



**VEL TECH MULTI TECH  
Dr RANGARAJAN Dr.SAKUNTHALA  
ENGINEERING COLLEGE**

(An ISO 9001: 2008 Certified Institution)

(Owned by Vel Trust)

(Approved by Govt. of Tamil Nadu and affiliated to Anna University)



**SYLLABUS**

**WEEKLY SCHEDULE**

**VII SEMESTER**

**2014 - 2015**

**DEPARTMENT OF CIVIL ENGINEERING**

**IV YEAR DEGREE COURSE**

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## WEEK DETAILS

<b>SL.NO.</b>	<b>WEEK</b>	<b>FROM</b>	<b>TO</b>
1	<b>WEEK1</b>	<b>24-06-2014</b>	<b>27-06-2014</b>
2	<b>WEEK2</b>	<b>30-06-2014</b>	<b>04-07-2014</b>
3	<b>WEEK3</b>	<b>07-07-2014</b>	<b>11-07-2014</b>
4	<b>WEEK4</b>	<b>14-07-2014</b>	<b>18-07-2014</b>
5	<b>WEEK5</b>	<b>21-07-2014</b>	<b>25-07-2014</b>
6	<b>WEEK6</b>	<b>28-07-2014</b>	<b>01-08-2014</b>
7	<b>WEEK7</b>	<b>04-08-2014</b>	<b>08-08-2014</b>
8	<b>WEEK8</b>	<b>11-08-2014</b>	<b>14-08-2014</b>
9	<b>WEEK9</b>	<b>18-08-2014</b>	<b>22-08-2014</b>
10	<b>WEEK10</b>	<b>25-08-2014</b>	<b>28-08-2014</b>
11	<b>WEEK11</b>	<b>01-09-2014</b>	<b>05-09-2014</b>
12	<b>WEEK12</b>	<b>08-09-2014</b>	<b>12-09-2014</b>
13	<b>WEEK13</b>	<b>15-09-2014</b>	<b>19-09-2014</b>
14	<b>WEEK14</b>	<b>22-09-2014</b>	<b>26-09-2014</b>
15	<b>WEEK15</b>	<b>29-09-2014</b>	<b>01-10-2014</b>
16	<b>WEEK16</b>	<b>06-10-2014</b>	<b>10-10-2014</b>
17	<b>WEEK17</b>	<b>13-10-2014</b>	<b>17-10-2014</b>
18	<b>WEEK18</b>	<b>20-10-2014</b>	<b>24-10-2014</b>
19	<b>WEEK19</b>	<b>27-10-2014</b>	<b>31-10-2014</b>

## SUBJECT CONTENTS

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>
<b>THEORY</b>		
1	<b>CE2401</b>	<b>Design of RC and Brick Masonry Structures</b>
2	<b>CE2402</b>	<b>Estimation and Quantity Surveying</b>
3	<b>CE2403</b>	<b>Basics of Dynamics and Aseismic Design</b>
4	<b>CE2404</b>	<b>Prestressed Concrete Structures</b>
5	<b>CE2027</b>	<b>Housing Planning &amp; Management</b>
6	<b>CE2037</b>	<b>Industrial Waste Management</b>
<b>PRACTICAL</b>		
7	<b>CE2405</b>	<b>Computer Aided Design and Drafting Laboratory</b>
8	<b>CE2406</b>	<b>Design Project</b>

**TEST / EXAM SCHEDULE**

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>	<b>UNIT TEST I</b>	<b>UNIT TEST II</b>	<b>UNIT TEST III</b>	<b>UNIT TEST IV</b>	<b>UNIT TEST V</b>
1	CE2401	Design of RC and Brick Masonry Structures	08/07/14 FN	30/07/14 FN	20/08/14 FN	09/09/14 FN	29/09/14 FN
2	CE2402	Estimation and Quantity Surveying	08/07/14 AN	30/07/14 AN	20/08/14 AN	09/09/14 AN	29/09/14 AN
3	CE2403	Basics of Dynamics and Aseismic Design	09/07/14 FN	31/07/14 FN	21/08/14 FN	10/09/14 FN	30/09/14 FN
4	CE2404	Prestressed Concrete Structures	09/07/14 AN	31/07/14 AN	21/08/14 AN	10/09/14 AN	30/09/14 AN
5	CE2027	Housing Planning & Management	10/07/14 FN	01/08/14 FN	22/08/14 FN	11/09/14 FN	01/10/14 FN
6	CE2037	Industrial Waste Management	10/07/14 AN	01/08/14 AN	22/08/14 AN	11/09/14 AN	01/10/14 AN

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>	<b>MODEL EXAM</b>
1	CE2401	Design of RC and Brick Masonry Structures	13-10-2014
2	CE2402	Estimation and Quantity Surveying	14-10-2014
3	CE2403	Basics of Dynamics and Aseismic Design	15-10-2014
4	CE2404	Prestressed Concrete Structures	16-10-2014
5	CE2027	Housing Planning & Management	17-10-2014
6	CE2037	Industrial Waste Management	20-10-2014

# **CE 2401 DESIGN OF REINFORCED CONCRETE & BRICK MASONRY STRUCTURES**

## **WEEK – 1**

### **UNIT –I**

#### **Retaining Walls**

Design of cantilever

## **WEEK – 2**

Design of counter fort retaining walls

## **WEEK – 3**

Design of counter fort retaining walls

## **WEEK – 4 UNIT TEST-I**

### **UNIT –II**

#### **Water Tanks**

Underground rectangular tanks – Domes

## **WEEK - 5**

Overhead circular and rectangular tanks

## **WEEK – 6**

Design of staging and foundations

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

#### **Selected Topics**

Design of staircases (ordinary and doglegged) – Design of flat slabs –  
Design of Reinforced concrete walls

## **WEEK – 9**

Principles of design of mat foundation, box culvert and road bridges

**WEEK – 10 UNIT TEST-III**

**UNIT IV**

**Yield Line Theory**

Application of virtual work method to square

**WEEK – 11**

Application of virtual work method to rectangular

**WEEK – 12**

Application of virtual work method to circular and triangular slabs

**WEEK – 13**

**UNIT TEST-IV**

**WEEK - 14**

**UNIT – V**

**Brick Masonry**

Introduction, Classification of walls, Lateral supports and stability, effective height of wall and columns, effective length of walls

**WEEK - 15**

Design loads, load dispersion, permissible stresses

**WEEK – 16**

Design of axially and eccentrically loaded brick walls

**WEEK - 17**

**UNIT TEST-V**

**WEEK - 18**

Modal exam

# **CE 2402 ESTIMATION AND QUANTITY SURVEYING**

## **WEEK – 1**

### **UNIT –I**

#### **Estimate of Buildings**

Load bearing and framed structures – Calculation of quantities of brick work, RCC, PCC

## **WEEK – 2**

Plastering, white washing, colour washing and painting / varnishing for shops, rooms, – Various types of arches

## **WEEK – 3**

Calculation of brick work and RCC works in arches – Estimate of joineries for panelled and glazed doors, handrails

## **WEEK – 4 UNIT TEST-I**

### **UNIT –II**

#### **Estimate of Other Structures**

Estimating of septic tank, soak pit – sanitary and water supply installations

## **WEEK - 5**

Water supply pipeline – sewer line – tube well – open well – estimate of bituminous and cement concrete roads

## **WEEK – 6**

Estimate of retaining walls – culverts –aqueduct, syphon, fall.

## **WEEK – 7**

### **UNIT TEST-II**

## **WEEK – 8**

### **UNIT III**

#### **Specification and Tenders**

Data – Schedule of rates – Analysis of rates – Specifications – sources

**WEEK – 9**

Detailed and general specifications – Tenders – Contracts – Types of contracts – Arbitration and legal requirements.

**WEEK – 10 UNIT TEST-III**

**UNIT IV**

**Valuation**

Necessity – Basics of value engineering – Capitalised value

**WEEK – 11**

Depreciation – Escalation – Value of building

**WEEK – 12**

Calculation of Standard rent – Mortgage – Lease

**WEEK – 13**

**UNIT TEST-IV**

**WEEK - 14**

**UNIT – V**

**Report Preparation**

Principles for report preparation – report on estimate of residential building

**WEEK - 15**

Report on estimate of Culvert – Roads

**WEEK – 16**

Water supply and sanitary installations – Tube wells – Open wells.

**WEEK - 17**

**UNIT TEST-V**

**WEEK - 18**



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## **CE 2403 BASICS OF DYNAMICS AND ASEISMIC DESIGN**

### **WEEK – 1**

#### **UNIT –I**

##### **Theory of Vibrations**

Concept of inertia and damping – Types of Damping – Difference between static forces– Degrees of freedom

### **WEEK – 2**

SDOF idealization – Equations of motion of SDOF system for mass as well as base excitation – Free vibration of SDOF system

### **WEEK – 3**

Response to harmonic excitation – Impulse and response to unit impulse – Duhamel integral

### **WEEK – 4 UNIT TEST-I**

#### **UNIT –II**

##### **Multiple Degree of Freedom System**

Two degree of freedom system – Normal modes of vibration

### **WEEK - 5**

Natural frequencies –Introduction to MDOF systems

### **WEEK – 6**

Decoupling of equations of motion – Concept of mode superposition

### **WEEK – 7**

#### **UNIT TEST-II**

### **WEEK – 8**

#### **UNIT III**

## **Elements of Seismology**

Causes of Earthquake – Geological faults – Tectonic plate theory  
Elastic rebound – Epicentre – Hypocentre – Primary, shear and  
Raleigh waves

### **WEEK – 9**

Seismogram – Magnitude and intensity of earthquakes – Magnitude  
and Intensity scales – Spectral Acceleration - Information on some  
disastrous earthquakes

## **WEEK – 10 UNIT TEST-III**

### **UNIT IV**

#### **Response of Structures to Earthquake**

Response and design spectra – Design earthquake – concept of peak  
acceleration

### **WEEK – 11**

Site specific response spectrum – Effect of soil properties and  
damping – Liquefaction of soils

### **WEEK – 12**

Methods of introducing ductility into RC structures.

### **WEEK – 13**

#### **UNIT TEST-IV**

### **WEEK - 14**

#### **UNIT – V**

#### **Design Methodology**

IS 1893, IS 13920 and IS 4326 –Design as per the codes

### **WEEK - 15**

Base isolation techniques – Vibration control measures

### **WEEK – 16**

Important points in mitigating effects of earthquake on structures

**WEEK - 17**  
**UNIT TEST-V**

**WEEK - 18**

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**CE 2404 PRESTRESSED CONCRETE STRUCTURE**

**WEEK – 1**

**UNIT –I**

**Introduction – Theory and Behaviour**

Basic concepts – Advantages – Materials required – Systems and methods of prestressing

**WEEK – 2**

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

**WEEK – 3**

Factors influencing deflections – Calculation of deflections – Short term and long term deflections - Losses of prestress – Estimation of crack width

**WEEK – 4 UNIT TEST-I**

**UNIT –II**

**Design Concepts**

Flexural strength – Simplified procedures as per codes – strain compatibility method

**WEEK - 5**

Basic concepts in selection of cross section for bending – stress distribution in end block

**WEEK – 6**

Design of anchorage zone reinforcement – Limit state design criteria  
– Partial prestressing – Applications.

**WEEK – 7**

**UNIT TEST-II**

**WEEK – 8**

**UNIT III**

**Circular Prestressing**

Design of prestressed concrete tanks

**WEEK – 9**

Design of prestressed concrete Pipes

**WEEK – 10 UNIT TEST-III**

**UNIT IV**

**Composite Construction**

Analysis for stresses

**WEEK – 11**

Estimate for deflections

**WEEK – 12**

Flexural and shear strength of composite members

**WEEK – 13**

**UNIT TEST-IV**

**WEEK - 14**

**UNIT – V**

**Pre-Stressed Concrete Bridges**

General aspects – pretensioned prestressed bridge decks

**WEEK - 15 and WEEK – 16**

Post tensioned prestressed bridge decks – Principles of design only.

**WEEK - 17**  
**UNIT TEST-V**

**WEEK - 18**  
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**CE 2027 HOUSING PLANNING AND MANAGEMENT**

**WEEK – 1**

**UNIT –I**

**Introduction to Housing**

Definition of Basic Terms – House, Home, Household, Apartments, Multi storeyed Buildings, Special Buildings, Objectives and Strategies of National Housing Policies

**WEEK – 2**

Principle of Sustainable Housing, Housing Laws at State level, Bye-laws at Urban and Rural Local Bodies – levels

**WEEK – 3**

Development Control Regulations, 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,

**WEEK - 5**

Neighborhoods, Open Development Plots, Apartments, Rental Housing, Co-operative Housing,

**WEEK – 6**

Slum Housing Programmes, Role of Public, Private and Non-Government Organizations

**WEEK – 7**

**UNIT TEST-I**

**WEEK – 8**

**UNIT III**

**Planning and Design of Housing Projects**

Formulation of Housing Projects – Site Analysis, Layout Design

**WEEK – 9**

Design of Housing Units

**WEEK – 10 UNIT TEST-III**

**UNIT IV**

**Construction Techniques and Cost-Effective Materials**

New Constructions Techniques

**WEEK – 11**

Cost Effective Modern Construction Materials

**WEEK – 12**

Building Centers – Concept, Functions and Performance Evaluation

**WEEK – 13**

**UNIT TEST-IV**

**WEEK - 14**

**UNIT – V**

**HOUSING FINANCE AND PROJECT APPRAISAL**

Appraisal of Housing Projects – Housing Finance, Cost Recovery

**WEEK - 15**

Cash Flow Analysis

**WEEK – 16**

Subsidy and Cross Subsidy, Pricing of Housing Units, Rents, Recovery Pattern (Problems).

**WEEK - 17****UNIT TEST-V****WEEK - 18**

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**CE 2037 INDUSTRIAL WASTE MANAGEMENT****WEEK – 1****UNIT –I****Introduction**

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

**WEEK – 2**

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– Volume and strength reduction

**WEEK - 5**

Waste Audit – 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, and Pharmaceuticals

## **WEEK – 9**

Electroplating industries, Dairy, Sugar, Paper, distilleries, Steel plants, Refineries, fertilizer, thermal power plants – Wastewater reclamation concepts

## **WEEK – 10 UNIT TEST-III**

### **UNIT IV**

#### **Treatment Technologies**

Equalisation – Neutralisation – Removal of suspended and dissolved organic solids

## **WEEK – 11**

Chemical oxidation – Adsorption - Removal of dissolved inorganics

## **WEEK – 12**

Combined treatment of industrial and municipal wastes – Residue management – Dewatering - Disposal

## **WEEK – 13**

### **UNIT TEST-IV**

## **WEEK - 14**

### **UNIT – V**

#### **Hazardous Waste Management**

Hazardous wastes



**WEEK - 15**

Physico chemical treatment – solidification

**WEEK – 16**

Incineration – Secure land fills

**WEEK - 17****UNIT TEST-V****WEEK - 18**

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**CE 2405 COMPUTER AIDED DESIGN & DRAFTING  
LABORATORY****WEEK      EXPERIMENT**

1 to 3.	Design and drawing of RCC cantilever and counterfort 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 13	Design and drafting of Intz type water tank, Detailing of circular and rectangular water tanks
13 to 16	Design of plate girder bridge – Twin Girder deck type railway bridge – Truss Girder bridges – Detailed Drawings including connections