SCHEME OF TEACHING AND EXAMINATION

B.E. CIVIL EINGINEERING

V SEMESTER

Sl. No.

Subject Code

Title of the Subject

Written by Administrator
Saturday, 24 October 2009 06:45 - Last Updated Sunday, 17 January 2010 18:16

Teaching Dept.

Teaching Hrs / Week

Examination

Theory

Practical

Duration

(Hrs)

Marks

IA

Theory / **Practical**

Total

1

06 AL 51

| Management | | & Entrepreneurship |

Any   Dept.

04

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03

25

100

125

2

06 CV 52

Design   of structures RCC

Civil

04

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03

25

100

125

3

06 CV 53

Structural   Analysis – II

Civil

04

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03

25

100

125

4

06 CV 54

Geotechnical   Engineering. – I

Civil

04

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03

25

100

125

5

06 CV 55

Hydrology   and Water Resources Engineering

Civil

04

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03

25

100

125

6

06 CV 56

Civil

Transportation   Engineering – I

9 / 72

Civil

04

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03

25

100

125

7

Transportation   Engineering – I

06 CVL 57

Hydraulics   and Hydraulic Machinery Lab.

Civil

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03

03

25

50

75

8

06 CVL 58

Computer   Aided Design Lab.

Civil

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03

03

25

50

75

Written by Administrator
Saturday, 24 October 2009 06:45 - Last Updated Sunday, 17 January 2010 18:16

Total

24

06

24

200

700

900

V SEMESTER

Management & Entrepreneurship

| Subject Code |

| : 06AL51 | 　　　　　　　　 |

| IA Marks |

| : 25 |

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

PART - A

Management

Unit - 1

MANAGEMENT: Introduction – Meaning – nature and characteristics of Management, Scope and functional areas of management – Management as a science, art or profession – Management & Administration – Roles of Management, Levels of Management, Development of Management Thought – early management approaches – Modern management approaches.
7 Hours

Unit - 2

Planning: Nature, importance and purpose of planning process - objectives - Types of plans (Meaning only) - Decision making - Importance of planning - steps in planning & planning premises - Hierarchy of plans.

6 Hours

Unit - 3

Organizing and STAFFING: Nature and purpose of organization – principles of organization – Types of organization – Departmentation – Committees – Centralisation Vs Decentralisation of authority and responsibility – Span of control – MBO and MBE (Meaning only) Nature and importance of Staffing – Process of Selection & Recruitment (in brief).

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6 Hours

Unit - 4

Directing & Controlling: Meaning and nature of directing – Leadership styles, Motivation Theories, Communication – Meaning and importance – Coordination, meaning and importance and Techniques of Co-ordination. Meaning and steps in controlling – Essentials of a sound control system – Methods of establishing control (in brief).

□□□□□□□□ **7 Hours**

PART - B
Entrepreneurship

Unit - 5□

Entrepreneur: Meaning of Entrepreneur, Evolution of Concept, Functions of Entrepreneur, Types of Entrepreneur, Entrepreneur – An emerging class. Concept of Entrepreneurship – Evolution of Entrepreneurship, Development of Entrepreneurship, Stages in entrepreneurial process, Role of Entrepreneurs in Economic Development; Entrepreneurship in India; Entrepreneurship – its Barriers.   □□□□□□□□□□□□□□□□□□□□□
□□□□□□□□□□□**7 Hours**

Unit - 6

Small Scale Industry: Definition; Characteristics; Need and rationale: Objectives, Scope, role of SSI in Economic Development. Advantages of SSI. Steps to start an SSI – Government policy towards SSI, Different Policies of SSI., Government Support on SSI., during 5 year plans. Impact of Liberalization, Privatisation, Globalization on SSI. Effect of

WTO / GATT Supporting Agencies of Government for SSI Meaning. Nature of support; Objectives; Functions; Types of Help; Ancillary Industry and Tiny Industry (Definition only).

□□**7 Hours**

Unit - 7

Institutional Support: Different Schemes, TECKSOK, KIADB; KSSIDC; KSIMC; DIC Single Window Agency; SISI, NSIC, SIDBI, KSFC.

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Unit - 8

Preparation of Project:□□□□□□□□**Meaning of Project, Project**

Identification, Project Selection, Project Report, Need and significance of Project, Contents, formulation, Guidelines by Planning Commission for Project Report, Network Analysis, Errors of Project Report, Project Appraisal. Identification of Business Opportunities. Market Feasibility Study: Technical Feasibility Study, Financial Feasibility Study & Social Feasibility Study.

6 Hours

TEXT BOOKS:

1. Principles   of Management – P.C. Tripathi, P.N. Reddy, Tata McGraw Hill.

2. Dynamics   of Entrepreneurial Development & Management – Vasant Desai – Himalaya Publishing House

3. Entrepreneurship   Development – Small Business Enterprises – Poornima M.   Charantimath – Pearson Education – 2006.

REFERENCE BOOKS:

1. **Management   Fundamentals – Concepts, Application, Skill Development – Robert Lusier – Thomson.**

2. **Entrepreneurship   Development – SS Khanka – S Chand & Co.**

1. **Management   –   Stephen Robbins – Pearson Education / PHI – 17** **th Edition, 2003.**
2. **Management   & Entrepreneurship by N V R   Naidu & T Krishna Rao – I K International Publishing House Pvt. Ltd.**
1
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edition

DESIGN OF STRUCTURES – R.C.C

| **Subject Code** | |

| **: 06CV52** | 𒀱𒀱 |

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

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PART - A

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UNIT - 1

GENERAL FEATURES OF REINFORCED CONCRETE: Introduction, Design Loads, Materials for Reinforced Concrete and Code requirements. Design Philosophy – Limit State Design principles. Philosophy of limit state design, Principles of limit states, Factor of Safety, Characteristic and design loads, Characteristic and design strength. 􀀃􀀃􀀃􀀃􀀃

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6 Hours

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UNIT - 2

PRINCIPLES OF LIMIT STATE DESIGN AND ULTIMATE STRENGTH OF R.C. SECTION: General aspects of Ultimate strength, Stress block parameters for limit state of collapse, Ultimate flexural strength of singly reinforced rectangular sections, Ultimate flexural strength of doubly reinforced rectangular sections, Ultimate flexural strength of flanged sections, Ultimate shear strength of RC sections, Ultimate torsional strength of RC sections, Concepts of development length and anchorage, Analysis examples of singly reinforced, doubly reinforced, flanged sections, shear strength and development length.

7 Hours

UNIT - 3

FLEXURE AND SERVICEABILITY LIMIT STATES: General Specification for flexure design of beams-practical requirements, size of beam, cover to reinforcement-spacing of bars. General aspects of

serviceability-Deflection limits in IS: 456 – 2000-Calculation of deflection (Theoretical method), Cracking in structural concrete members, Calculation of deflections and crack width.

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UNIT - 4

DESIGN OF BEAMS: Design procedures for critical sections for moment and shears. Anchorages of bars, check for development length, Reinforcement requirements, Slenderness limits for beams to ensure lateral stability, Design examples for Simply supported and Cantilever beams for rectangular and flanged sections.

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8 Hours

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PART - B

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UNIT - 5

DESIGN OF SLABS: General consideration of design of slabs, Rectangular slabs spanning one direction, Rectangular slabs spanning in two directions for various boundary conditions. Design of simply supported, cantilever and continuous slabs as per IS: 456 – 2000.

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UNIT - 6

DESIGN OF COLUMNS: General aspects, effective length of column, loads on columns, slenderness ratio for columns, minimum eccentricity, design of short axially loaded columns, design of column subject to combined axial load and uniaxial moment and biaxial

moment using SP – 16 charts.

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UNIT - 7

DESIGN OF FOTTINGS: Introduction, load for footing, Design basis for limit state method, Design of isolated rectangular footing for axial load and uniaxial moment, design of pedestal. 􀀀 􀀀􀀀􀀀􀀀
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6 Hours

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UNIT - 8☐☐

DESIGN OF STAIR CASES: General features, types of stair case, loads on stair cases, effective span as per IS code provisions, distribution of loading on stairs, Design of stair cases.   ☐☐☐☐
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6 Hours

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reference BOOKS:

1.☐☐☐☐☐☐**Design of Reinforced concrete structures - N. Krishnaraju, -**☐
☐☐☐☐☐☐☐☐☐☐☐☐
(IS: 456 – 2000) 3
rd
edition CBS publishers, New Delhi.

2.☐☐☐☐☐☐**Limit State method of design - A.K. Jain, Nemichand and Bros., Roorkee**

3.☐☐☐☐☐☐**Reinforced Concrete- Park & Paulay – John Wiley & Bros.**

4.☐☐☐☐☐☐**Limit State design of Reinforced concrete- B.C. Punmia, Ashok kumar Jain & Arun kumar Jain – Laxmi Publication, New Delhi.**

5.☐☐☐☐☐☐**SP-16 - Only Design charts pertaining to column design.**

6.☐☐☐☐☐☐**Design of RCC Structural Elements S. S. Bhavikatti, Vol-I, New Age International Publications, New Delhi.**

STRUCTURAL ANALYSIS – II

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Subject Code

: 06CV53   ☐☐☐☐☐☐☐☐☐☐

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

PART - A

Unit - 1

Rolling Load and Influence Lines: Rolling load analysis for simply supported beams for several point loads and UDL.

Influence line diagram for reaction, SF and BM at a given section for the cases mentioned in above uinit 1

6 Hours

Unit - 2

Slope deflection method: Introduction, Sign convention, Development of slope-deflection equations and Analysis of Beams and Orthogonal Rigid jointed

plane frames (non-sway) with kinematic redundancy less than/equal to three. (Members to be axially rigid)

8 Hours

Unit - 3

Moment Distribution Method: Introduction, Definition of terms- Distribution factor, Carry over factor, Development of method and Analysis of beams and orthogonal rigid jointed plane frames (non-sway) with kinematic redundancy less than/equal to three. (Members to be axially rigid)

8 Hours

Unit - 4

Sway Analysis: Analysis of rigid jointed plane frames (sway, members assumed to be axially rigid and kinematic redundancy
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3) by slope deflection and moment distribution methods.

4 Hours

PART - B

Unit - 5

Kanis Methods: Introduction, Basic Concept, Analysis of Continuous beams and Analysis of rigid jointed non-sway plane frames.

6 Hours

Unit - 6

Flexibility Matrix Method of Analysis: Introduction, Development of flexibility matrix for plane truss element and axially rigid plane framed structural elements and

Analysis of plane truss and axially rigid plane frames by flexibility method with static indeterminacy

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3.

7 Hours

Unit - 7

Stiffness Matrix Method of Analysis: Introduction, Development of stiffness matrix for plane truss element and axially rigid plane framed structural elements.

And Analysis of plane truss and axially rigid plane frames by stiffness method with kinematic indeterminacy

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3.

7 Hours

Unit - 8

Basic Principles of Dynamics: Basic principles of Vibrations and causes, periodic and aperiodic motion, harmonic and non-harmonic motion. Period and frequency.

Forced and Free Vibration, Damping and Equations of Single Degree of Freedom System with and without damping

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6 Hours

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TEXT BOOKS:

   1. Basic   Structural Analysis- Reddy C.S. - Second Edition, Tata McGraw Hill Publication Company Ltd.

   2. Theory   of Structures Vol. 2 - S.P. Gupta, G.S. Pandit and R. Gupta, Tata McGraw Hill Publication Company Ltd.

   3. Dynamics   of Structures- Clough R.W. and Penzin J., Tata McGraw Hill Publications.

   4. Structural   Analysis-II -S. S. Bhavikatti – Vikas Publishers, New Delhi.

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REFERENCE BOOKS:

1.□□□□□Indeterminate Structural Analysis- J. Sterling Kinney, Oxford and IBH Publishing Co.

1. **Elementary   Structural Analysis- Noris C.H., Wilbur J.B.,, Mc Graw   Hill International Book Edition.**

2. **Advanced   Structural Analysis- Ashok K. Jain,, Nem Chand & Bros., Roorkee, India.**
3. **Structural   Analysis- D.S. Prakash Rao,, A Unified Approach, University Press.**
4. **Intermediate   Structural Analysis- C.K. Wang,, Mc Graw Hill Publications.**

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Written by Administrator
Saturday, 24 October 2009 06:45 - Last Updated Sunday, 17 January 2010 18:16

GEOTECHNICAL ENGINEERING – I

Subject Code

: 06CV54

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

GEOTECHNICAL ENGINEERING – I

Written by Administrator
Saturday, 24 October 2009 06:45 - Last Updated Sunday, 17 January 2010 18:16

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

Part - A

UNIT- 1

INTRODUCTION: History of soil mechanics, Definition, origin and formation of soil. Phase Diagram, Voids ratio, Porosity, Percentage Air Voids, Air content, Degree of saturation, Moisture content, Specific gravity, Bulk density, Dry density, Saturated density, Submerged density and their inter relationships.

□□□**6 Hours**

UNIT - 2□□

INDEX PROPERTIES OF SOILS AND THEIR DETERMINATION: Index Properties of soils- Water content , Specific Gravity, Particle size distribution, Relative Density, Consistency limits and indices, insitu density,

Activity of Clay, Laboratory methods of determination of index properties of soils: Moisture content, Specific gravity, Particle size distribution (Seive analysis and Hydrometer analysis only), Liquid Limit- Casagrande and cone penetration methods, Plastic limit and shrinkage limit determination.

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7 Hours

UNIT - 3

CLASSIFICATION OF SOILS: Purpose of soil classification, basis for soil classification, Particle size classification – MIT classification and IS classification, Textural classification.   ▯ Unified soil classification and IS classification - Plasticity chart and its importance, Field identification of soils.
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CLAY MIERALOGY AND SOIL STUCTURE: Single grained, honey combed, flocculent and dispersed structures, Valence bonds Soil-Water system, Electrical diffuse double layer, adsorbed water, base-exchange capacity, Isomorphus substitution. Common clay minerals in soil and their structures- Kaolinite, Illite and Montmorillonite.

8 Hours

UNIT - 4

FLOW OF WATER THROUGH SOILS: Darcy's law- assumption and validity, coefficient of permeability and its determination (laboratory and field), factors affecting permeability, permeability of stratified soils, Seepage velocity, Superficial velocity and coefficient of percolation, effective stress concept-total pressure and effective stress, quick sand phenomena, Capillary Phenomena

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□□**7 Hours**

PART - B

UNIT - 5

COMPACTION OF SOILS: Definition, Principle of compaction, Standard and Modified proctor's compaction tests, factors affecting compaction, effect of compaction on soil properties, Field compaction control, Proctor needle. Compacting equipments, Dynamic compaction, vibroflotation.

⬜⬜**6 Hours**

UNIT - 6

CONSOLIDATION OF SOILS: Definition, Mass-spring analogy, Terzaghi's one dimensional ⬜ **consolidation theory-assumption and limitations (no derivation), Normally consolidated, under consolidated and over consolidated soils,**

pre-consolidation

pressure and its determination by Casagrande's method. Consolidation characteristics of soil (C

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), Time rate of consolidation.

□□**6 Hours**

UNIT - 7

SHEAR STRENGTH OF SOILS: Concept of shear strength, Mohr's strength theory, Mohr-coulomb theory, conventional and modified failure envelops, Total and effective shear strength parameters, Concept of pore pressure, factors affecting shear strength of soils, Sensitivity and Thixotropy of clay.

□□□□□□□□□□**6 Hours**

UNIT- 8

DETERMINATION OF CONSOLIDATION AND SHEAR PROPERTIES OF SOIL: Laboratory one dimensional consolidation test, Determination of consolidation characteristics of soils-compression index, and coefficient of consolidation, determination of coefficient of consolidation by square root of time fitting method, logarithmic time fitting method and rectangular hyperbola method. Measurement of shear parameters- Direct shear test, unconfined compression test, Triaxial compression test and vane shear test, Test under different drainage conditions.

⬚⬚⬚⬚⬚⬚⬚⬚6 Hours

TEXT BOOKS:

1.⬚⬚⬚⬚⬚Principles of Geotechnical Engineering; Braja, M. Das (2002), Fifth Edition, Thomson Business Information India (P) Ltd., India

2.⬚⬚⬚⬚⬚Soil Engineering in Theory and Practice- Alam Singh and Chowdhary G.R. (1994), CBS Publishers and Distributors Ltd., New Delhi.

3.⬜⬜⬜⬜⬜Soil Mechanics and Foundation Engg.- Punmia B.C. (2005), 16th

Edition Laxmi Publications Co. , New Delhi.

References Books:

1.⬜⬜⬜⬜⬜Foundation Analysis and Design- Bowles J.E. (1996), 5th Edition, McGraw Hill Pub. Co. New York.

2.⬜⬜⬜⬜⬜Soil Mechanics and Foundation Engineering- Murthy V.N.S. (1996), 4th Edition, UBS Publishers and Distributors, New Delhi.

3.⬜⬜⬜⬜⬜Basic and Applied Soil Mechanics- Gopal Ranjan and Rao A.S.R. (2000), New Age International (P) Ltd., Newe Delhi.

4.⬜⬜⬜⬜⬜Geotechnical Engineering- Venkatrahmaiah C. (2006), 3rd Edition New Age International (P) Ltd., Newe Delhi.

5.⬜⬜⬜⬜⬜Soil Mechanics- Craig R.F. (1987), " Van Nostrand Reinhold Co. Ltd.

6.⬚⬚⬚⬚⬚ Text Book of Geotechnical Engineering- Iqbal H. Khan (2005),,
2 nd **Edition, PHI, India.**

HYDROLOGY AND WATER RESOURCES ENGINEERING

Subject Code

: 06CV55 ⬚⬚

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

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Part - A

UNIT - 1

INTRODUCTION: Definition of hydrology. Importance of hydrology. Global water availability. India's water availability. Practical applications of hydrology. Hydrologic cycle (Horton's qualitative and engineering representations) 쏂쏂쏂쏂쏂쏂쏂쏂쏂

쏂쏂쏂 쏂쏂**2 Hours**

PRECIPITATION: Definition. Forms and types of precipitation. Measurement of rain fall using Symon's and Syphon type of rain gauges. Optimum number of rain gauge stations. Consistency of rainfall data (double mass curve method). Computation of mean rainfall (arithmetic average, Thiessen's polygon and Isohyetal methods). Estimation of missing rainfall data (Arithmetic average, normal ratio

and regression methods). Presentation of precipitation data (moving average curve, mass curve, rainfall hyetographs, intensity – duration - frequency curves).

　　7 Hours

UNIT - 2

LOSSES FROM PRECIPITATION: Introduction. Evaporation: Definition, Process, factors affecting, measurement using IS Class A Pan. Estimation using empirical formulae. Infiltration: Definition, factors affecting infiltration capacity, measurement (double ring infiltrometer). Harton's infiltration equation, infiltration indices.

　　
　　　　　　　　　　　　　　　　　　　　　
　　

　　　　　　
　　　　　　　　　　　　　　　　　　　　　　
　　　　　　　　　　

7 Hours

UNIT - 3

RUNOFF: Definition. Concept of catchment. Water budget equation. Components. Factors affecting. Rainfall - runoff relationship using simple regression analysis.

□□□**3 Hours**

HYDROGRAPHS: Definition. Components of Hydrograph. Unit hydrograph and its derivation from simple storm hydrogaphs. Base flow separation. S – curve and its uses.

□□□**4 Hours**

UNIT - 4

GROUND WATER HYDROLOGY AND WELL HYDRAULICS: Scope and

importance of ground water hydrology. Aquifer parameters. Steady radial flow into wells in unconfined and confined aquifers. Types of wells, Methods of construction.

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6 Hours

Part - B

UNIT - 5

STREAM FLOW MEASUREMENT: Introduction. Measurement of stage. Measurement of discharge by Area – Velocity method and slope area method. Simple stage discharge relation.

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6 Hours

UNIT - 6

RESERVOIR SEDIMENTATION: ntroduction. Process of erosion. Factors affecting erosion. Sediment yield. Reservoir Sediment control. Determination of Sediment Yield at a reservoir site (Using sample recorder).

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6 Hours

UNIT - 7

WATER RESOURCES: Introduction. Water wealth. River basins and their potential. Importance of water resources projects in India. Water resources development in Karnataka. 　　　　　　　　　

　　　　　　　

　　　　　

　　　　　　　　　　　　　　　　　　　　　　　　　　　　

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UNIT - 8

RAINWATER HARVESTING :Introduction. Small scale and small tank harvesting. Urban rainwater harvesting. Methods of ground water recharge.
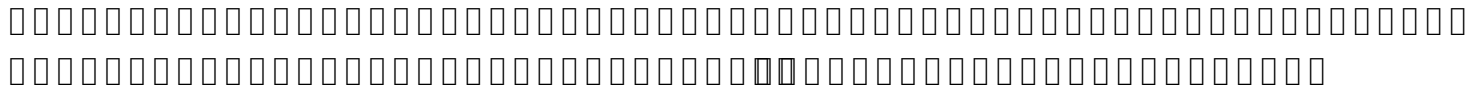
　　5 Hours

TEXT BOOKS:

  1. **Engineering Hydrology- Subramanya K, Tata McGraw Hill, New Delhi.**
  2. **A Text Book of Hydrology- Jayarami Reddy, Lakshmi Publications, New   Delhi.**
  3. **Hydrology- H.M. Raghunath, Wiley Eastern Publication, New Delhi.**

REFERENCE BOOKS:

  1. **Hand Book of Hydrology- Ven Te Chow**
  2. **Hydrology and Water Resources   Engineering- R.K. Sharma and   Sharma,, Oxford and IBH, New Delhi.**

  3. **Hydrology and Water Resources   Engineering- Garg S.K., Khanna   Publishers, New Delhi.**

  4. **Applied Hydrology- Linsley, Kohler and Paulhus, Wiley Eastern Publication, New Delhi.**
  5. **Ground Water Hydrology- Todd, Wiley Eastern Publication, New Delhi.**

TRANSPORTATION ENGINEERING – I

Subject Code

: 06CV56

IA Marks

: 25

No. of Lecture Hours/Week

: 04

Written by Administrator
Saturday, 24 October 2009 06:45 - Last Updated Sunday, 17 January 2010 18:16

Exam Hours

: 03

Total No. of Lecture Hours

: 52

Exam Marks

: 100

Part - A

Unit - 1

Principles of Transportation Engineering: Importance of Transportation. Different modes of transportation, characteristics and comparison of different modes. Jayakar committee recommendations and implementation.

3 Hours

Unit - 2

Highway Development and Planning: Road Types and classification, road patterns. Planning surveys, Master plan - saturation system of road planning, phasing road development programme Road Development in India, 1st, 2nd & 3rd 20-year road development plan and problems only on 3rd

20-year road plan. Present scenario of road development in India (NHDP & PMGSY) and in Karnataka (KSHIP & KRDCL) – problems on best alignment among alternate proposals and phasing, Road Development Plan Vision 2021.

06 Hours

Unit - 3

Highway Alignment and Surveys: Ideal alignment, factors affecting alignment, engineering surveys for new and realignment projects.

4 Hours

Highway Geometric Design 1: Importance, Factors controlling the design of geometric elements, highway cross section elements – pavement surface characteristics, camber, width of carriageway, shoulder width, formation width, right of way, typical cross section of roads.

4 Hours

Unit - 4

Highway Geometric Design 2: Sight distance, Types and importance - Design of horizontal and vertical alignment – Numerical problems on above (No derivation of formulae).

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6 Hours

Part - B

Unit - 5

Pavement Materials: Properties and requirements of subgrade soils, HRB and IS soil classification. Determination of CBR and Modulus of subgrade reaction of soil. Properties and requirements of road aggregates, Bitumen – Tar – Emulsion – Cutback, Just mention the types of tests on aggregates, bitumen and cut back for evaluating the required properties. Numerical problems on above.

□ 6 Hours

Unit - 6

Pavement Design: Types of pavements – Design factors, Determination of ESWL by equal stress criteria and problems.   IR C method of flexible pavement design based on CSA method using IRC: 37 – 2001. Stresses in rigid pavement and design of rigid pavement as per IRC: 58 –2002 excluding design of joints.

5 Hours

Unit - 7

Pavement Construction: Specifications, construction steps and quality control tests for earthwork in cutting, filling and preparation of subgrade, Granular sub base course, Granular base / sub-base courses such as WBM, WMM, CRM, bituminous binder course (BM and DBM), common types of bituminous surfacing courses such as surface dressing, premixed carpet (PMC) and bituminous concrete and Rigid pavement (DLC and PQC).   ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜
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05 hrs

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Highway Drainage System: Surface and Sub-subsurface drainage system for road pavements, types, functions and basic design principles.

□□**4 Hours**

Unit - 8

Highway Economics and Financing: Highway user benefits – VOC using charts only – Highway costs – Economic analysis by annual cost method and benefit cost ratio method, NPV and IRR methods. Numerical problems on above. Highway financing – BOT, BOOT and Annuity concepts.

□□**5 Hours**

Pavement Maintenance: Pavement failures, Types, Causes and remedies. Maintenance of highways. Principles of pavement evaluation

– functional and structural evaluation.

⬜⬜⬜**4 **

Hours

TEXT BOOKS:

1. Highway Engineering- Khanna, S.K. and Justo, C.E.G., Nem Chand and   Bros, Roorkee (2003).
2. Highway Engineering- Kadiyali, L.R., Khanna Publishers, New Delhi.
3. Tansportation Engineering –I- Subramanyam, K.P., Scitech Publications,   Chennai.

REFERENCE BOOKS:

1. **Relevant   IRC codes**
2. **Principles of Transportation   Engineering- Partha Chakra Borthy,   Prentice-Hall.**

3. **Specifications for Roads and   Bridges- MoRT&H, IRC, New Delhi (2001).**

HYDRAULICS AND HYDRAULIC MACHINERY LABORATORY

Subject Code

: 06CVL57

IA Marks

: 25

No. of Practical Hours/Week

: 03

Exam Hours

: 03

Total No. of Practical Hours

: 42

Exam Marks

: 50

Ex 1: Calibration of V-notch

Ex 2: Calibration of rectangular or Trapezoidal notch

Ex 3: Calibration of Ogee weir

Ex 4: Calibration of Broad crested weir

Ex 5: Calibration of Venturi flume.

Ex 6: Calibration of Venturi meter.

Ex 7: Determination of Darcy's friction factor for a straight pipe.

Ex 8: Determination of minor loss constants (Bend, Sudden contraction, sudden expansion)

Ex 9: Determination of vane coefficient for flat and hemispherical vanes.

Ex 10: Determination of hydraulic coefficient of a vertical orifice.

Ex 11: Performance tests on a single stage or multi stage centrifugal pump (constant speed)

Ex 12: Performance tests on a Pleton wheel

Ex 13: Performance tests on Francis or Kaplan turbine.

Ex 14: Demonstration of working of Rain gauges.

COMPUTER AIDED DESIGN LABORATORY

Subject Code

: **06CVL58**

IA Marks

: 25

No. of Practical Hours/Week

Written by Administrator
Saturday, 24 October 2009 06:45 - Last Updated Sunday, 17 January 2010 18:16

: 03

Exam Hours

: 03

Total No. of Practical Hours

: 42

Exam Marks

: 50

SCHEME OF TEACHING AND EXAMINATION   B.E. CIVIL EINGINEERING   V SEMESTER

1. AUTOCAD

1.1 Basics of AUTOCAD:

Drawing Tools: Lines, Circle, Arc, Polyline, Multiline, Polygon, Rectangle, Spline, Ellipse, *Modify tools***: Erase, Copy, Mirror, Offset, Array, Move, Rotate, Scale, Stretch, Lengthen, Trim, Extend, Break, Chamfer and Fillet,**
Using Text
: Single line text, Multiline text, Spelling, Edit text,
Special Features
: View tools, Layers concept, Dimension tools, Hatching, Customising toolbars, Working with multiple drawings

　　
　　
　　　　　
　　　　　　

 3 Hours

1.2 Use of AUTOCAD in Civil Engineering Drawings:

Following drawings are to be prepared for the data given using AUTOCAD

i) Cross section of Foundation - masonry wall, RCC columns (isolated)

ii) Different types of staircases

iii) Lintel and chajja

iv) RCC slabs and beams

v) Drawing of Plan, elevation and sectional elevation of single storied residential and public buildings given the single line diagram and preparing excavation plan.

21 Hours

2. Structural Analysis Software

Use of commercially available software for the analysis of

i)Propped cantilever beams

ii)Fixed beams

iii)Continuous beams

iv)2D Portal frames-single storied and multistoried

6 Hours

3. Use of excel in Civil Engineering Problems

Use of spread sheet for the following civil engineering problems

i)SFD and BMD for Cantilever and simply supported beam

subjected to uniformly distributed and uniformly varying load acting throughout the span

ii) Design of singly reinforced and doubly reinforced rectangular beams

iii) Computation of earthwork

iv) Design of horizontal curve by offset method

v) Design of super elevation

12 Hours

REFERENCE BOOKS:

1. Computer Aided Design Laborator- Dr M.N.Shesha Prakash,

Dr.G.S.Suresh, Lakshmi Publications

2.⬜⬜⬜⬜⬜ CAD Laboratory- M.A.Jayaram, D.S.Rajendra Prasad- Sapna Publications

3.⬜⬜⬜⬜⬜ AUTOCAD 2002- Roberts JT, -BPB publications

4.⬜⬜⬜⬜⬜ AUTOCAD 2004- Sham Tickoo, A beginner's Guide, Wiley Dreamtech India Pvt Ltd.,

5.⬜⬜⬜⬜⬜ Learning Excel 2002- Ramesh Bangia, -Khanna Book Publishing Co (P) Ltd.,

6.⬜⬜⬜⬜⬜ Microsoft Excel- Mathieson SA, Starfire publishers