

2014-15

**K L UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
BOARD OF STUDIES MEETING**

Meeting Particulars

Type of Meeting	COURSE CURRICULUM/BOS
Department Conducting the meeting	CIVIL ENGINEERING
Number of the Meeting	4
Date of Meeting	22.05.2014
Time of Meeting	9:30 A.M.
Venue of Meeting	HoD Chamber (Civil)

Agenda of the Meeting:

1. To consider the proposed 2014-15 admitted batch B. Tech Curriculum revision and make recommendations to the Academic Council KLU for approval of the same.
2. Any other points with permission of the Chair.

The following members were present:

S.No.	Name of the Person	Institution	Department of the person	Designation of the Person	Position of the person in the meeting	Primary Responsibility if any
1	Dr. K. Ramesh	KLU	CIVIL	Professor & HOD	BOS Chairman	Chair the meeting. Document the proceedings of the meeting and forward the same to Academic Council
2	Dr. Ch. Hanumantha Rao	KLU	CIVIL	Professor	BOS Member	Involved in preparation of Geotechnical Engineering syllabus
3	Dr. D. S. R Murthy	Andhra University	CIVIL	Professor	External Academic BOS Member	Review the existing and proposed system and suggest suitable changes

(Signature)

						for the betterment of the courses
4	Dr.C. Ravi Kumar Reddy	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Structural Engineering syllabus
5	Dr. M. Anjaneya Prasad	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Water Resources Engineering syllabus
6	Dr. Y. Sreeramulu	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Geotechnical Engineering syllabus
7	Mr. S. Kanakambara Rao	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Structural Engineering syllabus
8	Dr. K. Raja Sekhar Reddy	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Geology Engineering syllabus
9	Mr. K. Srikanth	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Structural Engineering syllabus
10	Dr. S. K. Gupta	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Environmental Engineering syllabus
11	Mr.V. Akhilesh	KLU	CIVIL	Associate Professor	BOS Member	Involved in preparation of Transportation Engineering syllabus
12	Mr. B.G. Rahul	KLU	CIVIL	Asst. Professor	Alumni BOS Member	Review the existing and proposed system

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						and suggest suitable changes for the betterment of the courses
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RESOLUTION

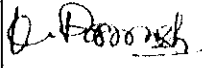
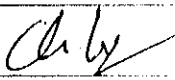
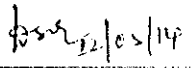
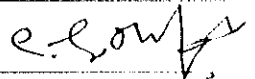
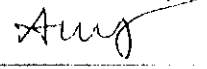

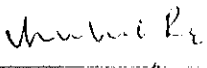
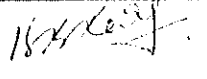
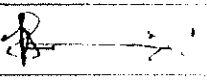
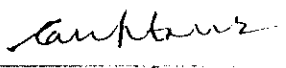
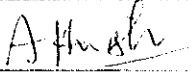

The BOS Committee resolved to recommend the following recommendations to the Academic council for the curriculum structure and syllabus of B. Tech Civil Engineering for 2014-15 admitted students.

1. Syllabus of all the professional core and elective courses were reviewed and revised by considering the competitive examinations, higher education and industry needs.
2. Text books prescribed in syllabus of all the core and professional elective courses were reviewed and text books of foreign author were included and same recommended to BOS.
3. The BOS Committee resolved that core courses having lab component shall have project-based lab in appropriate courses and same is recommended to BOS.
4. The BOS Committee resolved that all core subjects will consists of either a project-based lab or project outcome through course work adapting case study.
5. The Curriculum Structure of B. Tech in Civil Engineering for 2014-15 admitted batch was approved by all members present in the meeting. The detailed Structure of 2014-15 is shown in Annexure-I.
6. It was resolved to approve all the recommendations/points mentioned in DAC meeting conducted on 10th October 2013, except point no.1 which was partially approved.
7. It was resolved to approve all the recommendations/points mentioned in DAC meeting conducted on 13th March 2014, except point no. 1 which was partially approved.
8. The BOS Committee resolved to recommend the curriculum structure and syllabus of a new program-M. Tech Construction Technology and Management of 2014-15 admitted students to Academic council. The Curriculum Structure of same is given in Annexure-II.



K L UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
BOARD OF STUDIES MEETING

List of BOS Members:

S. No	Name	Designation of the Person	Institution	Signature
1	Dr. K. Ramesh	Professor & HoD	KLU	
2	Dr. Ch. Hanumantha Rao	Professor	KLU	
3	Dr. D. S. R Murthy	Professor	Andhra University	
4	Dr. C. Ravi Kumar Reddy	Associate Professor	KLU	
5	Dr. M. Anjaneya Prasad	Associate Professor	KLU	
6	Dr. Y. Sreeramulu	Associate Professor	KLU	
7	Mr. S. Kanakambara Rao	Associate Professor	KLU	
8	Dr. K. Raja Sekhar Reddy	Associate Professor	KLU	
9	Mr. K. Srikanth	Associate Professor	KLU	
10	Dr. S. K. Gupta	Associate Professor	KLU	
11	Mr. V. Akhilesh	Associate Professor	KLU	
12	Mr. B.G. Rahul	Asst. Professor	KLU	

K L UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

Meeting Particulars

Type of Meeting	INTERNAL ACADEMIC DISCUSSIONS
Department conducting the meeting	CIVIL ENGINEERING
Date of the meeting	13-03-14
Time of the meeting	9.30 A.M
Venue of the meeting	HoD Chamber (Civil)

The following members were present:

S.No.	Name	Designation of the person	Position of the person in the meeting
1	Dr. S. K. Gupta	Professor & HoD	Chairman
2	Mr. B. G. Rahul	Assistant Professor	Convener
3	Mr. S. Kanakambara Rao	Associate Professor	Member
4	Mr. P. Sundara Kumar	Associate Professor	Member
5	Dr. A. Siva Sankar	Associate Professor	Member
6	Dr. K. Rajasekhara Reddy	Associate Professor	Member
7	Mr. K. Shyam Chamberlin	Assistant Professor	Member
8	Ms. K. Prasanthi	Assistant Professor	Member
9	Mr. Adithya Chebrolu (1010066)	IV/IV B. Tech Student	Member
10	Ms. Y. Divya (1010086)	IV/IV B. Tech Student	Member

Agenda:

1. To discuss the feedbacks received from stake holders on curriculum
2. To propose the curriculum for B. Tech 2014-15 admitting batch
3. Any other points with the permission of the DAC chairman



The following points were discussed and resolved:

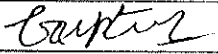




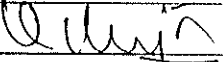
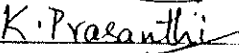

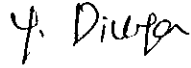
1. Upon discussing on feedbacks received from stake holders on curriculum, the DAC members discussed and resolved to recommend the following to forthcoming BOS:
 - a. Faculty feedback:
 - i. Syllabus of human values and energy & society is reviewed, and revised contents resolved to recommend to the BOS.
 - b. Academic peers feedback:
 - i. Text books prescribed in syllabus of all the core and professional elective courses were reviewed and text books of foreign author were included and same recommended to BOS.
2. The DAC resolved to recommend the curriculum structure and syllabus for a new M. Tech Program-Construction Technology and Management for admitted batch in 2014-15 academic year to BOS. (Annexure - 11)
3. The DAC members resolved that core courses having lab component shall have project-based lab in appropriate courses and same is recommended to BOS.



Dr. S.K. Gupta
(Head of the Department)

K L University
Department of Civil Engineering
Department Academic Committee (DAC)

The following members attended the meeting on 13th March 2014 at 9:30 A.M.:

S.No.	Name	Designation of the person	Signature
1	Dr. S. K. Gupta	Professor & HoD	
2	Mr. B. G. Rahul	Assistant Professor	
3	Mr. S. Kanakambara Rao	Associate Professor	
4	Mr. P. Sundara Kumar	Associate Professor	
5	Dr. A. Siva Sankar	Associate Professor	
6	Dr. K. Rajasekhara Reddy	Associate Professor	
7	Mr. K. Shyam Chamberlin	Assistant Professor	
8	Ms. K. Prasanthi	Assistant Professor	
9	Mr. Adithya Chebrolu (1010066)	IV/IV B. Tech Student	
10	Ms. Y. Divya (1010086)	IV/IV B. Tech Student	

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Department of Civil Engineering

Department Academic Committee Meeting (10/10/2013 & 13/03/2014)

Annexure I: Proposed B.Tech 2014-15 Course Structure

S.No	Course Name	L-T-P	Cr	Pre-Req.	Remarks
I	English	2-0-2	3	NIL	NIL
	Language and Reasoning Skills	2-0-2	3	NIL	NIL
	Ecology & Environment	2-0-0	2	NIL	NIL
	Human Values	2-0-0	2	NIL	NIL
	Employability Skills	0-0-2	0	NIL	NIL
	Advanced Employability Skills	0-0-2	0	NIL	NIL
II	Linear Algebra and Multi variate calculus	3-0-2	4	NIL	NIL
	Differential Equations	3-0-2	4	NIL	NIL
	Engineering Physics	3-0-2	4	NIL	NIL
	Engineering Chemistry	3-0-2	4	NIL	NIL
	Mathematical Methods	3-0-0	3	variate calculus & Differential Equations	NIL
	Complex variables and Finite differential Method	3-0-0	3	variate calculus & Differential Equations	NIL
III	Engineering Materials	3-0-0	3	NIL	NIL
	Measurements	3-0-2	4	NIL	NIL
	Engineering Graphics with CAD	0-0-4	2	NIL	NIL
	Workshop Practice	0-0-4	2	NIL	NIL
	Problem Solving through Programming	3-0-2	4	NIL	NIL
	Engineering Mechanics	3-0-2	4	NIL	NIL
	Thermodynamics	3-0-0	3	Engineering Physics	NIL
	Object Oriented Programming	3-0-2	4	Engineering Materials	NIL
	Network Theory	3-1-2	4	Linear Algebra and Multi variate calculus	NIL
	Data Structures	3-0-2	4	Linear Algebra and Multi variate calculus	NIL
	Signal Processing	3-0-2	4	Differential Equations	NIL
IV	Mechanics of Materials	3-0-2	4	Engineering Mechanics	NIL
	Fluid Mechanics	3-0-2	4	NIL	NIL
	Structural Analysis	3-0-2	2	Engineering Mechanics	NIL
	Hydraulics & Hydraulic Machines	3-0-2	4	Fluid Mechanics	NIL
	Surveying	3-0-2	4	NIL	NIL
	Building Planning and Construction	3-0-2	4	NIL	NIL
	Engineering Geology	3-0-2	3	NIL	NIL
	Soil Mechanics	3-0-2	4	NIL	NIL
	Environmental Engineering	3-0-2	4	NIL	NIL
	Transportation Engineering	3-0-2	4	NIL	NIL
	Design of Concrete Structures	3-0-2	4	Structural Analysis	NIL
	Water Resources Engineering	3-1-2	4	NIL	NIL
	Foundation Engineering	3-2-0	4	NIL	NIL
	Design of Steel Structures	3-0-2	3	NIL	NIL
	Quantity Surveying and Estimation	3-0-2	4	NIL	NIL

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STRUCTURAL ENGINEERING SPECIALIZATION STREAM					
	Green Buildings	3-0-0	3	NIL.	NIL.
	Advanced Design of Steel Structure	3-0-0	3	Design of Steel Structures	NIL.
	Earthquake Resistant Design of Structures	3-0-0	3	NIL.	NIL.
	Prestressed Concrete	3-0-0	3	NIL.	NIL.
	Bridge Engineering	3-0-0	3	NIL.	NIL.
GEO TECHNICAL ENGINEERING SPECIALIZATION STREAM					
	Ground Improvement Techniques	3-0-0	3	NIL.	NIL.
	Advanced Foundation Engineering	3-0-0	3	NIL.	NIL.
	Geotechnical Earthquake Engineering	3-0-0	3	NIL.	NIL.
	Design of Earth Retaining Structures	3-0-0	3	NIL.	NIL.
	Rock Mechanics	3-0-0	3	NIL.	NIL.
ENVIRONMENTAL & WATER RESOURCE ENGINEERING SPECIALIZATION STREAM					
	Advanced Open Channel Hydraulics	3-0-0	3	NIL.	NIL.
	Design of Hydraulic Structures	3-0-0	3	NIL.	NIL.
	Environmental Impact Assessment	3-0-0	3	NIL.	NIL.
	Solid Waste Management and Landfills	3-0-0	3	NIL.	NIL.
	Rural Water Supply & Sanitation	3-0-0	3	NIL.	NIL.
TRANSPORTATION ENGINEERING SPECIALIZATION STREAM					
	Railway, Airport and Dock & Harbour Engineering	3-0-0	3	NIL.	NIL.
	Advanced Highway Engineering	3-0-0	3	NIL.	NIL.
	Traffic Engineering	3-0-0	3	NIL.	NIL.
	Advanced Pavement Design Engineering	3-0-0	3	NIL.	NIL.
	Urban Transportation Systems Planning	3-0-0	3	NIL.	NIL.
MANAGEMENT ELECTIVE, Credits: 3					
	Emotional Intelligence	3-0-0	3	NIL.	NIL.
	Paradigm in Management thought	3-0-0	3	NIL.	NIL.
	Indian Economy	3-0-0	3	NIL.	NIL.
	Professional Ethics & Values	3-0-0	3	NIL.	NIL.
	Behavioral Sciences	3-0-0	3	NIL.	NIL.
	Managing Personal Finances	3-0-0	3	NIL.	NIL.
	Basics of Marketing for Engineers	3-0-0	3	NIL.	NIL.
	Self Management	3-0-0	3	NIL.	NIL.
	Organization Management	3-0-0	3	NIL.	NIL.
	Resources Safety and quality management	3-0-0	3	NIL.	NIL.
	Construction Project Management	3-0-0	3	NIL.	NIL.
	Disaster Management	3-0-0	3	NIL.	NIL.
PROJECT					
	Industrial Training	0-0-4	2	NIL.	NIL.
	Mini Project	0-0-4	2	NIL.	NIL.
	Term Paper	0-0-4	2	NIL.	NIL.
	Minor Project	0-0-4	2	NIL.	NIL.
	Practice School/PROJECT	0-0-24	10	NIL.	NIL.

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Department of Civil Engineering

Department Academic Committee Meeting (10/10/2013 & 13/03/2014)

Annexure-II: Proposed M.Tech 2014-15 Course Structure

Master of Technology in Structural Engineering (SE)

S.No	Course Name	L-T-P	Cr	Pre-Req.	Remarks
1	Applied Mathematics	3-2-0	4	NIL	NIL
2	Theory of Elasticity	3-2-0	4	NIL	NIL
3	Structural Dynamics	3-0-2	4	NIL	NIL
4	Advanced Prestressed Concrete	3-0-2	4	NIL	NIL
5	REPAIR AND REHABILITATION OF STRUCTURES	3-0-0	3	NIL	NIL
6	GEO TECHNICAL EARTH QUAKE ENGINEERING	3-0-0	3	NIL	NIL
7	Seminar	0-0-4	3	NIL	NIL
8	Finite Element Analysis	3-0-2	4	NIL	NIL
9	Bridge Engineering	3-2-0	4	NIL	NIL
10	Earthquake Resistant Design of Structures	3-0-2	4	NIL	NIL
11	Theory of Plates and Shells	3-2-0	4	NIL	NIL
12	INDUSTRIAL STRUCTURES	3-0-0	3	NIL	NIL
13	GREEN BUILDINGS	3-0-0	3	NIL	NIL
14	Term Paper	0-0-4	3	NIL	NIL
15	DISSERTATION	0-0-72	72	NIL	NIL

Annexure-II: Proposed M.Tech 2014-15 Course Structure

M. TECH - CONSTRUCTION TECHNOLOGY AND MANAGEMENT

S.No	Course Name	L-T-P	Cr	Pre-Req.	Remarks	
1	Construction Technology	3-0-2	4	NIL	New Course	
2	Construction Materials	3-2-0	4	NIL	New Course	
3	Construction Planning Scheduling and Control	3-0-2	4	NIL	New Course	
4	Statistical Methods for Management	3-2-0	4	NIL	New Course	
5	Elective 1					
	High Performance Buildings	3-0-0	3	NIL	New Course	
	Precast Concrete Structure	3-0-0	3	NIL	New Course	
	Special Concrete	3-0-0	3	NIL	New Course	
	Structural Health Monitoring	3-0-0	3	NIL	New Course	
6	Elective 2					
	Construction Personnel Management	3-0-0	3	NIL	New Course	
	Building Services, Maintenance Management	3-0-0	3	NIL	New Course	
	Infrastructure Valuation	3-0-0	3	NIL	New Course	
	Construction Economics & Finance	3-0-0	3	NIL	New Course	
7	Seminar	0-0-4	2	NIL	New Course	
8	Mechanized Construction and Machinery	3-0-2	4	NIL	New Course	
9	Project Formulation Appraisal	3-2-0	4	NIL	New Course	
10	Construction Laws and Regulations	3-2-0	4	NIL	New Course	
11	Quality Management and Safety Management Systems in Construction	3-0-2	4	NIL	New Course	
12	Elective 3					
	Environmental Impact Assessment on built Environment	3-0-0	3	NIL	New Course	
	Deep Excavations and ground water control methods	3-0-0	3	NIL	New Course	
	Mass Transport Systems	3-0-0	3	NIL	New Course	
	Form Work for Construction Structures	3-0-0	3	NIL	New Course	
13	Elective 4					
	Emerging construction Technologies	3-0-0	3	NIL	New Course	
	Building Envelopes	3-0-0	3	NIL	New Course	
	Construction and fire safety	3-0-0	3	NIL	New Course	
	Resource Management and Control In Construction	3-0-0	3	NIL	New Course	
14	Term Paper	0-0-4	3	NIL	New Course	
15	DISSERTATION	0-0-72	72	NIL	New Course	

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ANNEXURE-II

M. TECH - CONSTRUCTION TECHNOLOGY AND MANAGEMENT

First Year (First Semester):

S.No	Course code	Course Title	Periods			Credits
			L	T	P	
1	14 CE 5117	Construction Technology	3	0	2	4
2	14 CE 5118	Construction Materials	3	2	0	4
3	14 CE 5119	Construction Planning Scheduling and Control	3	0	2	4
4	14 CE 5120	Statistical Methods for Management	3	2	0	4
5		Elective 1	3	0	0	3
6		Elective 2	3	0	0	3
7	14 IE 5148	Seminar	0	0	4	2
Total Credits						24

First Year (Second Semester) :

S.No	Course code	Course Title	Periods			Credits
			L	T	P	
1	14CE 5221	Mechanized Construction and Machinery	3	0	2	4
2	14CE 5222	Project Formulation Appraisal	3	2	0	4
3	14CE 5223	Construction Laws and Regulations	3	2	0	4
4	14CE 5224	Quality Management and Safety Management Systems in Construction	3	0	2	4
5		Elective 3	3	0	0	3
6		Elective 4	3	0	0	3
7	14 IE 5250	Term Paper	0	0	4	2
Total Credits						24

Second Year (First & Second Semester) :

S.No	Course code	Course Title	Periods			Credits
			L	T	P	
1	14IE6050	Dissertation	0	0	72	36

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ELECTIVE COURSES

S.No	Course code	Course Title	Periods			Credits
			L	T	P	
Elective-1						
1	14CE 51H1	High Performance Buildings	3	0	0	3
2	14CE 51H2	Precast Concrete Structure	3	0	0	3
3	14CE 51H3	Special Concrete	3	0	0	3
4	14CE 51H4	Structural Health Monitoring	3	0	0	3
Elective-2						
1	14CE 51J1	Construction Personnel Management	3	0	0	3
2	14CE 51J2	Building Services, Maintenance Management	3	0	0	3
3	14CE 51J3	Infrastructure Valuation	3	0	0	3
4	14CE 51J4	Construction Economics & Finance	3	0	0	3
Elective-3						
1	14CE 52K1	Environmental Impact Assessment on built Environment	3	0	0	3
2	14CE 52K2	Deep Excavations and ground water control methods	3	0	0	3
3	14CE 52K3	Mass Transport Systems	3	0	0	3
4	14CE 52K4	Form Work for Construction Structures	3	0	0	3
Elective-4						
1	14CE 52L1	Emerging construction Technologies	3	0	0	3
2	14CE 52L2	Building Envelopes	3	0	0	3
3	14CE 52L3	Construction and fire safety	3	0	0	3
4	14CE 52L4	Resource Management and Control In Construction	3	0	0	3

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CONSTRUCTION TECHNOLOGY

Course Code: 14CE5117

Prerequisites: - Nil -

Syllabus

L-T-P: 3-0-2

Credits: 4

Materials - Modular co-ordination, standardization and tolerances-system for prefabrication. Pre-cast concrete manufacturing techniques, Moulds -construction design, maintenance and repair. Pre-casting techniques - Planning, analysis and design considerations - Handling techniques - Transportation Storage and erection of structures. Joints -Curing techniques including accelerated curing such as steam curing, hot air blowing etc., -Test on precast elements - skeletal and large panel constructions - Industrial structures. Pre-cast and pre-fabricating technology for low cost and mass housing schemes. Small pre-cast products like door frames, shutters, Ferro-cement in housing - Water tank service core unit. Quality control - Repairs and economical aspects on prefabrication.

Lab:

Students must visit minimum of 10 construction Sites and shall submit the reports on various construction practices which include foundation Practice, Form Work, Rod bending, Concreting, Slab Work, Highway construction.

TEXT BOOKS

1. Levitt. M., Precast concrete - Materials, Manufacture Properties and Usage, Applied Science Pubs. 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. Madhava Rao. 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.



CONSTRUCTION MATERIALS

Course Code: 14CE5118

Prerequisites: - Nil -

L-T-P : 3-2-0

Credits: 4

Syllabus

STONES – BRICKS – CONCRETE BLOCKS

Stone as building material – Criteria for selection – Tests on stones – Deterioration and Preservation of stone work – Bricks – Classification – Manufacture of clay bricks – Tests on bricks – Compressive Strength - Water Absorption – Efflorescence – Bricks for special use – Refractory bricks – Cement and Concrete hollow blocks – Light weight concrete blocks – Code Practices

LIME – CEMENT – AGGREGATES - MORTAR

Lime – Preparation of lime mortar – Cement, Ingredients – Manufacturing process – Types and Grades – Properties of cement and Cement mortar – Hydration - Compressive strength – Tensile strength – Soundness and consistency – Setting time – Aggregates – Natural stone aggregates – Industrial byproducts – Crushing strength – Impact strength – Flakiness – Abrasion Resistance – Grading – Sand – Bulking – Code Practices

CONCRETE

Concrete – Ingredients – Manufacture – Batching plants – RMC – Properties of fresh concrete – Slump – Flow and compaction – Principles of hardened concrete – Compressive, Tensile and shear strength – Modulus of rupture – Tests – Mix specification – Mix proportioning – IS method – High Strength Concrete and HPC – Other types of Concrete – Code Practices

TIMBER AND OTHER MATERIALS

Timber – Market forms – Industrial timber- Plywood - Veneer – Thermocole – Panels of laminates – Steel – Aluminum and Other Metallic Materials - Composition – uses – Market forms – Mechanical treatment – Paints – Varnishes – Distempers – Code Practices

MODERN MATERIALS

Glass – Ceramics – Sealants for joints – Fibre glass reinforced plastic – Clay products – Refractories – Composite materials – Types – Applications of laminar composites – Fibre textiles – Geosynthetics for Civil Engineering applications.

TEXT BOOKS:

1. R. K. Rajput, Engineering Materials, S. Chand & Company Ltd., 2000.
2. M. S. Shetty, Concrete Technology (Theory and Practice), S. Chand & Company Ltd, 2003.

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CONSTRUCTION PLANNING SCHEDULING AND CONTROL

Course Code : 14CE5119

Prerequisites: - Nil -

L-T-P : 3-0-2

Credits: 4

Syllabus

UNDERSTANDING PROJECT MANAGEMENT : Project manager, organization structures, organizing and staffing the project office and team

MANAGEMENT FUNCTIONS: Directing, controlling, project authority, interpersonal influences, barriers, team building, communication, time management, conflicts

CONSTRUCTION PLANNING: Project planning, milestone schedules, WBS , Network techniques, CPM, PERT and Prima Vera, Resources leveling and smoothing.

COST CONTROL: Understanding control, operating cycles, cost account codes, Job cost report, Projected Cost Estimates, status reporting, variance and earned value


PROJECT MANAGEMENT INFORMATION SYSTEM: MIS reporting, Daily, Weekly and monthly reporting, Actual vs. Planned cost reports, Planning & Cost control document. Quality and safety.

TEXT BOOKS

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, ChotehaiCharoenngam, 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



STATISTICAL METHODS FOR MANAGEMENT

Course Code: 14CE5120

Prerequisites: - Nil -

L-T-P : 3-2-0

Credits: 4

Syllabus

ONE DIMENSIONAL RANDOM VARIABLE

Random variables - Probability function – moments – moment generating functions and their properties – Binomial, Poisson, Geometric, Uniform, Exponential, Gamma and Normal distributions – Function of a Random Variable.

ESTIMATION THEORY

Unbiased Estimators – Method of Moments – Maximum Likelihood Estimation - Curve fitting by Principle of least squares – Regression Lines.

TESTING OF HYPOTHESES

Sampling distributions - Type I and Type II errors - Tests based on Normal, t , χ^2 and F distributions for testing of mean, variance and proportions – Tests for Independence of attributes and Goodness of fit.

DESIGN OF EXPERIMENTS

Analysis of variance – One-way and two-way classifications – Completely randomized design – Randomized block design – Latin square design.

QUEUEING MODELS

Poisson Process – Markovian queues – Single and Multi-Server Models – Little's formula Machine Interference Model – Steady State analysis – Self Service queue.

TEXT BOOKS:

1. D. Gross, C. M. Harris, Fundamentals of Queuing Theory, Third Edition, John Wiley and Sons, 2002.
2. Vohra, N.D. "Quantitative Techniques in Management", Tata McGraw – Hill Company Limited, 2007.

REFERENCES:

1. D. C. Montgomery, G. C. Runger, Applied Statistics and Probability for Engineers, Third Edition, John Wiley and Sons, 2007.
2. Walpole, R.E., Myer, R.H., Myer, S.L. and Ye, K., Probability and Statistics for Engineers and Scientists, 7th edition, Pearson Education, Delhi, 2



MECHANIZED CONSTRUCTION AND MACHINERY

Course Code: 14CE5221

L-T-P : 3-0-2

Prerequisites: - Nil -

Credits: 4

Syllabus

STANDARD TYPES OF EQUIPMENT

Special equipment, cost of owning and operating equipment, depreciation costs, investment and operating costs, economic life, sources of construction equipment, 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

EARTHMOVING EQUIPMENT -I

Tractors and attachments, dozers and rippers, scrapers, shovels, draglines, trenching machines, clamshell, hoes, trucks and wagons, dumpers, rollers and compactors Drilling and blasting equipments.

EARTHMOVING EQUIPMENT -II

Bits, jackhammers, drifters, drills, blasting material, firing charge, safety fuse, electric blasting caps, drilling patterns, transporting and handling of explosives. Pile driving equipments Types, pile driving hammers, single acting and double acting, differential acting hammers, hydraulic and diesel hammers, vibratory drivers

PUMPING EQUIPMENTS

Reciprocating, diaphragm & centrifugal pumps, well point system Stone crushing equipment:- jaw, gyratory and cone crushers, hammer mills, roll crushers, rod and ball crushers, aggregate screens and screening plants,

PUMPING EQUIPMENTS

Portable plants Concrete manufacture, transport, placing and compacting equipment, mixers, central batching and mixing plants, pavers, transit mixers, concrete pumps shotcrete Air Compressor Equipments for moving materials, builder's hoists, forklifts, cranes, belt-conveyors, cableways, ropeways.

Text Books

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

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PROJECT FORMULATION AND APPRAISAL

Course Code: 14CE5222

Prerequisites: - Nil -

L-T-P: 3-2-0

Credits: 4

Syllabus

PROJECT FORMULATION

Project Concepts – Capital investments - Generation and Screening of Project Ideas - Project identification – Preliminary Analysis, Market, Technical, Financial, Economic and Ecological - Pre-Feasibility Report and its Clearance, Project Estimates and Techno-Economic Feasibility Report, Detailed Project Report – Different Project Clearances required

PROJECT COSTING

Project Cash Flows – Time Value of Money – Cost of Capital

PROJECT APPRAISAL

NPV – BCR – IRR – ARR – Urgency – Pay Back Period – Assessment of Various Methods – Indian Practice of Investment Appraisal – International Practice of Appraisal – Analysis of Risk – Different Methods – Selection of a Project and Risk Analysis in Practice

PROJECT FINANCING

Project Financing – Means of Finance – Financial Institutions – Special Schemes – Key Financial Indicators – Ratios

PRIVATE SECTOR PARTICIPATION

Private sector participation in Infrastructure Development Projects - BOT, BOLT, BOOT - Technology Transfer and Foreign Collaboration - Scope of Technology Transfer

REFERENCES:

1. Prasanna Chandra, Projects – Planning, Analysis, Selection, Implementation Review, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2006.
2. Joy P.K., Total Project Management - The Indian Context, New Delhi, Macmillan India Ltd., 1992.
3. United Nations Industrial Development Organisation (UNIDO) Manual for the Preparation of Industrial Feasibility Studies, (IDBI Reproduction) Bombay, 1987
4. Barcus, S.W. and Wilkinson, J.W., Hand Book of Management Consulting Services, McGraw Hill, New York, 1986.



CONSTRUCTION LAWS AND REGULATIONS

Course Code: 14CE5223

L-T-P : 3-2-0

Prerequisites: - Nil -

Credits: 4

Syllabus

CONSTRUCTION CONTRACTS

Indian Contracts Act – Elements of Contracts – Types of Contracts – Features – Suitability – Design of Contract Documents – International Contract Document – Standard Contract Document - Law of Torts.

TENDERS

Prequalification – Bidding – Accepting – Evaluation of Tender from Technical, Contractual and Commercial Points of View – Contract Formation and Interpretation – Potential Contractual Problems – World Bank Procedures and Guidelines – Andhra Pradesh Transparency in Tenders Act.

ARBITRATION

Comparison of Actions and Laws – Agreements – Subject Matter – Violations – Appointment of Arbitrators – Conditions of Arbitration – Powers and Duties of Arbitrator – Rules of Evidence – Enforcement of Award – Costs.

LEGAL REQUIREMENTS

Insurance and Bonding – Laws Governing Sale, Purchase and Use of Urban and Rural Land – Land Revenue Codes – Tax Laws – Income Tax, Sales Tax, Excise and Custom Duties and their Influence on Construction Costs – Legal Requirements for Planning – Property Law – Agency Law - Local Government Laws for Approval – Statutory Regulations.

LABOUR REGULATIONS

Social Security – Welfare Legislation – Laws relating to Wages, Bonus and Industrial Disputes, Labour Administration – Insurance and Safety Regulations – Workmen's Compensation Act – Indian Factory Act – Andhra Pradesh Factory Act – Child Labour Act - Other Labour Laws.

Textbooks

1. Gajaria G.T.; Laws Relating to Building and Engineering Contracts in India,
2. Jimmie Hinze, Construction Contracts, McGraw Hill, 2001.

References:

1. Joseph T. Bockrath, Contracts and the Legal Environment for Engineers and Architects, McGraw Hill, 2000.



2. Kwaku, A., Tenah, P.E. Jose M.Guevara, P.E., Fundamentals of Construction Management and Organisation, Printice Hall, 1985.M.M.Tripathi Private Ltd., Bombay, 1982. Patil. B.S, Civil Engineering Contracts and Estimates, Universities Press (India) Private Limited, 2006.

QUALITY MANAGEMENT AND SAFETY MANAGEMENT SYSTEMS IN CONSTRUCTION

Course Code: 14CE5224

Prerequisites: - Nil -

L-T-P : 3-0-2

Credits: 4

Syllabus

QUALITY MANAGEMENT: Introduction – Definitions and objectives – Factors influencing construction quality –Responsibilities and authority – Quality plan – Quality Management Guidelines – Quality circles.

QUALITY SYSTEMS: Introduction - Quality system standard – ISO 9000 family of standards Requirements – Preparing Quality System Documents – Quality related training – Implementing a Quality system – Third party Certification.

QUALITY PLANNING: Quality Policy, Objectives and methods in Construction industry - Consumers satisfaction, Ergonomics - Time of Completion - Statistical tolerance – Taguchi's concept of quality – Codes and Standards – Documents – Contract and construction programming – Inspection procedures -Processes and products – Total QA / QC programme and cost implication.

QUALITY ASSURANCE AND QUALITY IMPROVEMENT TECHNIQUES : Objectives Regularity agent, owner, design, contract and construction oriented objectives, methods – Techniques and needs of QA/QC – Different aspects of quality – Appraisals, Factors influencing construction quality – Critical, major failure aspects and failure mode analysis, –Stability methods and tools, optimum design – Reliability testing, Reliability coefficient and reliability prediction - Life cycle costing – Value engineering and value analysis. Quality Improvement Tools and Techniques.

SAFETY MANAGEMENT SYSTEMS: Fundamental of safety management, construction safety, safety in scaffolding and working platform, welding and handling, excavation work, concreting and cementing work. Building construction, TAC and NBC rules, High rise building. Evolution of modern safety concept- Safety policy - Safety Organization. Safety survey, safety inspection, safety sampling, Safety Audit. Concept of an accident, Reportable and non reportable accidents, unsafe act and condition principles of accident prevention, Overall accident investigation process. Risk management

REFERENCES:

1. Hutchins. G, ISO 9000: A Comprehensive Guide to Registration, Audit Guidelines and Successful Certification, Viva Books Pvt. Ltd., 1994.
2. James, J.O' Brian, Construction Inspection Handbook – Total Quality Management, Van Nostrand, 1997
3. John L. Ashford, The Management of Quality in Construction, E &F.N.Spon, 1989.



4. Juran Frank, J.M. and Gryna, F.M. Quality Planning and Analysis, McGraw Hill, 2001
5. Kwaku.A., Tema, Jose, M. Guevara, Fundamentals of Construction Management and Organisation, Reston Publishing Co., Inc., 1985.
6. Steven McCabe, Quality Improvement Techniques in Construction, Addison Wesley Longm

HIGH PERFORMANCE BUILDINGS

Course Code: 14CE5111

Prerequisites: - Nil -

L-T-P: 3-0-0

Credits: 3

Syllabus

INTRODUCTION

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

HIGH PERFORMANCE BUILDING CONCEPTS AND PRACTICES

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

HIGH PERFORMANCE BUILDING OPPORTUNITIES AND BENEFITS

Opportunities of High Performance Building, High Performance Building Features, Material and Resources, Water Efficiency, Optimum Energy Efficiency, Typical Energy Saving Approach in Buildings, LEED India Rating System and Energy Efficiency,

HIGH PERFORMANCE BUILDING DESIGN AND AIR CONDITIONING

Introduction, Reduction in Energy Demand, Onsite Sources and Sinks, Maximise System Efficiency, Steps to Reduce Energy Demand and Use Onsite Sources and Sinks, Use of Renewable Energy Sources, Ecofriendly captive power generation for factory, Building requirement, Introduction to air conditioning, CII Godrej Green business centre, Design philosophy, Design interventions, Energy modeling, HVAC System design, Chiller selection, pump selection, Selection of cooling towers, Selection of air handling units, Precooling of fresh air, Interior lighting system, Key feature of the building, Eco-friendly captive power generation for factory, Building requirement.

MATERIAL CONSERVATION AND INDOOR ENVIRONMENT QUALITY AND OCCUPATIONAL HEALTH

Handling of non process waste, waste reduction during construction, materials with recycled content, local materials, material reuse, certified wood, rapidly renewable building materials and furniture, Air conditioning, Indore air quality, Sick building syndrome, Tobacco smoke control, Minimum fresh air requirements avoid use of asbestos in the building, improved fresh air ventilation, Measure of IAQ, Reasons for poor IAQ, Measures to achieve Acceptable IAQ levels,

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.



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

PRECAST CONCRETE STRUCTURES

Course Code: 14CE5H2

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

INTRODUCTION

Need for prefabrication – Principles – Materials – Modular coordination – Standardization – Systems – Production – Transportation – Erection.

PREFABRICATED COMPONENTS

Behaviour of structural components – Large panel constructions – Construction of roof and floor slabs – Wall panels – Columns – Shear walls

DESIGN PRINCIPLES

Disuniting of structures- Design of cross section based on efficiency of material used – Problems in design because of joint flexibility – Allowance for joint deformation.

JOINT IN STRUCTURAL MEMBERS

Joints for different structural connections – Dimensions and detailing – Design of expansion joints

DESIGN FOR ABNORMAL LOADS

Progressive collapse – Code provisions – Equivalent design loads for considering abnormal effects such as earthquakes, cyclones, etc., - Importance of avoidance of progressive collapse.

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. Konez T., Manual of precast concrete construction, Vols. I, II and III, Bauverlag, GMBH, 1971.
4. Structural design manual, Precast concrete connection details, Socie

W. Pooah

SPECIAL CONCRETE

Course Code: 14CE5113
Prerequisites: - Nil -

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

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.

SPECIAL CONCRETES

Fibre Reinforced Concrete – Self Compacting Concrete – Polymer Concrete – High performance concrete – Sulphur concrete – pervious Concrete.

CONCRETE MIX DESIGN

Mix Proportioning -- Mixes incorporating Fly ash, Silica fume, GGBS – Mixes for High Performance Concrete – High strength concrete – variations in concrete strength.

MECHANICAL PROPERTIES OF CONCRETE

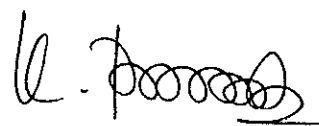
Interfacial Transition Zone – Fracture Strength – Compressive strength – Tensile strength - Impact strength - Bond strength.

DURABILITY OF CONCRETE

Factors affecting durability – Chemical Attack – Permeability – chloride penetration –water absorption – creep – Shrinkage.

REFERENCES:

1. Santhakumar.A.R., Concrete Technology, Oxford University press, New Delhi, 2007.
2. Gambhir.M.L., Concrete Technology – Tata McGraw Hill Book Co. Ltd.,Delhi, 2004.
3. Neville, A.M., Properties of Concrete, Longman, 1995.
4. MethaP.K.andMontreio P.J.M., Concrete Structure Properties and Materials, Prentice Hall, 1998.
5. Gupta.B.L. and Amit Gupta, Concrete Technology, Standard Publishers Distributer, New Delhi, 2004.



STRUCTURAL HEALTH MONITORING

Course Code : 14CE5114

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

Static Field Testing: Types of static tests - Simulation and loading methods - Static response measurement

Dynamic Field Testing: Stress history data, types of dynamic field test - Dynamic response methods

Periodic and Continuous Monitoring; Hardware for Remote data acquisition systems; Remote Structural Health Monitoring; Networking of sensors –

Data comparison technique; Case Studies.

Structural Cracks and Reasons for various cracks, observation of structure on visual eye and also from non destructive tests.

Textbooks

1. Daniel Balageas, Claus-Peter Fritzen, Alfredo Gliemes, Structural Health Monitoring, John Wiley and Sons, 2006.
2. Douglas E Adams, Health Monitoring of Structural Materials and Components-Methods with Applications, John Wiley and Sons, 2007.
3. J.P. Ou, H.Li and Z.D. Duan, Structural Health Monitoring and Intelligent Infrastructure, Vol-I, Taylor and Francis Group, London, U.K, 2006.
4. Victor Giurgutiu, Structural Health Monitoring with Wafer Active Sensors, Academic Press Inc, 2007

CONSTRUCTION PERSONNEL MANAGEMENT

Course Code : 14CE51J1

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

MANPOWER PLANNING

Manpower Planning process , Organizing, Staffing, directing, and controlling – Estimation, manpower requirement – Factors influencing supply and demand of human resources – Role of HR manager – Personnel Principles.

ORGANISATION

Requirement of Organisation – Organisation structure – Organisation Hierarchical charts – Staffing Plan - Development and Operation of human resources - Managerial Staffing – Recruitment – Selection strategies – Placement and Training.

HUMAN RELATIONS AND ORGANISATIONAL BEHAVIOUR



Basic individual psychology – Approaches to job design and job redesign – Self managing work teams – Intergroup – Conflict in organizations – Leadership-Engineer as Manager – all aspects of decision making – Significance of human relation and organizational – Individual in organization
Motivation – personality and creativity – Group dynamics, Team working – Communication and negotiation skills.

WELFARE MEASURES

Compensation – Safety and health – GPF – EPF – Group Insurance – Housing - Pension – Laws related to welfare measures.

MANAGEMENT AND DEVELOPMENT METHODS

Wages and Salary, Employee benefits, Employee appraisal and assessment – Employee services
Safety and Health Management – Special Human resource problems – Productivity in human resources – Innovative approach to designing and managing organization – Managing New Technologies – Total Quality Management – Concept of quality of work life – Levels of change in the organizational Development – Requirements of organizational Development – System design and methods for automation and management of operations – Developing policies, practices and establishing process pattern – Competency up gradation and their assessment – New methods of training and development – Performance Management.

TEXT BOOKS

1. Carleton Counter II and Jill Justice Coutler, The Complete Standard Handbook of Construction Personnel Management, Prentice-Hall, Inc., 1989.

REFERENCES:

1. Charles D Pringle, Justin Gooderil, Longenecker, Management, CE Merril Publishing Co. 1981.
2. Dwivedi R.S, Human Relations and Organisational Behaviour, Macmillian India Ltd., 2005.
3. Josy.J. Familiaro, Handbook of Human Resources Administration, McGraw-Hill International Edition, 1987.
4. Memoria, C.B., Personnel Management, Himalaya Publishing Co., 1997.

BUILDING SERVICES, MAINTENANCE MANAGEMENT

Course Code : 14CE51J2

Prerequisites: - Nil -

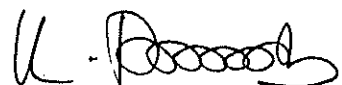
L-T-P : 3-0-0

Credits: 3

Syllabus

WATER SUPPLY AND ELECTRIC SERVICES

Water requirements for different types of buildings, simple method of removal of impurities, water saving practices and their potential Service connection from mains, sump and storage tank, types and sizes of pipes, special installation in multistoried buildings. Material, types of fixtures and fitting for a contemporary bathroom– taps – quarter turn, half turn, ceramic, foam flow etc, hot water mixer, hand shower Rainwater harvesting to include roof top harvesting, type of spouts, sizes of rainwater pipes and typical detail of a water harvesting pit



Electrical systems – Basic of electricity – single/Three phase supply – protective devices in electrical installation – Earthing for safety – Types of earthing – ISI Specifications. Electrical installations in buildings – Types of wires, Wiring systems and their choice – planning electrical wiring for building – Main and distribution boards – Principles of illumination

DRAINAGE AND SOLID WASTE DISPOSAL

Principles of drainage, surface drainage, shape and sizes of drains and sewers, storm water over flow chambers, methods of laying and construction of sewers Traps – shapes, sizes, types, materials and function, Inspection chambers - sizes and construction, Ventilation of House drainage: Anti siphonage pipe, system of plumbing - single stack , one pipe system, one pipe partially ventilating system and two pipe system, grey water recycling and dual plumbing Types of fixtures and materials: sinks, shower tray, shower temple, bath tub, Jacuzzi, water closets, flushing cisterns, urinals, sinks , wash basins, bidet, etc. Design of Septic tank, Oxidation pond, Dispersion trench and soak pits. Arrangements of fixtures in a bathroom Treatment system- Root zone treatment system, Decentralized Wastewater Treatment Systems (DEWATS), Soil Bio technology, packaged Bio-Reactor System

Approaches for solid waste management, Solid wastes collection and removal from buildings. On-site processing and disposal methods, guidelines for municipal solid waste management, e-waste management. Disposal of Wastes: Sanitary land filling, Composting, Vermi-compost, Incineration, Pyrolysis

FIRE FIGHTING SERVICES, PLUMBING AND FIRE FIGHTING LAYOUT OF SIMPLE BUILDING

Classification of buildings based on occupancy , causes of fire and spread of fire, Fire fighting, protection and fire resistance, Fire fighting equipment and different methods of fighting fire. Combustibility of materials, Structural elements and fire resistance, Fire escape routes and elements – planning and design. Wet risers, dry risers, sprinklers, heat detector, smoke detectors, fire dampers, fire doors, etc.

Application of above studies in current design problems and preparing design layout and details - Plumbing layout of residential and public buildings, Fire fighting layout, Reflected ceiling plan of smoke detectors / sprinklers, etc.

ILLUMINATION AND LIGHTING DESIGN

Visual tasks – Factors affecting visual tasks – Modern theory of light and colour – synthesis of light – Additive and subtractive synthesis of colour – Luminous flux – Candle – solid angle illumination – utilization factor – Depreciation factor –MSCP – MHCP –Laws of illumination. Classification of lighting –Artificial light sources – Spectral energy distribution – Luminous efficiency – Colour temperature – Colour rendering. Design of modern lighting – Lighting for stores, offices, schools, hospitals and house lighting. Elementary idea of special features required and minimum level of illumination required for physically handicapped and elderly in building types.

ELECTRICAL LAYOUT OF SIMPLE BUILDINGS, HEAT VENTILATION AND AIR CONDITIONING (HVAC)

Electrical layout of a simple residential, school and commercial building

Behaviour of heat propagation, thermal insulating materials and their co-efficient of thermal conductivity. General methods of thermal insulation: Thermal insulation of roofs, exposed walls. Ventilation: Definition and necessity, system of ventilation. Principles of air conditioning Air cooling. Different systems of ducting and distribution, Essentials of air-conditioning system.

REFERENCE BOOKS

1. Charangith shah, Water supply and sanitary engineering, Galgotia publishers. Kamala & DL. Kanth Rao, Environmental Engineering, Tata McGraw – Hill publishing company Limited.
2. E.R.Ambrose, Heat pumps and Electric Heating, John and Wiley and Sons Inc, New York, 1968.
3. Handbook for Building Engineers in Metric systems, NBC, New Delhi, 1968.
4. Philips Lighting in Architectural Design, McGraw Hill, New York, 1964.
5. R.G.Hopkinson and J.D.Kay, the Lighting of Buildings, Faber, and Faber, London, 1969.
6. S.C.Rangwala, Water supply and sanitary engineering, Charotar publishing house.

U. Poojith

INFRASTRUCTURE VALUATION

Course Code : 14CE51J3

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

Concepts: Introduction, History of value engineering, Value Function, Cost, Worth, Case Study Discussions.

General Techniques in infrastructure Valuation: General Techniques- Brainstorming Technique, The Gordon Technique, Feasibility Ranking, The Morphological Analysis Technique, ABC Analysis, Probabilistic Approach, Make or Buy Technique, Case Study Discussions.

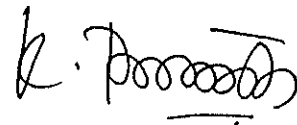
Special Techniques in infrastructure valuation: Special Techniques, function, cost, worth Analysis, Function Analysis System Technique, Technically oriented Fast and Customer, Oriented Fast, Weighted Evaluation Method, Equal Importance Method, Descending Order of Importance Method.

Numeric Analysis, Forced Distribution technique, Quantitative Method, Predetermined minimum method, Evaluation Matrix, Break even analysis, Life Cycle Cost (LCC), Case Study Discussions.

Applications of infrastructure valuation: Team Dynamics, Team Structure and team Building, Definition of the creative and Structured Phases of value engineering, The Workshop approach to achieving value, target setting, time management, case study discussions.

References:

1. Anil Kumar Mukhopadhyaya, Value Engineering Concepts, Techniques and Applications, Response Books, 2013.
2. Anil Kumar Mukhopadhyaya, Value Engineering Mastermind from Concept to Value Engineering Certification, Response Books, 2009.
3. Lawrence D. Miles, Techniques of Value Analysis and Engineering, McGraw-Hill Book Company, 2009.
4. M.R.S. Murthy, Cost Analysis for Management Decisions, Tata McGraw-Hill Publishing Company Ltd., 1988.



CONSTRUCTION ECONOMICS & FINANCE

Course Code : 14CE51J4

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

Construction accounting, Income statement, Depreciation and amortization, Engineering economics,

Time value of money, discounted cash flow, NPV, ROR, PI, Bases of comparison, Incremental rate of return

Benefit-cost analysis, Replacement analysis, Break even analysis, Risks and uncertainties and management decision in capital budgeting, Taxation and inflation, Work pricing, cost elements of contract, bidding and award, revision due to unforeseen causes, escalation.

Turnkey activities, Project appraisal and project yield, Working capital management, financial plan and multiple source of finance.

International finance, Budgeting and budgetary control, Performance budgeting, appraisal through financial statements, Practical problems and case studies.

Reference

1. Simon A. Burtonshaw-Gunn, "Risk and Financial Management in Construction", Gower Publishing, Ltd., 2009
2. Warner Z. Hirsch, Urban Economics, Macmillan, New York, 1993
3. Eugene F. Brigham, Michael C. Ehrhardt, "Financial Management Theory and Practice", Cengage Learning, 2010

ENVIRONMENTAL IMPACT ASSESSMENT ON BUILT ENVIRONMENT

Course Code : 14CE51K1

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

Introduction: The Need for EIA, Indian Policies Requiring EIA , The EIA Cycle and Procedures, Screening, Scoping, Baseline Data, Impact Prediction, Assessment of Alternatives, Delineation of Mitigation Measure and EIA Report, Public Hearing, Decision Making, Monitoring the Clearance Conditions, Components of EIA, Roles in the EIA Process. Government of India Ministry of Environment and Forest Notification (2000), List of projects requiring Environmental clearance, Application form, Composition of Expert Committee, Ecological sensitive places, International agreements. Identifying the Key Issues: Key Elements of an Initial Project Description and Scoping, Project Location(s), Land Use Impacts, Consideration of Alternatives, Process selection: Construction Phase, Input Requirements, Wastes and Emissions,



Air Emissions, Liquid Effluents, Solid Wastes, Risks to Environment and Human, Health, Socio-Economic Impacts, Ecological Impacts,
 Global Environmental Issues, EIA Methodologies: Criteria for the selection of EIA methodology, impact identification, impact measurement, impact interpretation & Evaluation, impact communication, Methods- Adhoc methods, Checklists methods, Matrices methods, Networks methods, Overlays methods,
 Introduction: The Need for EIA, Indian Policies Requiring EIA , The EIA Cycle and Procedures, Screening, Scoping, Baseline Data, Impact Prediction, Assessment of Alternatives, Delineation of Mitigation Measure and EIA Report, Public Hearing, Decision Making, Monitoring the Clearance Conditions, Components of EIA, Roles in the EIA Process. Government of India Ministry of Environment and Forest Notification (2000), List of projects requiring Environmental clearance, Application form, Composition of Expert Committee, Ecological sensitive places, International agreements.
 Identifying the Key Issues: Key Elements of an Initial Project Description and Scoping, Project Location(s), Land Use Impacts, Consideration of Alternatives, Process selection: Construction Phase, Input Requirements, Wastes and Emissions, Air Emissions, Liquid Effluents, Solid Wastes, Risks to Environment and Human, Health, Socio-Economic Impacts, Ecological Impacts.

References:

1. Canter, L.W., Environmental Impact Assessment, McGraw Hill Pub. Co., 1997.
2. David P. Lawrence, Environmental Impact Assessment: Practical Solutions to Recurrent Problems, John Wiley & Sons, 2003.
3. Hosetti, B. B., Kumar Eds, A., Environmental Impact Assessment and Management, Daya Publishing House, 1998.
4. UNESCO, Methodological Guidelines for the Integrated Environmental Evaluation of Water Resources Development, UNESCO/UNEP, Paris, 1987.
5. Anjaneyulu.Y., and Manickam. V., Environmental Impact Assessment Methodologies, B.S. Publications, Hyderabad, 2007.
6. Wathern.P., Environmental Impact Assessment- Theory and Practice, Routledge Publishers, London, 2004.

DEEP EXCAVATIONS AND GROUND WATER CONTROL METHODS

Course Code : 14CE51K2

L-T-P : 3-0-0

Prerequisites: - Nil -

Credits: 3

Syllabus

Deep Excavation

Deep excavations - Standards & codes of practice / Types & uses, Construction methodologies & detailing, Analysis methods & ground movements, Design of retaining structure, Design of temporary works, Tutorial, Monitoring systems, Maintenance / Operation / Coursework discussion

Roads & Tunnels



Roads & Tunnels - Standards & codes of practice / Road geometry & drainage, Pavement design & Geotechnics / Monitoring / Maintenance of Roads, Embankments & Cuttings - Standards & codes of practice / Types & uses / Construction methodologies & detailing, Embankments & Cuttings - Analysis methods & ground movements / Monitoring systems / Maintenance , Standards & codes of practice / Types & uses, Construction methodologies & detailing, Analysis methods & ground movements, Design of lining, Design of temporary works, Tunnels – Tutorial, Monitoring systems, Tunnels - Maintenance / Operation / Coursework discussion

Dewatering

Dewatering of shallow and deep open excavations. Effect of ground water movement. Methods of groundwater control. Shallow and deep well points. Horizontal drainage, vacuum dewatering by electro-osmosis, single and multiple well system, group of wells. Draw down factors, vertical sand drains, pressure relief beneath excavation, well point pumps, headers discharge lines control of surface water. Installation and operation of well point system.

Grouting Methods

Cement grouting, colgrout, colcrete process, prepacked concrete, intrusion grout. Alluvial grouting, various types of clay grouting. Chemical grouting – grouts for injection of fine sands. Resingrouting. Polymerisation technique. Field procedure, applications and limitations.

Piling & Cofferdams and Caisson

Behaviour of single pile and a group piles during driving, under loads-ultimate loads on driven and cast in Situ piles. Construction details of precast piles, prestressed piles, and steel piles, friction piles.

Driven and bored piles, large diameter piles, negative and positive skin friction, multiple under reamed piles, raker piles, sand piles, Anchor piles, load on piles – Static. Vibrating loads, cyclic loading, safe bearing load, methods of pile driving by vibration above and under water through different strata, micro piles.

Cofferdams - types, design and construction of single, double wall. Cofferdam. Sheet pile cofferdams, concrete wall movable cofferdam, land cofferdams, soldier construction method. Cofferdam wall by ICOS method, caissons, details, design and construction.

References:

1. Construction Planning, Equipment and methods – Peurifoy-Tata McGraw Hill Publication
2. Construction Equipment Planning and Applications – Dr. Mahesh Verma
3. Brochures Published by various agencies associated with construction.
4. Journals such as CE & CR. Construction world, International Construction Document Reports of actual major works executed.

MASS TRANSPORT SYSTEM

Course Code : 14CE51K3

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus



FORM WORK FOR CONSTRUCTION STRUCTURES

Course Code : 14CE51K4

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

PLANNING, SITE EQUIPMENT & PLANT FOR FORM WORK

Introduction - Forms for foundations, columns, beams walls etc., General objectives of formwork building - Planning for safety - Development of a Basic System - Key Areas of cost reduction - Planning examples. Overall Planning - Detailed planning - Standard units - Corner units - Pass units - Calculation of labour constants - Formwork hours - Labour Requirement - Overall programme - Detailed programme - Costing - Planning crane arrangements - Site layout plan - Transporting plant - Formwork beams - Scaffold frames - Framed panel formwork - Formwork accessories.

MATERIALS ACCESSORIES PROPRIETARY PRODUCTS & PRESSURES

Lumber - Types - Finish - Sheathing boards working stresses - Repetitive member stress - Plywood - Types and grades - Jointing Boarding - Textured surfaces and strength - Reconstituted wood - Steel - Aluminum - Hardware and fasteners - Nails in Plywood - Allowable withdrawal load and lateral load. Pressures on formwork - Examples - Vertical loads for design of slab forms - Uplift on shores - Laterals loads on slabs and walls.

DESIGN OF FORMS AND SHORES : Basic simplification - Beam formulae - Allowable stresses - Deflection, Bending - Lateral stability - Shear, Bearing - Design of Wall forms - Slab forms - Beam forms - Column forms - Examples in each. Simple wood stresses - Slenderness ratio - Allowable load vs length behaviour of wood shores - Form lining Design Tables for Wall formwork - Slab Formwork - Column Formwork - Slab props - Stacking Towers - Free standing and restrained - Rosett Shoring - Shoring Tower - Heavy Duty props.

BUILDING AND ERECTING THE FORM WORK : Carpentry Shop and job mill - Forms for Footings - Wall footings - Column footings - Sloped footing forms - Strap footing - Stepped footing - Slab form systems - Sky deck and Multiflex - Customized slab table - Standard Table module forms - Swivel head and uniportal head - Assembly sequence - Cycling with lifting fork - Moving with table trolley and table prop. Various causes of failures - ACI - Design deficiencies - Permitted and gradual irregularities.

FORMS FOR DOMES AND TUNNELS, SLIP FORMS AND SCAFFOLDS : Hemispherical, Parabolic, Translational shells - Typical barrel vaults Folded plate roof details - Forms for Thin Shell roof slabs design considerations - Building the forms - Placing concrete - Form removed - Strength requirements - Tunnel forming components - Curb forms invert forms - Arch forms - Concrete placement methods - Cut and cover construction - Bulk head method - Pressures on tunnels - Continuous Advancing Slope method - Form construction - Shafts. Slip Forms - Principles - Types - advantages - Functions of various components - Planning - Desirable characteristics of concrete - Common problems faced - Safety in slip forms special structures

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built with slip form Technique - Types of scaffolds - Putlog and independent scaffold -Single pole scaffolds - Truss suspended - Gantry and system scaffolds.

REFERENCES:

1. Austin, C.K., Formwork for Concrete, Cleaver -Hume Press Ltd., London, 1996.
2. Hurd, M.K., Formwork for Concrete, Special Publication No.4, American Concrete Institute, Detroit, 1996
3. Michael P. Hurst, Construction Press, London and New York, 2003.
4. Robert L. Peurifoy and Garold D. Oberlender, Formwork For Concrete Structures, McGraw -Hill , 1996.

EMERGING CONSTRUCTION TECHNOLOGIES

Course Code : 14CE51L1

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 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-I 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).

TEXT BOOKS

1. Levitt. M., Precast concrete - Materials, Manufacture Properties and Usage, Applied Science Pubs. 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, 1991A

BUILDING ENVELOPES

Course Code : 14CE51L2

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

BUILDING ENVELOPE SYSTEM

Building Envelope System-Performance Objectives-Physical Components-Sources of Moisture Intrusion-Results of Failure.

FOUNDATION CONSTRUCTION

Thermal and Moisture Protection-Groundwater Gutters-Crawl spaces-Damp proofing and Waterproofing- Girders

WALL CONSTRUCTION & ROOF CONSTRUCTION

Wall Framing-Vapour Diffusion Problems-Recommendations-House Wrap and Underlayment-Window and Door Openings-Flashing and Caulking-Siding Skylights-Moisture Penetration-Roof Valleys-Shingles and Shakes-Roof Sheathing-Repairs
Flashing

WINDOW AND DOOR INSTALLATION & VENTILATION SYSTEM

INSTALLATION AND REQUIREMENTS

Windows, Doors and Skylights-Proper Flashing-Door and Window Installation Code-Attic Ventilation-Heating, Ventilation and Air Conditioning

BUILDING ENVELOPE BEST PRACTICES

Moisture Retarding Construction, Capillary Breaks, House Wrap Installation, Window and Door Installation, Siding Installation, Roofing Best Practices

TextBooks

1. H. Hens, 2012, Building Physics: Heat, Air and Moisture, Fundamentals and Engineering Methods with Examples and Exercises, Second Edition
2. ASHRAE, HANDBOOK - Vol. 1-4 ed. ASHRAE 2009-2012.



CONSTRUCTION AND FIRE SAFETY

Course Code : 14CE51L3

Prerequisites: - Nil -

L-T-P : 3-0-0

Credits: 3

Syllabus

Classification of fire, Portable fire extinguishers, Pumps and primers, Foam and foam making equipments, Hose and hose fittings, Water relay systems, Breathing apparatus, Small gears.

Fire protective clothing, Ladders, Ropes and lines, bends & hitches, Fire prevention, Special appliances, Fire fighting codes and standards, Electrical fire hazards, Structures under fire.

Site planning and housekeeping, Types of Scaffolds, Scaffold Erection & dismantling, Scaffold Inspection.

Safety in scaffolding – an overview, Investigation of scaffold accident, Provisions on scaffold under the building other construction workers central rules, 1998, Safety in excavations, trenching and shoring

Road work and pilling operation, Ladders, Use of safety nets and fall protection systems, Concrete and concert foams and shoring, Importance of civil work in construction industry, Material handling, Important safety requirements and inspections

Text Books:

le. Ponnath

RESOURCE MANAGEMENT AND CONTROL IN CONSTRUCTION

Course Code : 14CE51L4

L-T-P : 3-0-0

Prerequisites: - Nil -

Credits: 3

Syllabus

Resource Planning

Resource Planning, Procurement, Identification, Personnel, Planning for material, Labour, time schedule and cost control, Types of resources, manpower, Equipment, Material, Money, Time.

Labour Management

Systems approach, Characteristics of resources, Utilization, measurement of actual resources required, Tools for measurement of resources, Labour, Classes of Labour, Cost of Labour, Labour schedule, optimum use Labour.

Materials and Equipment

Material: Time of purchase, quantity of material, sources, Transportation, Delivery and Distribution. Equipment: Planning and selecting by optimistic choice with respect to cost, Time, Source and handling.

Time Management , Resource Allocation and Leveling

Personnel time, Management and planning, managing time on the project, forecasting the future, Critical path measuring the changes and their effects – Cash flow and cost control.

Time-cost trade off, Computer application – Resource leveling, resource list, resource allocation, Resource loading, Cumulative cost – Value Management.

Textbooks:

1. Andrew,D., Szilagg, Hand Book of Engineering Management, 1982.
2. Harvey. A., Levine, Project Management using Micro Computers, Osborne -McGraw Hill C.A.Publishing Co., Inc. 1988.Industry, Granda Publishing Ltd., 1980.

Reference:

1. James.A..Adrain, Quantitative Methods in Construction Management, American Elsevier Publishing Co., Inc., 1973.
2. Oxley Rand Posleit, Management Techniques applied to the Construction Industry, Granda Publishing Ltd., 1980.



K L UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING
MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

Meeting Particulars

Type of Meeting	INTERNAL ACADEMIC DISCUSSIONS
Department conducting the meeting	CIVIL ENGINEERING
Date of the meeting	11-10-14
Time of the meeting	9.30 A.M
Venue of the meeting	HoD Chamber (Civil)

The following members were present:

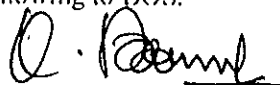
S.No.	Name	Designation of the person	Position of the person in the meeting
1	Dr. K. Ramesh	Professor & HoD	Chairman
2	Mr. B. G. Rahul	Assistant Professor	Convener
3	Mr. S. Kanakambara Rao	Associate Professor	Member
4	Mr. P. Sundara Kumar	Associate Professor	Member
5	Dr. A. Siva Sankar	Associate Professor	Member
6	Dr. K. Rajasekhara Reddy	Associate Professor	Member
7	Mr. K. Shyam Chamberlin	Assistant Professor	Member
8	Ms. K. Prasanthi	Assistant Professor	Member
9	Ms. Razia Begum (11002079)	IV/IV B. Tech Student	Member
10	Mr. A. Avinash Teja (11002003)	IV/IV B. Tech Student	Member

Agenda:

1. To discuss the feedbacks received from stake holders on curriculum
2. To propose the curriculum for B.Tech 2015-16 admitting batch
3. Any other points with the permission of the DAC chairman

The following points were discussed and resolved:

1. Upon discussing the feedback from students, the committee resolved to recommend the following to BOS.





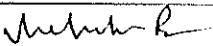

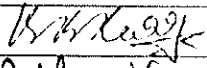

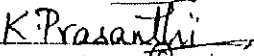
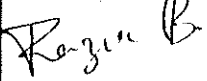
- a. Syllabus of Verbal and Quantitative Reasoning is reviewed & revised, and contents removed are presented in Annexure-I.
 - b. Syllabus of Materials is reviewed & revised, and contents added are presented in Annexure-I.
 - c. Syllabus of C programming & Data Structures is reviewed & revised, and contents added are given in Annexure-I.
2. The DAC members discussed and resolved that syllabus of all professional elective courses should be in line with needs and expectations of the construction industry.
3. Upon discussing the feedback from parents, it was resolved to recommend the following to BOS.
- a. Syllabus of C programming and Data Structures is reviewed & revised, and contents added are given in Annexure-I.
 - b. Syllabus of human values is reviewed & revised, and contents removed are presented in Annexure-I.
 - c. Syllabus of all the professional elective courses are reviewed and revised the Earthquake Resistant Design of Structures course. The contents added are given Annexure-I.
4. The DAC members discussed and resolved to recommend the following to BOS.
- a. Based on the feedback of course coordinator of Finite Element Analysis syllabus is reviewed & revised, and contents added & removed are given Annexure-II.
 - b. Based on the feedback of course coordinator of Structural Dynamics syllabus is reviewed & revised, and contents added & removed are given Annexure-II.
5. Upon considering above mentioned feedbacks and surveying through the policy documents in relevance to APHC, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, Confederation of Indian Industries, The Associated Chambers of Commerce of India (Assocham), The National Association of Software and Services Companies (NASSCOM), ABET, NBA norms, AICTE statutory norms and American Society of Civil Engineers (ASCE), it is resolved to propose enclosed Program development documents and curriculum for B.Tech-Civil Engineering Program for 2015-16 for BOS approval (Annexure-I).



Dr. K. Ramesh
(Head of the Department)

K L University
Department of Civil Engineering
Department Academic Committee (DAC)

The following members attended the meeting on 11th October 2014 at 9:30 A.M.:

S.No.	Name	Designation of the person	Signature
1	Dr. K. Ramesh	Professor & HoD	
2	Mr. B. G. Rahul	Assistant Professor	
3	Mr. S. Kanakambara Rao	Associate Professor	
4	Mr. P. Sundara Kumar	Associate Professor	
5	Dr. A. Siva Sankar	Associate Professor	
6	Dr. K. Rajasekhara Reddy	Associate Professor	
7	Mr. K. Shyam Chamberlin	Assistant Professor	
8	Ms. K. Prasanthi	Assistant Professor	
9	Ms. Razia Begum (11002079)	IV/IV B. Tech Student	
10	Mr. A. Avinash Teja (11002003)	IV/IV B. Tech Student	