



**VEL TECH MULTI TECH**



**Dr RANGARAJAN Dr.SAKUNTHALA**  
**ENGINEERING COLLEGE**

(Owned by Vel Trust 1997)

*(An ISO 9001: 2008 Certified Institution)*

**Accredited By NAAC with 'A' Grade and NBA Accredited  
Institution**

**(Approved by AICTE New Delhi and Govt. of Tamil Nadu, Affiliated to  
Anna University Chennai)**



**SYLLABUS**

**WEEKLY SCHEDULE**

**VII SEMESTER**

**2016 - 2017**

**DEPARTMENT OF CIVIL ENGINEERING**

**IV YEAR DEGREE COURSE**

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## WEEK DETAILS

SL.NO.	WEEK	FROM	TO
1	WEEK1	24-06-2016	25-06-2016
2	WEEK2	27-06-2016	02-07-2016
3	WEEK3	04-07-2016	09-07-2016
4	WEEK4	11-07-2016	16-07-2016
5	WEEK5	18-07-2016	23-07-2016
6	WEEK6	25-07-2016	30-07-2016
7	WEEK7	01-08-2016	06-08-2016
8	WEEK8	08-08-2016	13-08-2016
9	WEEK9	15-08-2016	20-08-2016
10	WEEK10	22-08-2016	27-08-2016
11	WEEK11	29-08-2016	03-09-2016
12	WEEK12	05-09-2016	10-09-2016
13	WEEK13	12-09-2016	17-09-2016
14	WEEK14	19-09-2016	24-09-2016
15	WEEK15	26-09-2016	01-10-2016
16	WEEK16	03-10-2016	08-10-2016

## SUBJECT CONTENTS

SL.NO	SUBJECT CODE	SUBJECT NAME
<b>THEORY</b>		
1	CE6701	Structural Dynamics and Earthquake Engineering
2	CE6702	Prestressed Concrete Structures
3	CE6703	Water Resources and Irrigation Engineering
4	E-II CE6006	Traffic Engineering and Management
	E-II CE6007	Housing Planning and Management
5	E-III EN6704	Industrial Waste Management
	E-III CE6012	Ground Improvement Techniques
<b>PRACTICAL</b>		
6	CE6711	Computer Aided Design and Drafting Laboratory
7	CE6712	Design Project
8	CE6713	Estimation and Quantity Surveying

### TEST / EXAM SCHEDULE

SL.NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	Pre Model Exam
1	CE6701	Structural Dynamics and Earthquake Engineering	14.07.16	01.08.16	06.09.16
2	CE6702	Prestressed Concrete Structures	14.07.16	01.08.16	07.09.16
3	CE6703	Water Resources and Irrigation Engineering	15.07.16	02.08.16	08/.09.16
4	E-II CE6006	Traffic Engineering and Management	15.07.16	02.08.16	09.09.16
	E-II CE6007	Housing Planning and Management			
5	E-III EN6704	Industrial Waste Management	16.07.16	03.08.16	10.09.16
	E-III CE6012	Ground Improvement Techniques			

SL.NO	SUBJECT CODE	SUBJECT NAME	MODEL EXAM
1	CE6701	Structural Dynamics and Earthquake Engineering	03.10.16
2	CE6702	Prestressed Concrete Structures	04.10.16
3	CE6703	Water Resources and Irrigation Engineering	05.10.16
4	E-II CE6006	Traffic Engineering and Management	06.10.16
	E-II CE6007	Housing Planning and Management	
5	E-III EN6704	Industrial Waste Management	07.10.16
	E-III CE6012	Ground Improvement Techniques	

# **CE6701 STRUCTURAL DYNAMICS AND EARTHQUAKE ENGINEERING**

## **WEEK – 1**

### **UNIT –I**

#### **THEORY OF VIBRATIONS**

Difference between static loading and dynamic loading

## **WEEK – 2**

D'Alemberts principles

## **WEEK – 3**

Response to harmonic and periodic forces.

## **WEEK – 4**

### **UNIT TEST-I**

## **UNIT –II**

### **MULTIPLE DEGREE OF FREEDOM SYSTEM**

Two degree of freedom system – modes of vibrations – formulation of equations of motion of multi degree of freedom (MDOF) system

## **WEEK - 5**

Eigen values and Eigen vectors – Response to free and forced vibrations - damped and undamped MDOF system

## **WEEK – 6**

Modal superposition methods.

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

## **ELEMENTS OF SEISMOLOGY**

Elements of Engineering Seismology - Causes of Earthquake – Plate Tectonic theory

### **WEEK – 9**

Elastic rebound Theory – Characteristic of earthquake – Estimation of earthquake parameters - Magnitude and intensity of earthquakes – Spectral Acceleration.

### **WEEK – 10**

#### **UNIT IV**

### **RESPONSE OF STRUCTURES TO EARTHQUAKE**

Effect of earthquake on different type of structures – Behaviour of Reinforced Cement Concrete- Steel and Prestressed Concrete Structure under earthquake loading – Pinching effect - Bouchinger Effects

### **WEEK – 11**

Evaluation of earthquake forces as per IS:1893 – 2002 - Response Spectra – Lessons learnt from past earthquakes

### **WEEK – 12**

#### **PRE MODEL**

### **WEEK – 13**

#### **UNIT – V**

### **DESIGN METHODOLOGY**

Causes of damage – Planning considerations / Architectural concepts as per IS:4326 – 1993 –Guidelines for Earthquake resistant design

### **WEEK - 14**

Earthquake resistant design for masonry and Reinforced Cement Concrete buildings

### **WEEK - 15**

Later load analysis – Design and detailing as per IS:13920 – 1993.

## **WEEK – 16**

Modal exam

### **TEXT BOOKS:**

1. Chopra, A.K., “Dynamics of Structures – Theory and Applications to Earthquake Engineering”, 4th Edition, Pearson Education, 2011.
2. Agarwal. P and Shrikhande. M., "Earthquake Resistant Design of Structures", Prentice Hall of India Pvt. Ltd. 2007

### **REFERENCES:**

1. Biggs, J.M., “Introduction to Structural Dynamics”, McGraw Hill Book Co., New York, 1964
2. Dowrick, D.J., “Earthquake Resistant Design”, John Wiley & Sons, London, 2009
3. Paz, M. and Leigh.W. “Structural Dynamics – Theory & Computation”, 4 Edition, CBS Publishers & Distributors, Shahdara, Delhi, 2006.

# **CE6702 PRESTRESSED CONCRETE STRUCTURES**

## **WEEK – 1**

### **UNIT –I**

#### **INTRODUCTION – THEORY AND BEHAVIOUR**

Basic concepts – Advantages – Materials required – Systems and methods of prestressing – Analysis of sections – Stress concept – Strength concept – Load balancing concept – Effect of loading on the tensile stresses in tendons – Effect of tendon profile on deflections – Factors influencing deflections – Calculation of deflections – Short term and long term deflections – Losses of prestress – Estimation of crack width.

## **WEEK – 2**

D'Alemberts principles

## **WEEK – 3**

Response to harmonic and periodic forces.

## **WEEK – 4**

### **UNIT TEST-I**

### **UNIT –II**

#### **DESIGN FOR FLEXURE AND SHEAR**

Basic assumptions for calculating flexural stresses – Permissible stresses in steel and concrete as per I.S.1343 Code

## **WEEK - 5**

Design of sections of Type I and Type II post-tensioned and pre-tensioned beams – Check for strength limit based on I.S. 1343 Code

## **WEEK – 6**

Layout of cables in post-tensioned beams - Location of wires in pre-tensioned beams - Design for shear based on I.S. 1343 Code. Difference between static loading and dynamic loading



**WEEK – 7**  
**UNIT TEST-II**

**WEEK – 8**  
**UNIT III**

**DEFLECTION AND DESIGN OF ANCHORAGE ZONE**

Factors influencing deflections – Short term deflections of uncracked members – Prediction of long term deflections due to creep and shrinkage – Check for serviceability limit state of deflection.

**WEEK – 9**

Determination of anchorage zone stresses in post-tensioned beams by Magnel's method, Guyon's method and IS1343 code – design of anchorage zone reinforcement – Check for transfer bond length in pre-tensioned beams.

**WEEK – 10**

**UNIT IV**

**COMPOSITE BEAMS AND CONTINUOUS BEAMS**

Analysis and design of composite beams – Methods of achieving continuity in continuous beams

**WEEK – 11**

Analysis for secondary moments – Concordant cable and linear transformation – Calculation of stresses – Principles of design.

**WEEK – 12**

**PRE MODEL**

**WEEK – 13**

**UNIT – V**

**MISCELLANEOUS STRUCTURES**

Design of tension and compression members – Tanks, pipes and poles – Partial prestressing

**WEEK - 14**

Definition, methods of achieving partial prestressing, merits and demerits of partial prestressing.

**WEEK - 15**

Elements of Engineering Seismology - Causes of Earthquake – Plate Tectonic theory

**WEEK – 16**

Modal exam

**TEXT BOOKS:**

1. Krishna Raju N., "Prestressed concrete", 5<sup>th</sup> Edition, Tata McGraw Hill Company, New Delhi, 2012
2. Pandit.G.S. and Gupta.S.P., " Prestressed Concrete", CBS Publishers and Distributers Pvt. Ltd, 2012.

**REFERENCES:**

1. Rajagopalan.N, "Prestressed Concrete", Narosa Publishing House, 2002.
2. Dayaratnam.P., "Prestressed Concrete Structures", Oxford and IBH, 2013
3. Lin T.Y. and Ned.H.Burns, "Design of prestressed Concrete Structures", Third Edition, Wiley India Pvt. Ltd., New Delhi, 2013.
4. IS1343:1980, Code of Practice for Prestressed Concrete, Bureau of Indian Standards, New Delhi, 2012

# **CE6703 WATER RESOURCES AND IRRIGATION ENGINEERING**

## **WEEK – 1**

### **UNIT –I**

#### **WATER RESOURCES**

Water resources survey – Water resources of India and Tamilnadu –  
Description of water resources planning

## **WEEK – 2**

Estimation of water requirements for irrigation and drinking- Single  
and multipurpose reservoir – Multi objective

## **WEEK – 3**

Fixation of Storage capacity -Strategies for reservoir operation -  
Design flood-levees and flood walls.

## **WEEK – 4**

### **UNIT TEST-I**

### **UNIT –II**

#### **WATER RESOURCE MANAGEMENT**

Economics of water resources planning; – National Water Policy –  
Consumptive and nonconsumptive water use

## **WEEK - 5**

Water quality – Scope and aims of master plan - Concept of basin as  
a unit for development –

## **WEEK – 6**

Water budget- Conjunctive use of surface and ground water

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

#### **IRRIGATION ENGINEERING**

Need – Merits and Demerits – Duty, Delta and Base period – Irrigation efficiencies

## **WEEK – 9**

Crops and Seasons - Crop water Requirement – Estimation of Consumptive use of water.

## **WEEK – 10**

### **UNIT IV**

#### **CANAL IRRIGATION**

Types of Impounding structures: Gravity dam – Diversion Head works - Canal drop

## **WEEK – 11**

Cross drainage works – Canal regulations – Canal outlets – Canal lining - Kennady's and Lacey's Regime theory

## **WEEK – 12**

### **PRE MODEL**

## **WEEK – 13**

### **UNIT – V**

#### **IRRIGATION METHODS AND MANAGEMENT**

Lift irrigation – Tank irrigation – Well irrigation – Irrigation methods

## **WEEK - 14**

Surface and Sub-Surface and Micro Irrigation - Merits and demerits – Irrigation scheduling – Water distribution

## **WEEK - 15**

Participatory irrigation management with a case study .

## **WEEK – 16**

Modal exam

**TEXT BOOKS:**

1. Linsley R.K. and Franzini J.B, “Water Resources Engineering”, McGraw-Hill Inc, 2000.
2. Punmia B.C., et. al; Irrigation and water power Engineering, Laxmi Publications, 16 Edition, New Delhi, 2009
3. Garg S. K., “Irrigation Engineering and Hydraulic structures”, Khanna Publishers, 23 Revised Edition, New Delhi, 2009

**REFERENCES:**

1. Duggal, K.N. and Soni, J.P., “Elements of Water Resources Engineering”, New Age International Publishers, 2005
2. Chaturvedi M.C., “Water Resources Systems Planning and Management”, Tata McGraw- Hill Inc., New Delhi, 1997.
3. Michael A.M., Irrigation Theory and Practice, 2nd Edition, Vikas Publishing House Pvt. Ltd.,Noida, Up, 2008
4. Dilip Kumar Majumdar, “Irrigation Water Management”, Prentice-Hall of India, NewDelhi, 2008.
5. Asawa, G.L., “Irrigation Engineering”, New Age International Publishers, New Delhi, 2000.

# **CE6006 TRAFFIC ENGINEERING AND MANAGEMENT**

## **WEEK – 1**

### **UNIT –I**

#### **TRAFFIC PLANNING AND CHARACTERISTICS**

Road Characteristics – Road user characteristics – PIEV theory –  
Vehicle – Performance characteristics – Fundamentals of Traffic Flow

## **WEEK – 2**

Urban Traffic problems in India – Integrated planning of town,  
country ,regional and all urban infrastructure

## **WEEK – 3**

Towards Sustainable approach. – land use & transport and modal  
integration.

## **WEEK – 4**

### **UNIT TEST-I**

### **UNIT –II**

#### **TRAFFIC SURVEYS**

Traffic Surveys – Speed, journey time and delay surveys – Vehicles  
Volume Survey including nonmotorized transports –

## **WEEK - 5**

Methods and interpretation – Origin Destination Survey – Methods  
and presentation – Parking Survey – Accident analyses -Methods,  
interpretation and presentation

## **WEEK – 6**

Statistical applications in traffic studies and traffic forecasting – Level  
of service – Concept, applications and significance.

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

#### **TRAFFIC DESIGN AND VISUAL AIDS**

Intersection Design - channelization, Rotary intersection design – Signal design – Coordination of signals — Grade separation - Traffic signs including VMS and road marking

## **WEEK – 9**

Significant roles of traffic control personnel - Networking pedestrian facilities & cycle tracks

## **WEEK – 10**

### **UNIT IV**

#### **TRAFFIC SAFETY AND ENVIRONMENT**

Road accidents – Causes, effect, prevention, and cost – Street lighting – Traffic and environment hazards – Air and Noise Pollution, causes, abatement measures

## **WEEK – 11**

Promotion and integration of public transportation – Promotion of non-motorized transport.

## **WEEK – 12**

### **PRE MODEL**

## **WEEK – 13**

### **UNIT – V**

#### **TRAFFIC MANAGEMENT**

Area Traffic Management System - Traffic System Management (TSM) with IRC standards

## **WEEK - 14**

Traffic Regulatory Measures-Travel Demand Management (TDM) – Direct and indirect methods

## **WEEK - 15**

Congestion and parking pricing – All segregation methods-  
Coordination among different agencies – Intelligent Transport System  
for traffic management, enforcement and education.

## **WEEK – 16**

Modal exam

### **TEXT BOOKS:**

1. Kadiyali.L.R. "Traffic Engineering and Transport Planning", Khanna Publishers, Delhi, 2013
2. Indian Roads Congress (IRC) Specifications: Guidelines and Special Publications on Traffic Planning and Management.
3. Salter. R.I and Hounsell N.B, " Highway Traffic Analysis and design", Macmillan Press Ltd.1996.

### **REFERENCES:**

1. Fred L. Mannering, Scott S. Washburn and Walter P.Kilareski, Principles of Highway Engineering and Traffic Analysis, Wiley India Pvt. Ltd., New Delhi, 2011
2. Garber and Hoel, "Principles of Traffic and Highway Engineering", CENGAGE Learning, New Delhi, 2010
3. SP:43-1994, IRC Specification, "Guidelines on Low-cost Traffic Management Techniques" for Urban Areas, 1994
4. John E Tyworth, "Traffic Management Planning, Operations and control", Addison Wesley Publishing Company, 1996
5. Hobbs.F.D. " Traffic Planning and Engineering", University of Birmingham, Peragamon Press Ltd, 2005
6. Taylor MAP and Young W, " Traffic Analysis – New Technology and New Solutions", Hargreen Publishing Company, 1998.



# **CE6007 HOUSING PLANNING AND MANAGEMENT**

## **WEEK – 1**

### **UNIT –I**

#### **INTRODUCTION TO HOUSING**

Definition of Basic Terms – House, Home, Household, Apartments, Multi storied Buildings, Special Buildings, Objectives and Strategies of National Housing Policies including Slum Housing Policy

## **WEEK – 2**

Principle of Sustainable Housing – Integrated approach on arriving holding capacity and density norms

## **WEEK – 3**

All basic infrastructure consideration - Institutions for Housing at National, State and Local levels.

## **WEEK – 4**

### **UNIT TEST-I**

### **UNIT –II**

#### **HOUSING PROGRAMMES**

Basic Concepts, Contents and Standards for Housing Programmes - Sites and Services, Neighborhoods- Plotted land development programs, Open Development Plots, Apartments, Gated communities, Townships, Rental Housing,

## **WEEK - 5**

Co-operative Housing, Slum Housing Programmes – Slum improvement – Slum redevelopment and Relocation – Use of GIS and MIS in Slum Housing Projects

## **WEEK – 6**

Role of Public housing agencies, and Private sector in supply , quality, infrastructure and pricing – Role of Non-Government Organizations in slum housing.

**WEEK – 7**  
**UNIT TEST-II**

**WEEK – 8**  
**UNIT III**

**PLANNING AND DESIGN OF HOUSING PROJECTS**

Formulation of Housing Projects – Land Use and Soil suitability analysis -Building Byelaws and Rules and Development Control Regulations

**WEEK – 9**

Site Analysis, Layout Design, Design of Housing Units (Design Problems) – Housing Project Formulation.

**WEEK – 10**

**UNIT IV**

**CONSTRUCTION TECHNIQUES AND COST-EFFECTIVE MATERIALS**

New Constructions Techniques – Cost Effective Modern Materials and methods of Construction

**WEEK – 11**

Green building concept- Building Centers – Concept, Functions and Performance Evaluation.

**WEEK – 12**  
**PRE MODEL**

**WEEK – 13**

**UNIT – V**

**HOUSING FINANCE AND PROJECT APPRAISAL**

Evaluation of Housing Projects for sustainable principles – Housing Finance, Cost Recovery

**WEEK - 14**

Cash Flow Analysis, Subsidy and Cross Subsidy- Public Private Partnership Projects

**WEEK - 15**

Viability Gap Funding - Pricing of Housing Units (Problems )

**WEEK – 16**

Modal exam

**TEXT BOOKS:**

1. Meera Mehta and Dinesh Mehta, "Metropolitan Housing Markets", Sage Publications Pvt. Ltd., New Delhi, 1999.
2. Francis Cherunilam and Odeyar D Heggade, "Housing in India", Himalaya Publishing House, Bombay, 1997.

**REFERENCES:**

1. Wiley- Blackwell, "Neufert Architects" Data, 4th Edition, Blackwell Publishing Ltd, 2012
2. Donald Watson and Michael J.Crosbie, "Time Saver Standards for Architectural Design", 8th Edition, Tata McGraw Hill Edition, 2011
3. Walter Martin Hosack, "Land Development Calculations", McGraw Hill 2 Edition, USA2010
4. Development Control Rules for Chennai Metropolitan Area, CMA, Chennai, 2004.
5. UNCHS, National Experiences with Shelter Delivery for the Poorest Groups, UNCHS Habitat, Nairobi, 1994
5. Government of India, National Housing Policy, 1994

# **CE6023 INDUSTRIAL WASTE MANAGEMENT**

## **WEEK – 1**

### **UNIT –I**

#### **INTRODUCTION**

Types of industries and industrial pollution – Characteristics of industrial wastes – Population equivalent

## **WEEK – 2**

Bioassay studies – effects of industrial effluents on streams, sewer, land, sewage treatment plants and human health

## **WEEK – 3**

Environmental legislations related to prevention and control of industrial effluents and hazardous wastes

## **WEEK – 4**

### **UNIT TEST-I**

## **UNIT –II**

### **CLEANER PRODUCTION**

Waste management Approach – Waste Audit – Volume and strength reduction

## **WEEK - 5**

Material and process modifications

## **WEEK – 6**

Recycle, reuse and byproduct recovery – Applications.

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

#### **POLLUTION FROM MAJOR INDUSTRIES**

Sources, Characteristics, waste treatment flow sheets for selected industries such as Textiles, Tanneries, Pharmaceuticals, Electroplating industries, Dairy, Sugar, Paper, distilleries, Steel plants, Refineries, fertilizer, thermal power plants

## **WEEK – 9**

Wastewater reclamation concepts

## **WEEK – 10**

### **UNIT IV**

#### **TREATMENT TECHNOLOGIES**

Equalisation – Neutralisation – Removal of suspended and dissolved organic solids – Chemical oxidation – Adsorption

## **WEEK – 11**

Removal of dissolved inorganics – Combined treatment of industrial and municipal wastes – Residue management – Dewatering – Disposal

## **WEEK – 12**

### **PRE MODEL**

## **WEEK – 13**

### **UNIT – V**

#### **HAZARDOUS WASTE MANAGEMENT**

Hazardous wastes

## **WEEK - 14**

Physico chemical treatment – solidification – incineration

## **WEEK - 15**

Secure land fills

## **WEEK – 16**

Modal exam

### **TEXT BOOKS:**

1. Rao M. N. & Dutta A. K. , “Wastewater Treatment”, Oxford - IBH Publication, 1995.
2. Eckenfelder W.W. Jr., “Industrial Water Pollution Control”, McGraw Hill Book Company, New Delhi, 2000.
3. Patwardhan. A.D., Industrial Wastewater Treatment", Prentice Hall of India, New Delhi 2010.

### **REFERENCES:**

1. Shen T.T., “Industrial Pollution Prevention”, Springer, 1999.
2. Stephenson R.L. and Blackburn J.B., Jr., “Industrial Wastewater Systems Hand book”, Lewis Publisher, New York, 1998
3. Freeman H.M., “Industrial Pollution Prevention Hand Book”, McGraw Hill Inc., New Delhi, 1995.
4. Bishop, P.L., “Pollution Prevention: Fundamental & Practice”, McGraw Hill, 2000.
5. Pandey, "Environmental Management" Vikas Publications, 2010.
6. Industrial Wastewater Management, Treatment and Disposal", (WEF - MOP - FD3) McGraw Hill, 2008.

# **CE6012 GROUND IMPROVEMENT TECHNIQUES**

## **WEEK – 1**

### **UNIT –I**

#### **PROBLEMATIC SOIL AND IMPROVEMENT TECHNIQUES**

Role of ground improvement in foundation engineering – methods of ground improvement

## **WEEK – 2**

Geotechnical problems in alluvial, lateritic and black cotton soils

## **WEEK – 3**

Selection of suitable ground improvement techniques based on soil conditions.

## **WEEK – 4**

### **UNIT TEST-I**

## **UNIT –II**

### **DEWATERING**

Dewatering Techniques - Well points – Vacuum and electroosmotic methods – Seepage analysis for two

## **WEEK - 5**

Dimensional flow for fully and partially penetrated slots in homogeneous deposits

## **WEEK – 6**

Simple cases - Design.

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

#### **INSITU TREATMENT OF COHESIONLESS AND COHESIVE SOILS**

Insitu densification of cohesion-less soils and consolidation of cohesive soils: Dynamic compaction Vibroflotation, Sand compaction piles and deep compaction.

## **WEEK – 9**

Consolidation: Preloading with sand drains, and fabric drains, Stone columns and Lime piles-installation techniques – simple design - relative merits of above methods and their limitations.

## **WEEK – 10**

### **UNIT IV**

#### **EARTH REINFORCEMENT**

Concept of reinforcement – Types of reinforcement material – Reinforced earth wall – Mechanism – simple design - applications of reinforced earth.

## **WEEK – 11**

Role of Geotextiles in filtration, drainage, separation, road works and containment.

## **WEEK – 12**

### **PRE MODEL**

## **WEEK – 13**

### **UNIT – V**

#### **GROUT TECHNIQUES**

Types of grouts – Grouting equipments and machinery – injection methods – Grout monitoring

## **WEEK - 14**

Stabilization with cement, lime and chemicals



## **WEEK - 15**

Stabilization of expansive soil

## **WEEK – 16**

Modal exam

### **TEXT BOOKS:**

1. Purushothama Raj. P, “Ground Improvement Techniques”, Firewall Media, 2005.
2. Koerner, R.M. “Construction and Geotechnical Methods in Foundation Engineering”, McGraw Hill, 1994.
3. Mittal.S, “An Introduction to Ground Improvement Engineering”, Medtech Publisher, 2013.

### **REFERENCES:**

1. Moseley, M.P., “Ground Improvement Blockie Academic and Professional”, Chapman and Hall, Glasgow, 1998.
2. Jones J.E.P. “Earth Reinforcement and Soil Structure”, Butterworths, London, 1985.
3. Winterkorn, H.F. and Fang, H.Y. “Foundation Engineering Hand Book”. Van Nostrand Reinhold, 1994.
4. Das, B.M. – “Principles of Foundation Engineering” 7th edition, Cengage learning, 2010.
5. Coduto, D.P. “Geotechnical Engineering – Principles and Practices”, Prentice Hall of India Pvt.Ltd. New Delhi, 2011.
6. Koerner, R.M. “Designing with Geosynthetics” 4th Edition, Prentice Hall, Jersey, 1999

## **CE 6711 COMPUTER AIDED DESIGN & DRAFTING LABORATORY**

<b>WEEK</b>	<b>EXPERIMENT</b>
1 to 3.	Design and drawing of RCC cantilever and counter fort type retaining walls with reinforcement details
4 to 7	Design of solid slab and RCC Tee beam bridges for IRC loading and reinforcement details
8 to 10	Design and drafting of circular and rectangular RCC water tanks
10 to 12	Design of plate Girder Bridge - Truss Girder bridges – Detailed Drawings including
12 to 14	Design of hemispherical bottomed steel tank

## **CE6713 ESTIMATION AND QUANTITY SURVEYING**

1 to 3.	Estimate of Buildings
4 TO 7	Estimate of Other Structures
8 TO 10	Specification and Tenders
10 TO 12	Valuation
12 TO 14	Report Preparation

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