

SEMESTER III

(Applicable to the students admitted from the Academic year 2008 – 2009 onwards)

COURSE CODE	COURSE TITLE	L	T	P	C
THEORY					
MA 2211	<u>Transforms and Partial Differential Equations</u>	3	1	0	4
GE 2021	<u>Environmental Science and Engineering</u>	3	0	0	3
AG 2211	<u>Applied Geology</u>	3	0	0	3
CE 2201	<u>Mechanics of Solids</u>	3	1	0	4
CE 2202	<u>Mechanics of Fluids</u>	3	1	0	4
CE 2203	<u>Construction Techniques, Equipment and Practice</u>	4	0	0	4
CE 2204	<u>Surveying- I</u>	3	0	0	3
PRACTICAL					
CE 2207	<u>Survey Practical – I</u>	0	0	4	2
CE 2208	<u>Computer Aided Building Drawing</u>	0	0	4	2
TOTAL		22	3	8	29

SEMESTER IV

(Applicable to the students admitted from the Academic year 2008 – 2009 onwards)

COURSE CODE	COURSE TITLE	L	T	P	C
THEORY					
MA 2264	<u>Numerical Methods</u>	3	1	0	4
CE 2251	<u>Soil Mechanics</u>	3	0	0	3
CE 2252	<u>Strength of Materials</u>	3	1	0	4
CE 2253	<u>Applied Hydraulic Engineering</u>	3	1	0	4
CE 2254	<u>Surveying – II</u>	3	0	0	3
CE 2255	<u>Highway Engineering</u>	3	0	0	3
PRACTICAL					
CE 2257	<u>Strength of Materials Lab</u>	0	0	3	2
CE 2258	<u>Hydraulic Engineering Laboratory</u>	0	0	3	2
CE 2259	<u>Survey Practical – II</u>	0	0	4	2
TOTAL		18	3	10	27

SEMESTER V

Code No.	Course Title	L	T	P	C
THEORY					
CE2301	<u>Irrigation Engineering</u>	3	0	0	3
CE2302	<u>Structural Analysis I</u>	3	1	0	4
CE2303	<u>Railways, Airports and Harbour Engineering</u>	4	0	0	4
CE2304	<u>Environmental Engineering I</u>	3	0	0	3
CE2305	<u>Foundation Engineering</u>	3	0	0	3
CE2306	<u>Design of RC Elements</u>	3	1	0	4
PRACTICAL					
GE2321	<u>Communication Skills Laboratory**</u>	0	0	4	2
CE2307	<u>Concrete and Highway Engineering Lab</u>	0	0	3	2
CE2308	<u>Soil Mechanics Laboratory</u>	0	0	3	2
TOTAL		19	2	10	27

6.	Losses in Pipes		
	Major loss – Friction loss		
	Pipe lengths (min. 3m) of different diameters with		
	Valves and pressure rapping & collecting tank	-	1 Unit
	Minor Losses		
	Pipe line assembly with provisions for having		
	Sudden contractions in diameter, expansions		
	Bends, elbow fitting, etc.	-	1 Unit
7.	Pumps		
	(i) Centrifugal pump assembly with accessories		
	(single stage)	-	1 Unit
	(ii) Centrifugal pump assembly with accessories		
	(multi stage)	-	1 Unit
	(iii) Reciprocating pump assembly with accessories	-	1 Unit
	(iv) Deep well pump assembly set with accessories	-	1 Unit
8.	Turbine		
	(i) Impulse turbine assembly with fittings		
	& accessories	-	1 Unit
	(ii) Francis turbine assembly with fittings		
	& accessories	-	1 Unit
	(iii) Kaplan turbine assembly with fittings		
	& accessories	-	1 Unit

CE2259

SURVEY PRACTICAL II

L T P C
0 0 4 2

OBJECTIVE

At the end of the course the student will posses knowledge about Survey field techniques.

1. Study of theodolite
2. Measurement of horizontal angles by reiteration and repetition and vertical angles
3. Theodolite survey traverse
4. Heights and distances - Triangulation - Single plane method.
5. Tacheometry - Tangential system - Stadia system - Subtense system.
6. Setting out works - Foundation marking - Simple curve (right/left-handed) - Transition curve.
7. Field observation for and Calculation of azimuth
8. Field work using Total Station.

TOTAL: 60 PERIODS

CE2301

IRRIGATION ENGINEERING

L T P C
3 0 0 3

OBJECTIVE

At the end of the semester, the student shall understand the need and mode of irrigation. The student also shall know the irrigation management practices of the past, present and future. The structures involved the elementary hydraulic design of different structures and the concepts of maintenance shall also form part. Finally, the student shall be in a position to conceive and plan any type of irrigation project.

UNIT I	INTRODUCTION	9
Irrigation – Need and mode of irrigation – Merits and demerits of irrigation – Crop and crop seasons – consumptive use of water – Duty – Factors affecting duty – Irrigation efficiencies – Planning and Development of irrigation projects.		
UNIT II	IRRIGATION METHODS	8
Canal irrigation – Lift irrigation – Tank irrigation – Flooding methods – Merits and demerits – Sprinkler irrigation – Drip irrigation		
UNIT III	DIVERSION AND IMPOUNDING STRUCTURES	10
Weirs – elementary profile of a weir – weirs on pervious foundations - Types of impounding structures - Percolation ponds – Tanks, Sluices and Weirs – Gravity dams – Earth dams – Arch dams – Spillways – Factors affecting location and type of dams – Forces on a dam – Hydraulic design of dams.		
UNIT IV	CANAL IRRIGATION	10
Alignment of canals – Classification of canals – Canal drops – Hydraulic design of drops – Cross drainage works – Hydraulic design of cross drainage works – Canal Head works – Canal regulators – River Training works.		
UNIT V	IRRIGATION WATER MANAGEMENT	8
Need for optimisation of water use – Minimising irrigation water losses – On farm development works - Participatory irrigation management – Water users associations – Changing paradigms in water management – Performance evaluation.		

TOTAL: 45 PERIODS

TEXT BOOKS

1. Asawa, G.L., "Irrigation Engineering", New Age International Publishers, 2000
2. Punima B.C. & Pande B.B .Lal Irrigation and Water Power Engineering, Laxmi Publishing, New Delhi 2007
3. Michael, A.M, Irrigation Theory and Practical, Vikas Publishing Pvt Ltd, 2006
4. Gupta, B.L, & Amir Gupta, "Irrigation Engineering", Satya Praheshan, New Delhi

REFERENCES

1. Dilip Kumar Majumdar, "Irrigation Water Management (Principles & Practices)", Prentice Hall of India (P), Ltd, 2000
2. Basak, N.N, "Irrigation Engineering", Tata McGraw-Hill Publishing Co. New Delhi, 1999
3. Sharma R.K.. "Irrigation Engineering", S.Chand & Co. 2007.

CE2302

STRUCTURAL ANALYSIS I

L T P C
3 1 0 4

OBJECTIVE

The members of a structure are subjected to internal forces like axial forces, shearing forces, bending and torsional moments while transferring the loads acting on it. Structural analysis deals with analysing these internal forces in the members of the structures. At the end of this course students will be conversant with classical method of analysis.

UNIT I	DEFLECTION OF DETERMINATE STRUCTURES	12
Principles of virtual work for deflections – Deflections of pin-jointed plane frames and rigid plane frames – Willot diagram - Mohr's correction		

UNIT II MOVING LOADS AND INFLUENCE LINES 12
(DETERMINATE & INDETERMINATE STRUCTURES WITH REDUNDANCY RESTRICTED TO ONE)

Influence lines for reactions in statically determinate structures – influence lines for members forces in pin-jointed frames – Influence lines for shear force and bending moment in beam sections – Calculation of critical stress resultants due to concentrated and distributed moving loads. Muller Breslau's principle – Influence lines for continuous beams and single storey rigid frames – Indirect model analysis for influence lines of indeterminate structures – Beggs deformer

UNIT III ARCHES 12

Arches as structural forms – Examples of arch structures – Types of arches – Analysis of three hinged, two hinged and fixed arches, parabolic and circular arches – Settlement and temperature effects.

UNIT IV SLOPE DEFLECTION METHOD 12

Continuous beams and rigid frames (with and without sway) – Symmetry and antisymmetry – Simplification for hinged end – Support displacements

UNIT V MOMENT DISTRIBUTION METHOD 12

Distribution and carry over of moments – Stiffness and carry over factors – Analysis of continuous beams – Plane rigid frames with and without sway – Naylor's simplification.

TOTAL: 60 PERIODS

TEXT BOOKS

1. Vaidyanadhan, R and Perumal, P, "Comprehensive Structural Analysis – Vol. 1 & Vol. 2", Laxmi Publications, New Delhi, 2003.
2. L.S. Negi & R.S. Jangid, "Structural Analysis", Tata McGraw-Hill Publications, New Delhi, Sixth Edition, 2003.
3. Punmia B.C., Theory of Structures (SMTS) Vol II Laxmi Publishing Pvt Ltd, New Delhi, 2004.
4. BhavaiKatti, S.S, Structural Analysis – Vol. 1 & Vol. 2, Vikas Publishing Pvt Ltd., New Delhi, 2008

REFERENCE

1. Analysis of Indeterminate Structures – C.K. Wang, Tata McGraw-Hill, 1992.

CE2303 RAILWAYS, AIRPORTS AND HARBOUR ENGINEERING L T P C
4 0 0 4

OBJECTIVE

This course imparts the student's knowledge of planning, design, construction and maintenance of railway tracks. The students acquire proficiency in the application of modern techniques such as GIS, GPS and remote sensing in Railway Engineering. The student develops skills on airport planning and design with the prime focus on runway and taxiway geometrics. Students become conversant with the definition, purpose, location and materials of coastal structures such as piers, breakwaters, wharves, jetties, quays and spring fenders. The students acquire knowledge on site reconnaissance for location and planning of harbours.

UNIT I RAILWAY PLANNING AND DESIGN 12

Role of Indian Railways in National Development – Railways for Urban Transportation – LRT & MRTS - Engineering Surveys for Track Alignment – Obligatory points - Conventional and Modern methods (Remote Sensing, GIS & GPS, EDM and other equipments) - Permanent Way, its Components and their Functions: Rails - Types of Rails, Rail Fastenings, Concept of Gauges, Coning of Wheels, Creeps and kinks -Sleepers – Functions, Materials, Density – Functions, Materials, Ballastless Tracks - Geometric Design of Railway Tracks – Gradients and Grade Compensation, Super-Elevation, Widening of Gauges in Curves, Transition Curves, Horizontal and Vertical Curves.

UNIT II RAILWAY TRACK CONSTRUCTION, MAINTENANCE AND OPERATION 12

Points and Crossings - Design of Turnouts, Working Principle - Signalling, Interlocking and Track Circuiting - Construction & Maintenance – Conventional, Modern methods and Materials, Track Drainage - Track Modernisation– Automated maintenance and upgrading, Re-laying of Track, Lay outs of Railway Stations and Yards, Rolling Stock, Tractive Power, Track Resistance, Level Crossings.

UNIT III AIRPORT PLANNING AND DESIGN 12

Role of Air Transport, Components of Airports - Airport Planning – Air traffic potential, Site Selection, Design of Components, Cost Estimates, Evaluation and Institutional arrangements Runway Design- Orientation, Cross wind Component, Wind rose Diagram (Problems), Geometric Design and Corrections for Gradients (Problems), Drainage - Taxiway Design – Geometric Design Elements, Minimum Separation Distances, Design Speed, Airport Drainage - Airport Zoning - Clear Zone, Approach Zone, Buffer Zone, Turning Zone, Clearance over Highways and Railways

UNIT IV AIRPORT LAYOUTS, VISUAL AIDS, AND AIR TRAFFIC CONTROL 12

Airport Layouts – Apron, Terminal Building, Hangars, Motor Vehicle Parking Area and Circulation Pattern, Case studies of Airport Layouts - Airport Buildings – Primary functions, Planning Concept, Principles of Passenger Flow, Passenger Facilities - Visual Aids – Runway and Taxiway Markings, Wind Direction Indicators, Runway and Taxiway Lightings - Air Traffic Control – Basic Actions, Air Traffic Control Network - Helipads, Hangars, Service Equipments.

UNIT V HARBOUR ENGINEERING 12

Definition of Terms - Harbours, Ports, Docks, Tides and Waves, Littoral Drift, Sounding, Area, Depth, Satellite Ports - Requirements and Classification of Harbours - Site Selection & Selection Investigation – Speed of water, Dredging, Range of Tides, Waves and Tidal Currents, Littoral Transport with Erosion and Deposition, Soundings, Anchoring Grounds, Geological Characteristics, Winds & Storms, Position and Size of Shoals - Shore Considerations- Proximity to Towns/Cities, Utilities, Construction Materials, Coast Lines - Dry and Wet Docks, Planning and Layouts - Entrance, Position of Light Houses, Navigating - Terminal Facilities – Port Buildings, Warehouse, Transit Sheds, Inter-modal Transfer Facilities, Mooring Accessories, Navigational Aids - Coastal Structures- Piers, Breakwaters, Wharves, Jetties, Quays, Spring Fenders - Coastal Shipping, Inland Water Transport and Container Transportation.

TOTAL: 60 PERIODS

TEXT BOOKS

1. Saxena Subhash C and Satyapal Arora, A Course in Railway Engineering, Dhanpat Rai and Sons, Delhi, 1998.
2. Khanna S K, Arora M G and Jain S S, Airport Planning and Design, Nemchand and Brothers, Roorkee, 1994.
3. S P Bindra, A Course in Docks and Harbour Engineering, Dhanpat Rai and Sons, New Delhi, 1993.

REFERENCES

1. Rangwala, Railway Engineering, Charotar Publishing House, 1995.
2. Rangwala, Airport Engineering, Charotar Publishing House, 1996.
3. Oza.H.P. and Oza.G.H., "A course in Docks & Harbour Engineering". Charotar Publishing Co.1976.
4. J.S. Mundrey, "A course in Railway Track Engineering". Tata McGraw Hill, 2000.

CE2304

ENVIRONMENTAL ENGINEERING – I

L T P C
3 0 0 3

OBJECTIVE

To make the students conversant with principles of water supply, treatment and distribution

UNIT I PLANNING FOR WATERSUPPLY SYSTEM 9

Public water supply system -Planning -Objectives -Design period -Population forecasting -Water demand -Sources of water and their characteristics -Surface and Groundwater- Impounding Reservoir Well hydraulics -Development and selection of source - Water quality - Characterization -Water quality standards.

UNIT II CONVEYANCE SYSTEM 9

Water supply -intake structures -Functions and drawings -Pipes and conduits for water- Pipe materials -Hydraulics of flow in pipes -Transmission main design -Laying, jointing and testing of pipes -Drawings appurtenances - Types and capacity of pumps -Selection of pumps and pipe materials.

UNIT III WATER TREATMENT 9

Objectives -Unit operations and processes -Principles, functions design and drawing of Flash mixers, flocculators, sedimentation tanks and sand filters -Disinfection- Residue Management.

UNIT IV ADVANCED WATER TREATMENT 9

Aerator- Iron and manganese removal, Defluoridation and demineralization -Water softening - Desalination -Membrane Systems -Construction and Operation & Maintenance aspects of Water Treatment Plants -Recent advances -Membrane Processes

UNIT V WATER DISTRIBUTION AND SUPPLY TO BUILDINGS 9

Requirements of water distribution -Components -Service reservoirs -Functions and drawings - Network design -Economics -Computer applications -Analysis of distribution networks - Appurtenances -operation and maintenance -Leak detection, Methods. Principles of design of water supply in buildings -House service connection -Fixtures and fittings -Systems of plumbing and drawings of types of plumbing.

TOTAL: 45 PERIODS

TEXT BOOKS

1. Garg, S.K., Environmental Engineering, Vol.1 Khanna Publishers, New Delhi, 2005.
2. Modi, P.N. Water Supply Engineering, Vol. I Standard Book House, New Delhi, 2005.
3. Punmia, B.C., Ashok K Jain and Arun K Jain, Water Supply Engineering, Laxmi Publications (P) Ltd., New Delhi, 2005

REFERENCES

1. Manual on Water Supply and Treatment, CPHEEO, Ministry of Urban Development, Government of India, New Delhi, 2003
2. Syed R.Qasim and Edward M.Motley Guang Zhu, Water Works Engineering Planning, Design and Operation, Prentice Hall of India Private Limited, New Delhi – 2006.

OBJECTIVE

At the end of this course student acquires the capacity to assess the soil condition at a given location in order to suggest suitable foundation and also gains the knowledge to design various foundations.

UNIT I SITE INVESTIGATION AND SELECTION OF FOUNDATION 9

Scope and objectives – Methods of exploration-auguring and boring – Water boring and rotatory drilling – Depth of boring – Spacing of bore hole - Sampling – Representative and undisturbed sampling – sampling techniques – Split spoon sampler, Thin tube sampler, Stationary piston sampler – Bore log report – Penetration tests (SPT and SCPT) – Data interpretation (Strength parameters and Liquefaction potential) – Selection of foundation based on soil condition.

UNIT II SHALLOW FOUNDATION 9

Introduction – Location and depth of foundation – codal provisions – bearing capacity of shallow foundation on homogeneous deposits – Terzaghi's formula and BIS formula – factors affecting bearing capacity – problems - Bearing Capacity from insitu tests (SPT, SCPT and plate load) – Allowable bearing pressure, Settlement – Components of settlement – Determination of settlement of foundations on granular and clay deposits – Allowable settlements – Codal provision – Methods of minimising settlement, differential settlement.

UNIT III FOOTINGS AND RAFTS 9

Types of foundation – Contact pressure distribution below footings and raft - Isolated and combined footings – Types and proportioning - Mat foundation– Types, applications uses and proportioning-- floating foundation.

UNIT IV PILES 9

Types of piles and their function – Factors influencing the selection of pile – Carrying capacity of single pile in granular and cohesive soil - Static formula - dynamic formulae (Engineering news and Hiley's) – Capacity from insitu tests (SPT and SCPT) – Negative skin friction – uplift capacity – Group capacity by different methods (Feld's rule, Converse Labarra formula and block failure criterion) – Settlement of pile groups – Interpretation of pile load test – Forces on pile caps – under reamed piles – Capacity under compression and uplift.

UNIT V RETAINING WALLS 9

Plastic equilibrium in soils – active and passive states – Rankine's theory – cohesionless and cohesive soil - Coloumb's wedge theory – condition for critical failure plane - Earth pressure on retaining walls of simple configurations – Graphical methods (Rebhann and Culmann) - pressure on the wall due to line load – Stability of retaining walls.

TOTAL: 45 PERIODS

TEXT BOOKS

1. Murthy, V.N.S, "Soil Mechanics and Foundation Engineering", UBS Publishers Distribution Ltd, New Delhi, 1999.
2. Gopal Ranjan and Rao, A.S.R. "Basic and Applied Soil Mechanics", Wiley Eastern Ltd., New Delhi (India), 2003.

REFERENCES

1. Das, B.M. "Principles of Foundation Engineering (Fifth edition), Thomson Books / COLE, 2003
2. Bowles J.E, "Foundation analysis and design", McGraw-Hill, 1994
3. Punmia, B.C., "Soil Mechanics and Foundations", Laxmi publications pvt. Ltd., New Delhi, 1995.
4. Venkatramaiah,C."Geotechnical Engineering", New Age International Publishers, New Delhi, 1995

OBJECTIVE

This course covers the different types of philosophies related to Design of Reinforced Concrete Structures with emphasis on Limit State Method. The design of Basic elements such as slab, beam, column and footing which form part of any structural system with reference to Indian standard code of practice for Reinforced Concrete Structures and Design Aids are included. At the end of course the student shall be in a position to design the basic elements of reinforced concrete structures.

UNIT I METHODS OF DESIGN OF CONCRETE STRUCTURES 12

Concept of Elastic method, ultimate load method and limit state method – Advantages of Limit State Method over other methods – Design codes and specification – Limit State philosophy as detailed in IS code – Design of flexural members and slabs by working stress method – Principles of Design of Liquid retaining structures – Properties of un-cracked section – Calculation of thickness and reinforcement for Liquid retaining structure

UNIT II LIMIT STATE DESIGN FOR FLEXURE 12

Analysis and design of one way and two way rectangular slab subjected to uniformly distributed load for various boundary conditions and corner effects – Analysis and design of singly and doubly reinforced rectangular and flanged beams

UNIT III LIMIT STATE DESIGN FOR BOND, ANCHORAGE SHEAR & TORSION 12

Behaviour of RC members in bond and Anchorage - Design requirements as per current code - Behaviour of RC beams in shear and torsion - Design of RC members for combined bending shear and torsion.

UNIT IV LIMIT STATE DESIGN OF COLUMNS 12

Types of columns – Braced and unbraced columns – Design of short column for axial, uniaxial and biaxial bending – Design of long columns.

UNIT V LIMIT STATE DESIGN OF FOOTING AND DETAILING 12

Design of wall footing – Design of axially and eccentrically loaded rectangular footing – Design of combined rectangular footing for two columns only – Standard method of detailing RC beams, slabs and columns – Special requirements of detailing with reference to erection process.

TOTAL: 60 PERIODS

TEXT BOOKS

1. Varghese, P.C., "Limit State Design of Reinforced Concrete", Prentice Hall of India, Pvt. Ltd., New Delhi 2002.
2. Krishna Raju, N., "Design of Reinforced Concrete Structures", CBS Publishers & Distributors, New Delhi, 2003.

REFERENCES

1. Jain, A.K., "Limit State Design of RC Structures", Nemchand Publications, Rourkee
2. Sinha, S.N., "Reinforced Concrete Design", Tata McGraw-Hill Publishing Company Ltd., New Delhi.
3. Unnikrishna Pillai, S., Devdas Menon, "Reinforced Concrete Design", Tata McGraw-Hill Publishing Company Ltd., New Delhi.

Globalisation has brought in numerous opportunities for the teeming millions, with more focus on the students' overall capability apart from academic competence. Many students, particularly those from non-English medium schools, find that they are not preferred due to their inadequacy of communication skills and soft skills, despite possessing sound knowledge in their subject area along with technical capability. Keeping in view their pre-employment needs and career requirements, this course on Communication Skills Laboratory will prepare students to adapt themselves with ease to the industry environment, thus rendering them as prospective assets to industries. The course will equip the students with the necessary communication skills that would go a long way in helping them in their profession.

OBJECTIVES

- To equip students of engineering and technology with effective speaking and listening skills in English.
- To help them develop their soft skills and interpersonal skills, which will make the transition from college to workplace smoother and help them excel in their job.
- To enhance the performance of students at Placement Interviews, Group Discussions and other recruitment exercises.

I. PC based session	(Weightage 40%)	24 periods
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A. ENGLISH LANGUAGE LAB (18 Periods)**1. LISTENING COMPREHENSION: (6)**

Listening and typing – Listening and sequencing of sentences – Filling in the blanks -Listening and answering questions

2. READING COMPREHENSION: (6)

Filling in the blanks - Close exercises – Vocabulary building - Reading and answering questions.

3. SPEAKING: (6)

Phonetics: Intonation – Ear training - Correct Pronunciation – Sound recognition exercises – Common Errors in English.

Conversations: Face to Face Conversation – Telephone conversation – Role play activities (Students take on roles and engage in conversation)

B. DISCUSSION OF AUDIO-VISUAL MATERIALS (6 PERIODS)
(Samples are available to learn and practice)**1. RESUME / REPORT PREPARATION / LETTER WRITING (1)**
Structuring the resume / report - Letter writing / Email Communication - Samples.**2. PRESENTATION SKILLS: (1)**
Elements of effective presentation – Structure of presentation - Presentation tools – Voice Modulation – Audience analysis - Body language – Video samples

3. **SOFT SKILLS:** (2)
Time management – Articulateness – Assertiveness – Psychometrics – Innovation and Creativity - Stress Management & Poise - Video Samples
4. **GROUP DISCUSSION:** (1)
Why is GD part of selection process? - Structure of GD – Moderator – led and other GDs - Strategies in GD – Team work - Body Language - Mock GD -Video samples
5. **INTERVIEW SKILLS:** (1)
Kinds of interviews – Required Key Skills – Corporate culture – Mock interviews-Video samples.

II. Practice Session	(Weightage – 60%)	36 periods
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1. **Resume / Report Preparation / Letter writing:** Students prepare their Own resume and report. (3)
2. **Presentation Skills:** Students make presentations on given topics. (12)
3. **Group Discussion:** Students participate in group discussions. (9)
4. **Interview Skills:** Students participate in Mock Interviews (12)

REFERENCES

1. Anderson, P.V, **Technical Communication**, Thomson Wadsworth , Sixth Edition, New Delhi, 2007.
2. Prakash, P, **Verbal and Non-Verbal Reasoning**, Macmillan India Ltd., Second Edition, New Delhi, 2004.
3. John Seely, **The Oxford Guide to Writing and Speaking**, Oxford University Press, New Delhi, 2004.
4. Evans, D, **Decisionmaker**, Cambridge University Press, 1997.
5. Thorpe, E, and Thorpe, S, **Objective English**, Pearson Education, Second Edition, New Delhi, 2007.
6. Turton, N.D and Heaton, J.B, **Dictionary of Common Errors**, Addison Wesley Longman Ltd., Indian reprint 1998.

LAB REQUIREMENTS

1. Teacher console and systems for students.
2. English Language Lab Software
3. Career Lab Software

GUIDELINES FOR THE COURSE

GE2321

COMMUNICATION SKILLS LABORATORY

1. A batch of 60 / 120 students is divided into two groups – one group for the PC- based session and the other group for the Class room session.
2. The English Lab (2 Periods) will be handled by a faculty member of the **English Department**. The Career Lab (2 Periods) may be handled by any competent teacher, **not necessarily from English Department**

3. **Record Notebook:** At the end of each session of English Lab, review exercises are given for the students to answer and the computer evaluated sheets are to be compiled as record notebook. Similar exercises for the career lab are to be compiled in the record notebook.
4. **Internal Assessment:** The 15 marks (the other 5 marks for attendance) allotted for the internal assessment will be based on the record notebook compiled by the candidate. 10 marks may be allotted for English Lab component and 5 marks for the Career Lab component.
5. **End semester Examination:** The end-semester examination carries 40% weightage for English Lab and 60% weightage for Career Lab. Each candidate will have separate sets of questions assigned by the teacher using the teacher-console enabling PC-based evaluation for the 40% of marks allotted. The Career Lab component will be evaluated for a maximum of 60% by a local examiner & an external examiner drafted from other Institutions, similar to any other lab examination conducted by Anna University.

CE2307

CONCRETE AND HIGHWAY ENGINEERING LAB

L T P C
0 0 3 2

OBJECTIVE

To learn the principles and procedures of testing Concrete and Highway materials

I. TESTS ON FRESH CONCRETE

1. Slump cone test
2. Flow table
3. Compaction factor
4. Vee bee test.

II. TESTS ON HARDENED CONCRETE

1. Compressive strength - Cube & Cylinder
2. Flexure test
3. Modulus Of Elastics

III. TESTS ON BITUMEN

1. Penetration
2. Softening Point
3. Ductility
4. Viscosity
5. Elastic Recovery
6. Storage Stability

IV. TESTS ON AGGREGATES

1. Stripping
2. Soundness
3. Proportioning of Aggregates
4. Water Absorption

V. TESTS ON BITUMINOUS MIXES

1. Determination of Binder Content
2. Marshall Stability and Flow values
3. Specific Gravity
4. Density.

(EQUIPMENT REQUIRED FOR A BATCH OF 30 STUDENTS)

SL.NO	DESCRIPTION OF EQUIPMENTS	QUANTITY
1.	Concrete cube moulds	6
2.	Concrete cylinder moulds	3
3.	Concrete Prism moulds	3
4.	Sieves	1set
5.	Concrete Mixer	1
6.	Slump cone	3
7.	Flow table	1
8.	Vibrator	1
9.	Trovels and planers	1 set
10.	UTM – 400 KN capacity	1
11.	Vee Bee Consistometer	1
12.	Aggregate impact testing machine	1
13.	CBR Apparatus	1
14.	Blains Apparatus	1

CE2308

SOIL MECHANICS LABORATORY

L T P C
0 0 3 2

OBJECTIVE

At the end of this course, the student acquires the capacity to test the soil to assess its Engineering and Index properties.

1. Grain size distribution - Sieve analysis
2. Grain size distribution - Hydrometer analysis
3. Specific gravity of soil grains
4. Relative density of sands
5. Atterberg limits test
6. Determination of moisture - Density relationship using standard Proctor test.
7. Permeability determination (constant head and falling head methods)
8. Determination of shear strength parameters.
9. Direct shear test on cohesionless soil
10. Unconfined compression test on cohesive soil
11. Triaxial compression test (demonstration only)
12. One dimensional consolidation test (Demonstration only)
13. Field density test (Core cutter and sand replacement methods)

TOTAL: 45 PERIODS

LIST OF EQUIPMENT
(For a batch of 30 students)

SL.NO.	DESCRIPTION OF EQUIPMENTS	QUANTITY
1.	Sieves	2 sets
2.	Hydrometer	2 sets
3.	Liquid and plastic limit apparatus	2 sets
4.	Shrinkage limit apparatus	3 sets
5.	Proctor compaction apparatus	2 sets
6.	UTM of minimum of 20KN capacity	1
7.	Direct shear apparatus	1
8.	Thermeometer	2
9.	Field density measuring device	2
10.	Triaxial shear apparatus	1
11.	Three gang consolidation test device	1

MG2351

PRINCIPLES OF MANAGEMENT
(Common to all Branches)

L T P C
3 0 0 3

OBJECTIVE

Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling. Students will also gain some basic knowledge on international aspect of management.

UNIT I OVERVIEW OF MANAGEMENT

9

Organization - Management - Role of managers - Evolution of Management thought - Organization and the environmental factors - Managing globally - Strategies for International Business.

UNIT II PLANNING

9

Nature and purpose of planning - Planning process - Types of plans – Objectives - Managing by objective (MBO) Strategies - Types of strategies - Policies - Decision Making - Types of decision - Decision Making Process - Rational Decision Making Process - Decision Making under different conditions.

UNIT III ORGANIZING

9

Nature and purpose of organizing - Organization structure - Formal and informal groups / organization - Line and Staff authority - Departmentation - Span of control - Centralization and Decentralization - Delegation of authority - Staffing - Selection and Recruitment - Orientation - Career Development - Career stages – Training - Performance Appraisal.

UNIT IV DIRECTING

9

Creativity and Innovation - Motivation and Satisfaction - Motivation Theories Leadership - Leadership theories - Communication - Hurdles to effective communication - Organization Culture - Elements and types of culture - Managing cultural diversity.