturbance and their influence. Type of sampler, Principle of design of sampler, Representative and undisturbed sampling in various types of soils. Surface sampling, Amount of sampling, Boring and sampling record, Preservation, and shipment of sample preparation of bore log.

Penetration tests, Standard penetration tests, Dynamic cone penetration tests with and without bentonite slurry, Static cone penetration tests, factor affecting the penetration tests. Various corrections in the test results. Interpretation of test result for design and determination of modulus of deformation. Small size penetrometers. Correlation among various test results.

### **TEXTBOOKS:**

1. M. Hvorsler, Subsurface exploration and sampling of soil for Civil Engg. Purpose.
2. B. M Das, Principles of Foundation Engineering, Thomson Brooks/Cole
3. N.P. Kurian, Design of Foundation Systems : Principles & Practices, Narosa, New Delhi 1992

### **REFERENCE BOOKS:**

1. G.Ranjan and A S R Rao, Basic and Applied Soil Mechanics, New Age international Publishers.
2. H. F. Winterkorn and H Y Fang, Foundation Engineering Handbook, Galgotia Book source
3. Simon and Cayton, Site Investigation.

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## Geoenvironmental Engineering

Course Code: 20CE5163

L-T-P : 3-0-2

Prerequisites: - NIL

Credits: 4

**Syllabus:** (Include Laboratory/Field/Demonstration/Design activities)

Soil as a multiphase system: Soil-environment interaction; Properties of water in relation to the porous media; Water cycle with special reference to soil medium.

Soil mineralogy: significance of mineralogy in determining soil behaviour; Mineralogical characterization.

Mechanisms of soil-water interaction: Diffuse double layer models; Force of attraction and repulsion; Soil-water-contaminant interaction; Theories of ion exchange; Influence of organic and inorganic chemical interaction.

Concepts of waste containment: Sources, production and classification of wastes, Environmental laws and regulations, physio-chemical properties of soil, ground water flow and contaminant transport, desirable properties of soil; contaminant transport and retention; contaminated site remediation.

Soil characterization techniques: volumetric water content; gas permeation in soil; electrical and thermal properties; pore-size distribution; contaminant analysis. contaminated site characterization, estimation of landfill quantities, landfill site location, design of various landfill components such as liners, covers, leachate collection and removal, gas generation and management, ground water monitoring, end uses of landfill sites, slurry walls and barrier systems, design and construction, stability, compatibility and performance, remediation technologies, stabilization of contaminated soils and risk assessment approaches.

### TEXTBOOKS:

1. Mitchell J.K and Soga K., Fundamentals of Soil Behavior, John Wiley and Sons Inc.
2. Fang H-Y., Introduction to Environmental Geotechnology, CRC Press
3. Daniel D.E, Geotechnical Practice for Waste Disposal, Chapman and Hall
4. Rowe R.K., Quigley R.M. and Booker J.R., Clayey Barrier Systems for Waste Disposal Facilities, CRC Press.

### REFERENCE BOOKS:

1. Rowe R.K, Geotechnical and Geoenvironmental Engineering Handbook, Kluwer Academic Publishers
2. Reddi L.N. and Inyang H.F, Geoenvironmental Engineering - Principles and Applications, Marcel Dekker Inc.
3. Sharma H.D. and Lewis S.P, Waste Containment Systems, Waste Stabilization and Landfills: Design and Evaluation, John Wiley & Sons Inc.

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADDESARAM, Guntur Dist.

## Ground Improvement Techniques

Course Code: 20CE5164

L-T-P : 3-0-2

Prerequisites: - NIL

Credits: 4

### SYLLABUS:

Compaction: Theory of compaction, Shallow Surface Compaction - Equipment, Placement water content, factors affecting shallow compaction; Deep compaction: Methods - Vibroflotation, Terra probe method, Pounding, Blasting, Compaction piles; Compaction Control.

Vertical Drains: Sand drains, Sand wicks, Rope drains, Design of vertical drains, Stone columns, application of the techniques to Marine clays.

Stabilization: Introduction, objectives, Methods of stabilization – Mechanical, Cement, Lime, Bituminous, Calcium chloride; construction methods, factors affecting stabilization of soils; Deep Mixing methods – Soil lime Columns and Cement Lime Columns, applications

Dewatering: Definition, necessity, Methods of dewatering -- Interceptor ditch, Single, Multistage and Vacuum well points, Horizontal wells, Electro-osmosis. Permanent drainage by Foundation drains and Blanket drains.

Grouting: Definition, Objectives of grouting, Grouts and their properties, Categories of Grouting, Grouting methods: Ascending, Descending and Stage Grouting in Soils, Hydro fracture, Grouting Equipment

In-situ Reinforcement: Ground Anchors, Tiebacks and Soil Nailing, Micro piles.

Geosynthetics: types and functions, materials and manufacturing processes, testing and evaluation; Reinforced soil structures: principles of soil reinforcement, application of geotextiles and geogrids in roads, walls, and embankments. Application of geotextiles, geonets and geocomposites as drains and filters. Multiple functions: railways and overlay design. Geosynthetics in environmental control covers and liners for landfills – material aspects and stability considerations

### TEXTBOOKS

1. P. Purushothama Raj, Ground Improvement Techniques, Tata McGraw-Hill, New Delhi, 1995.
2. Dr. B.C. Chattopadhyay and J. Maity, Ground Control and Improvement Techniques, PEEDOT, Howrah, 2011.

### REFERENCE BOOKS

1. Engineering Principles of Ground Modification by Monfred R Hausmann, Mc Graw Hill Publishing Co.

Experiments: (Include Laboratory/Field/Demonstration/Design activities):

1. Determination of compaction characteristics by using Standard proctor method/ Modified proctor method.
2. Determination of geotechnical characteristics of weak soils by using different admixtures.
3. Laboratory tests on various geosynthetics. (Physical properties, Grab and wide width tensile strengths, Puncture Resistance of geotextiles, A.O.S of geotextiles, Cone Drop Test, in plane and cross plane permeability of geotextiles, Interfacial frictional characteristics of Geotextiles with Fill material).

Head

Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## Design of Earth & Earth retaining structures

Course Code: 20CE5267

L-T-P : 3-0-2

Prerequisites: - NIL

Credits: 4

**Syllabus:** (Include Laboratory/Field/Demonstration/Design activities)

Earth pressure, introduction, earth pressure as a stability problem, concept of strain dependence of developed stresses, active, at rest and passive conditions, plastic equilibrium, various theories related with E.P. Distillation, Rankine, Coulomb and Hansen theoretical derivation and graphical construction with different geometric and boundary conditions.

Retaining wall - types, material, method of construction, nature of forces acting. Comparison of different earth pressure theories and application in retaining wall. Stability analysis and design aspects, application of theory of elasticity in analysis of earth pressure distribution.

Sheet pile and cofferdam. Type, material, method of construction, distribution of earth pressure and related approximation. Distinction between Sheet Pile and Retaining wall, analysis, and design.

Earth - structure - Definition, Features of an earth dam, stability analysis of slope, total - vs. - effective stress analysis, limit equilibrium method of slices based on circular failure surfaces, introduction to analysis based on general failure surfaces, introduction to analysis based on general failure surfaces. Stability of earth dams during different stages - during and at end of construction, steady seepage, sudden draw down, estimation of pore water pressure - use of stability charts.

### **TEXTBOOKS:**

1. J.L.Sherard, R.J.Woodward, S.F.Gizienski, and W.A. Clevenger, Earth, and Earth - Rock Dams Engineering Problems of Design and Construction, John Wiley and Sons, New York, 1963.
2. R F Craig, Soil Mechanics, Chapman, and Hall(ELBS)
3. Slope Stability by R.N Chowdhury

### **REFERENCE BOOKS:**

1. C. Justin and Hinds, Engineering for Dams Vol. 2 & 3.4. S. Leliavsky, 'Design of Dams for Percolation and Erosion', Chapman and Hall.
2. Soil Mechanics by T. William Lambe and Robert V. Whitman



**Head**

**Department of Civil Engineering**  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
WADDESWARAM, Guntur Dist.

Advanced Foundation Engineering

Course Code: 20CE5268

L-T-P : 3-0-2

Prerequisites: - NIL

Credits: 4

**SYLLABUS:**

Shallow Foundation: Terzaghi's bearing capacity equation, General bearing capacity equation, different bearing capacity theories, I.S. Code method, Effect of foundation shape, eccentricity and inclination of load, Influence of soil compressibility and water table, Footing pressure for settlement on sand, Soil pressure at a depth, Boussinesq's & Westergaard's methods.

Raft Foundation: Settlement and Bearing Capacity analysis, Analysis of flexible and rigid raft as per IS 2950.

Computation of settlements (Immediate & Consolidation); Permissible settlements. Allowable total, and differential settlement of structures.

Proportioning of footing, Inclined & Eccentric loads. Settlement of footings on stratified deposits. Influence of adjacent footings.

Bearing Capacity from SPT and SCPT and Plate load Test data, proportioning of footing based on settlement criteria.

Foundations on Problematic soils: Problems and Remedies.

**TEXTBOOKS**

1. "Geotechnical Engineering" by C. Venkatramaiah, New Age International Limited, New Delhi.
2. B. M Das, Principles of Foundation Engineering, Thomson Brooks/Cole
3. Geotechnical Engineering by Debashis Moitra, Universities Press, Hyderabad.

**REFERENCE BOOKS**

2. Foundation Analysis & Design, J.E. Bowles, McGraw Hill Education India Private Limited, New Delhi.
3. Theory & Practice of Foundation Design. By N.N. Som, S.C. Das, PHI Learning Private Limited, Delhi.

**Experiments :** (Include Laboratory/Field/Demonstration/Design activities):

1. Determination of bearing capacity of shallow foundations by using spreadsheets.
2. Design of Raft foundation.
3. Determination of various settlements.
4. Standard penetration test
5. Plate load test
6. Cyclic Plate load test



Head  
Department of Civil Engineering  
Koneru Lakshmaiah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.

## Design of offshore Structures

Course Code : 20CE51A2

L-T-P : 3-0-0

Pre-requisite: NIL

Credits: 3

**Wave Theories:** Wave generation process, small and finite amplitude wave theories.

**Forces of Offshore Structures:** Wind forces, wave forces on vertical, inclined cylinders, structures - current forces and use of Morison equation.

**Offshore Soil and Structure Modelling:** Different types of offshore structures, foundation modelling, structural modelling.

**Analysis of Offshore Structures:** Static method of analysis, foundation analysis and dynamics of offshore structures.

**Design of Offshore Structures:** Design of platforms, helipads, Jacket tower and mooring cables and pipelines.

### **Text Books:**

1. Dawson, T.H., "Offshore Structural Engineering", Prentice Hall Inc Englewood Cliffs, N.J. 1983

### **Reference Books:**

1. Chakrabarti, S.K. "Hydrodynamics of Offshore Structures", Computational Mechanics Publications, 1987.
2. Brebia, C.A and Walker, S., "Dynamic Analysis of Offshore Structures", New Butterworths, U.K. 1979.
3. API, Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms, American Petroleum Institute Publication, RP2A, Dalls, Tex, 2000.
4. Reddy, D.V. and Arockiasamy, M., "Offshore Structures". Vol.1 and Vol.2, Krieger Publishing Company, Florida, 1991.



CRW

Head

Department of Civil Engineering  
Koneru Lakshmalah Education Foundation  
(Deemed to be University)  
VADESWARAM, Guntur Dist.