(55601) ENGINEERING GEOLOGY LAB
1. Study of physical properties and identification of minerals referred under theory.
2. Megascopic and microscopic description and identification of rocks referred under theory.
4. Interpretation and drawing of sections for geological maps showing tilted beds, faults, uniformities etc.
5. Simple Structural Geology problems.

LAB EXAMINATION PATTERN:
1. Description and identification of SIX minerals
2. Description and identification of Six (including igneous, sedimentary and metamorphic rocks)
3. Interpretation of a Geological map along with a geological section.
4. Simple strike and Dip problems.

(56001) DESIGN OF STEEL STRUCTURES

UNIT - I

UNIT - II

UNIT - III

UNIT - IV
Design of compress in members – Buckling class – slenderness ratio / strength design – laced – battened columns – splice – column base – slab /

UNIT - V
Design of Beamss – Plastic moment – Bending and shear strength / buckling
– Builtup sections – laterally / supported beams.

UNIT - VI
Design of eccentric connections – Framed – stiffened / seat connection.

UNIT - VII
Design of plate girders – elements – economical depth – design of main section – connections between web and flange – design of stiffness bearing
UNIT - VIII
Design of roof trusses - Types of roof trusses, loads on trusses - purlin design - truss design, Design of joints and end bearings.

TEXT BOOKS:

REFERENCE BOOKS:
1. Design of Steel structures by K.S. Sai Ram, Person Education.

UNIT - I
Introduction: Waterborne diseases - protected water supply - Population forecasts, design period - water demand - Types of demand - factors affecting fluctuations - fire demand - storage capacity - water quality and testing - drinking water standards.

UNIT - II
SOURCES OF WATER: Comparison from quality and quantity and other considerations - intakes - infiltration galleries, confined and unconfined aquifers distribution systems. - requirements - methods and layouts.

UNIT III
Layout and general outline of water treatment units - sedimentation, uniform settling velocity - principles - design factors - surface loading - Jar test - optimum dosage of coagulant - coagulation-flocculation clarifier design - coagulants - feeding arrangements.

UNIT - IV
Filtration - theory - working of slow and rapid gravity filters - multimedia filters - design of filters - troubles in operation comparison of filters - disinfection - types of disinfection - theory of chlorination - chlorine demand - other disinfection treatment methods.

UNIT - V
Distribution systems - types of layouts of Distribution systems - design of distribution systems - Hardy Cross and equivalent pipe methods service reservoirs - joints, valves such as sluice valves, air valves, scour valves and check valves water meters - laying and testing of pipe lines - pump house.

UNIT - VI
Conservancy and water carriage systems - sewage and storm water estimation - time of concentration - storm water overflows combined flow - characteristics of sewage - cycles of decay - decomposition of sewage,

UNIT - VI
Layout and general outline of various units in a waste water treatment plant – primary treatment design of screens – grit chambers – skimming tanks – sedimentation tanks – principles and design of biological treatment – trickling filters – standard and high rate.

UNIT - VIII

TEXT BOOKS:
3. Elements of environmental engineering by K.N. Duggal, S. Chand Publishers

REFERENCES:
2. Water and Waste Water Technology by Steel
3. Water and Waste Water Engineering by Fair Geyer and Okun
4. Waste water treatment- concepts and design approach by G.L. Karia and R.A. Christian, PHI
UNIT-VIII
Cross Drainage works: types, selection of site, Design principles of aqueduct, siphon aqueduct and super passage. Design of Type II Aqueduct (Under Tunnel)

TEXT BOOKS:
1. Irrigation engineering and hydraulic structures by S.K Garg, Khanna publishers.
2. Irrigation and water power engineering by Punmia & Lal, Laxmi publications pvt. Ltd., New Delhi

REFERENCES:
1. Irrigation and water resources engineering by G.L. Asawa, New Age International Publishers
2. Theory and Design of Hydraulic structures by Varshney, Gupta & Gupta
3. Irrigation engineering by K.R. Arora
5. Introduction to hydrology by Warren Viessmann, Jr, Garyl. Lewis, PHI
UNIT - VIII

TEXT BOOKS:

REFERENCES:
UNIT - VI
INTERSECTION DESIGN: Types of Intersections – Conflicts at Intersections- Types of At-Grade Intersections- Channelization: Objectives –Traffic Islands and Design criteria-Types of Grade Separated Intersections-Rotary Intersection – Concept of Rotary and Design Criteria- Impacts of Geometrics on intersection with reference safety, Operational capacity.

UNIT – VII
INTRODUCTION TO RAILWAY ENGINEERING: Permanent way components – Cross Section of Permanent Way - Functions of various Components like Rails, Sleepers and Ballast –Rail Fastenings – Creep of Rails- Theories related to creep – Ageing of Sleepers- SLEEPER density.

GEOMETRIC DESIGN OF RAILWAY TRACK: Gradients- Grade Compensation- Cant and Negative super elevation- Cant Deficiency – Degree of Curve – Crossings and Turn outs.

UNIT – VII

TEXT BOOKS:

REFERENCES:
UNIT - I
Disasters: Types of disaster, Significant aspects of disasters, economic impact of disasters, Risk aspects, Hazards and disasters.

UNIT - II
Urban Disaster and their environmental impacts: Impact of earthquakes, floods, fires, droughts, land slides, Congestion pollution, accident risk on urban environment policies for remedial measures. Technology to forecast their impact.

UNIT - III
Technology to Track Urban Disasters: Monitoring profile - cameras, sensors and communication systems Engineering profiles - total station, terrestrial scanners, and other survey equipment.

UNIT - IV
Planning Profile - Impact on Urban Disasters: Planning profile - GPS, satellite technology and photographic technique.

UNIT - V
Information systems: Geography information systems - different packages and over view, MIS - Architecture, web enabled communication systems - over view.

UNIT - VI
Intelligent control system: Technology enabled online monitoring system, post evaluation multi criteria systems, fore casting approaches through decision supporting systems.

UNIT - VIII
Disasters: Case studies on disaster mitigation measures.

REFERENCES & TEXT BOOKS:
2. Sensor Technologies & Date requirement of ITS by Lawerence A. Klein.
3. Disaster mitigation - Experiences and reflections - Pradeep sahni, Alka Dhameja, Uma Medhuri, PHI.

UNIT - I
Introduction to Intellectual property: Introduction, types of intellectual property, international organizations, agencies and treaties, importance of intellectual property rights.

UNIT - II
Trade Marks: Purpose and function of trade marks, acquisition of trade mark rights, protectable matter, selecting and evaluating trade mark, trade mark registration processes.

UNIT - III
Law of copy rights: Fundamental of copy right law, originality of material, rights of reproduction, rights to perform the work publicly, copy right ownership issues, copy right registration, notice of copy right, international copy right law.

UNIT - IV
Law of patents: Foundation of patent law, patent searching process, ownership rights and transfer

UNIT - V
Trade Secrets: Trade secrete law, determination of trade secrete status, liability for misappropriations of trade secrets, protection for submission, trade secrete litigation.

UNIT - VI
Unfair competition: Misappropriation right of publicity, False advertising.

UNIT - VII
New development of intellectual property: new developments in trade mark law; copy right law, patent law, intellectual property audits.

UNIT - VIII
International overview on intellectual property, international - trade mark
References & Text Books:
1. Intellectual property right, Deborah. E. Bouchoux, Cengage Learning.

LIST OF EXPERIMENTS
1. Atterberg’s Limits (LL & PL)
2. Field density-core cutter and sand replacement method
3. Grain size analysis (Sieve and Hydrometer analysis)
4. Permeability of soil, constant and variable head test
5. Compaction test
6. CBR Test
7. Consolidation test
8. Unconfined compression test
9. Tri-axial Compression test
10. Direct shear test.
11. Vane shear test

Note: Any eight experiments may be completed.
1. Introduction
The introduction of the English Language Lab is considered essential at 3rd year level. At this stage the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be an integrated theory and lab course to enable students to use ‘good’ English and perform the following:
- Gather ideas and information, to organise ideas relevantly and coherently.
- Engage in debates.
- Participate in group discussions.
- Face interviews.
- Write project/research reports/technical reports.
- Make oral presentations.
- Write formal letters.
- Transfer information from non-verbal to verbal texts and vice versa.
- To take part in social and professional communication.

2. Objectives:
This Lab focuses on using computer-aided multimedia instruction for language development to meet the following targets:
- To improve the students’ fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
- Further, they would be required to communicate their ideas relevantly and coherently in writing.

3. Syllabus:
The following course content is prescribed for the Advanced Communication Skills Lab:
- Functional English - starting a conversation – responding appropriately and relevantly – using the right body language – role play in different situations.

4. Minimum Requirement:
The English Language Lab shall have two parts:
i) The Computer aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English language software for self-study by learners.
ii) The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a T.V., a digital stereo-audio & video system and camcorder etc.

System Requirement (Hardware component):
Computer network with Lan with minimum 60 multimedia systems with the following specifications:
i) P-IV Processor
   a) Speed – 2.8 GHZ
b) RAM – 512 MB Minimum
c) Hard Disk – 80 GB
ii) Headphones of High quality

5. Suggested Software:
The software consisting of the prescribed topics elaborated above should be procured and used.
Suggested Software:
- Clarity Pronunciation Power – part II
- Oxford Advanced Learner’s Compass, 7th Edition
- DELTA’s key to the Next Generation TOEFL Test: Advanced Skill Practice.
- Lingua TOEFL CBT Insider, by Dreamtech
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
- The following software from ‘train2success.com’
  - Preparing for being Interviewed,
  - Positive Thinking,
  - Interviewing Skills,
  - Telephone Skills,
  - Time Management
  - Team Building,
  - Decision making
- English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

6. Books Recommended:

DISTRIBUTION AND WEIGHTAGE OF MARKS:

1. The practical examinations for the English Language Laboratory practice shall be conducted as per the University norms prescribed for the core engineering practical sessions.
2. For the English Language lab sessions, there shall be a continuous evaluation during the year for 25 sessional marks and 50 End Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The End Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department of the same institution.