## I SEMESTER

<table>
<thead>
<tr>
<th>Sub-Code</th>
<th>Title</th>
<th>Teaching Dept</th>
<th>Contact hours/week</th>
<th>Duration of SEE (Hrs)</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>14CCT 101</td>
<td>Quantitative Methods in Construction</td>
<td>MAT</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT 102</td>
<td>Construction Planning and Control</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT103</td>
<td>Advances in Construction Materials</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT104</td>
<td>Organizational Behaviour</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT11X</td>
<td>Elective I</td>
<td>CV</td>
<td>3-0-0-1</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT12X</td>
<td>Elective II</td>
<td>CV</td>
<td>3-0-0-1</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT105</td>
<td>Component Assessment Lab and Software Application</td>
<td>CV</td>
<td>0-0-3-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

**TOTAL** 27 350 350 25

## LIST OF ELECTIVE I & II

<table>
<thead>
<tr>
<th>ELECTIVE-I</th>
<th>ELECTIVE-II</th>
</tr>
</thead>
<tbody>
<tr>
<td>14CCT 111 Building Science</td>
<td>14CCT 121 Remedial Engineering</td>
</tr>
<tr>
<td>14CCT 112 Construction Methods in Disaster Prone Areas</td>
<td>14CCT 122 Pavement Design &amp; Construction</td>
</tr>
<tr>
<td>14CCT 113 Advanced Design of Foundations</td>
<td>14CCT 123 Soil Exploration &amp; Ground Improvement Techniques.</td>
</tr>
<tr>
<td>14CCT 114 Structural Masonry</td>
<td>14CCT 124 Computer Aided Design in Civil Engineering</td>
</tr>
<tr>
<td>14CCT 115 Design of Earthquake Resistant Structures.</td>
<td>14CCT 125 Advanced Reinforced Concrete Design</td>
</tr>
</tbody>
</table>
## II SEMESTER

<table>
<thead>
<tr>
<th>Sub-Code</th>
<th>Title</th>
<th>Teaching Dept</th>
<th>Contact hours/week</th>
<th>Duration of SEE (Hrs)</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>14CCT 201</td>
<td>Construction Economics &amp; Finance</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT 202</td>
<td>Mechanization in Construction</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT203</td>
<td>Construction Quality &amp; safety</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT204</td>
<td>Construction &amp; Contract management</td>
<td>CV</td>
<td>4-0-0-0</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT21X</td>
<td>Elective III</td>
<td>CV</td>
<td>3-0-0-1</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT22X</td>
<td>Elective IV</td>
<td>CV</td>
<td>3-0-0-1</td>
<td>03</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>14CCT205</td>
<td>Seminar on Current Topic</td>
<td>CV</td>
<td>0-0-3-0</td>
<td>03</td>
<td>100</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL** 27 400 300 25

### LIST OF ELECTIVE III & IV

<table>
<thead>
<tr>
<th>ELECTIVE-III</th>
<th>ELECTIVE-IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>14CCT 211 Advanced Surveying</td>
<td>14CCT 221 Building Services &amp; Maintenance</td>
</tr>
<tr>
<td>14CCT 213 Re-use &amp; Re-cycle Technology</td>
<td>14CCT 222 RS &amp; applications of GIS in Civil Engineering</td>
</tr>
<tr>
<td></td>
<td>14CCT 223 Valuation Techniques in Engineering</td>
</tr>
<tr>
<td></td>
<td>14CCT 224 Environmental Impact Assessment.</td>
</tr>
</tbody>
</table>
### M.TECH.CONSTRUCTION TECHNOLOGY
(AUTONOMOUS SCHEME 2014)
III SEMESTER

<table>
<thead>
<tr>
<th>Sub. code</th>
<th>Name of the Subject</th>
<th>Teaching hours/week</th>
<th>Marks for</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Practical/ Tutorials/ Field work</td>
<td>CIE</td>
</tr>
<tr>
<td>14CCT 301</td>
<td>Industrial Training / Mini Project</td>
<td>8 Weeks duration</td>
<td>50 (Report) 50(Presentation)</td>
<td></td>
</tr>
<tr>
<td>14CCT 302</td>
<td>Seminar</td>
<td>6</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>14CCT 303</td>
<td>Project Phase – I</td>
<td>12</td>
<td>100 (Report) 100(Presentation)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>400</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

1. **14CCT 301:** Industrial training / Mini Project: Industrial training report and oral presentation are to be evaluated by the department for 50 marks each. If mini project is carried out it is evaluated for 100 marks by the Department Committee.
2. **14CCT 302:** Seminar marks are evaluated by the Department Committee.
3. **14CCT 303 – Project Phase I:** The student should give minimum of two progress seminars during the semester. The progress of the work is to be assessed by the Department Committee including the Guide, for 100 marks report and 100 marks presentation.
<table>
<thead>
<tr>
<th>Sub. code</th>
<th>Name of the Subject</th>
<th>Teaching hours/week</th>
<th>Duration of Sem. End Exam in hours</th>
<th>Marks for</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Practical/ Tutorials/ Field work</td>
<td></td>
<td>CIE</td>
</tr>
<tr>
<td>14CCT 401</td>
<td>Project Phase - II</td>
<td>Full Time (16 Weeks)</td>
<td>3</td>
<td>200</td>
<td>300 (Report)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Grand Total from 1st to 4th Semester: 100 credits

Note:
1. 14CCT 401 – Project Phase II: The student should give minimum of three progress seminars and one Pre Synopsis seminar during the semester.
2. 14CCT 401 – Project Phase II: The student should give one Pre Synopsis seminar in front of the Committee consisting of Guide, Chairman BOE (PG) or his nominee and PG Coordinator during the semester. The student should get approval from the Committee to submit the report.
3. 14CCT 401 – Project Phase II: The project report valuation will be carried out separately by the guide and External examiner for 100 marks each. Viva- Voce will carry 200 marks and will be conducted by a Committee consisting of the following.
   a) Chairman BOE (PG) or his nominee.
   b) PG Coordinator.
   c) Guide.
   d) External Examiner.
FIRST SEMESTER M.TECH (CONSTRUCTION TECHNOLOGY)

14CCT 101 QUANTITATIVE METHODS IN CONSTRUCTION

Credits: 04
Sub Code : 14CCT 101
Hrs / Week : 04
Total Hours : 52
CIE: 50
Exam Hours: 03
SEE: 50

Averages and Dispersion: Data collection, presentation of data, measures of central tendencies, measures of dispersion and coefficient of variation. 10 Hours.

Probability: Definition of probability, axioms of probability, conditional probability, Baye’s theorem, one dimensional random variable, expectation and variance, curve fitting-linear, non-linear and exponential, correlation and regression. 10 Hours.

Probability Distributions: Normal and exponential distributions, two dimensional random variables, marginal distributions, conditional distributions, expectation, covariance and correlation, moments, relation between raw and central moments, skewness, kurtosis and central limit theorem. 10 Hours.

Markov Chains: Probability vectors, stochastic matrices, fixed points, regular stochastic matrices, Markov chains, higher transition probabilities, stationery distribution of regular Markov chains and absorbing states. 7 Hours.

Linear Programming: Introduction to linear programming, formulation of LPP, solution of LPP-Graphical method, Simplex method, big-M method, two-phase method, transportation problem and assignment problem. 12 Hours.

Dynamic Programming: Introduction to dynamic programming, traveling salesman problem and simulation applied to construction. 3 Hours.

Text Books

Reference Books
FIRST SEMESTER M.TECH (CONSTRUCTION TECHNOLOGY)

14CCT 102 CONSTRUCTION PLANNING AND CONTROL

Credits: 04
Sub Code : 14CCT 102
Hrs / Week : 04 + 02 (Field Work)
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50


REFERENCE BOOKS
FIRST SEMESTER M.TECH (CONSTRUCTION TECHNOLOGY)

14CCT 103 ADVANCES IN CONSTRUCTION MATERIALS

Credits: 04
Sub Code : 14CCT 103
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Microstructure of concrete, Fresh concrete and its rheology, Mechanical, deformational behaviour of hardened concrete. Creep and Shrinkage of Concrete. Proportioning of Mixes-Normal Concrete, High Strength/Performance Concrete, Roller Compacted Concrete, Self Compacting Concrete and Reactive Powder Concrete. Corrosion of Reinforcing Steel- Electro-chemical process, measures of protection. Polymer-concrete composites, Slurry infiltrated fibrous concrete (SIFCON), Slurry infiltrated mat concrete (SIMCON), adhesives and sealants- types and their uses.

REFERENCE BOOKS

FIRST SEMESTER  M.TECH (CONSTRUCTION TECHNOLOGY)

14CCT 104 ORGANIZATIONAL BEHAVIOUR

Credits: 04
Sub Code : 14CCT 104
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Approaches to Organizational Behaviour; Overview of the Field of Organization Development; Individuals in Organizations: Motivation and Behaviour; Motivation at work; Designing motivating jobs; Creating and individual decision making; Group Dynamics; Group behaviour, Inter-group relation and conflict; Communication; Leadership in Organizations; Characteristics of Organizations: Organization Structure and Design, Organizational Change and Development; Organizational Culture and climate. Managing Innovation and Technology in changing environments. Case studies of OD interventions in mega-construction projects.

REFERENCE BOOKS
14CCT 105 COMPONENT ASSESSMENT AND SOFTWARE APPLICATIONS LAB

Credits: 01
Sub Code : 14CCT 105
Hrs / Week : 03
Total Hours : 42

| CIE: 50 | Exam Hours: 03 | SEE: 50 |

In-situ test methods: In situ testing of concrete structures, test methods available, planning of in situ tests, Surface hardness methods- Rebound Hammer equipment, its operation and procedure for testing, factors influencing rebound no, calibration, and interpretation of results, applications and limitations; Ultrasonic methods - UPV testing equipment, its use, different transducer arrangements, tests calibration and interpretation of results, Exposure to IS and other relevant codes

Stress-strain relationship of concrete and masonry: Mix design, casting and testing High Performance/strength Concrete cylinders and obtaining the stress-strain behavior (and modulus of elasticity) under compressive loading; casting and testing of stack bonded masonry prisms and obtaining the stress-strain behavior (and modulus of elasticity) under compression

Instrumentation for dynamic measurement: Use of vibration measuring instruments (accelerometers), data acquisition systems Experiments on SDOF systems – free-vibration tests to obtain natural frequency and damping
Experiments on MDOF systems – free-vibration tests to obtain natural frequencies and mode shapes, use of spreadsheets to extract natural frequencies

Software Application: Use of Construction management software
Analysis of skeletal and continuum structures using standard FEM packages

REFERENCE BOOKS
1. Relevant IS codes
2. Software manuals
14CCT 111 BUILDING SCIENCE

Credits: 04
Sub Code: 14CCT 111
Hrs / Week: 04
Total Hours: 52

CIE: 50
Exam Hours: 03
SEE: 50

Credits: 04
Sub Code: 14CCT 111
Hrs / Week: 04
Total Hours: 52

Climatic factors, Classification of tropical climates, site climate, microclimate of human settlements, Ventilation requirements for health, mechanisms and estimation of natural ventilation, airflow patterns in building.
Thermal comfort factors, thermal indices, thermal quantities, heat exchange in buildings, periodic heat flow, Mechanical and structural means of thermal control.
Propagation of sound, sound insulation, absorption, transmission, reverberation, roofing and walling system for sound absorption and insulation, Noise and noise control in buildings, Principles of Day lighting in buildings.
Green Building concepts: parameters, ratings, evaluation techniques and Codal provisions.

REFERENCE BOOKS
14CCT 112 CONSTRUCTION METHODS IN DISASTER PRONE AREAS

Credits: 04
Sub Code : 14CCT 112
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50


REFERENCE BOOKS
14CCT 113 ADVANCED DESIGN OF FOUNDATIONS

Credits: 04
Sub Code : 14CCT 113
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Criteria for foundation choice; Bearing capacity, total and differential settlement tolerance for various types of structures, Interpretation of soil profile for design parameters like modulus of compressibility, Modulus of sub grade reaction, Poisson's ratio, etc. Raft foundations for Building and Tower structures - including effects of soil - structure interaction, different types of Rafts, Precautions for construction of shallow foundations. Pile foundations - types, method of installation, Codal practices for permissible load under vertical and lateral loads, Foundation for heavy structures, well foundations, caisson foundations, Equipment foundation subject to dynamic loads. Under ground structures, strategies for instrumentation and monitoring of foundation performances.

REFERENCE BOOKS
FIRST SEMESTER M.TECH (CONSTRUCTION TECHNOLOGY)

14CCT 114 STRUCTURAL MASONRY

Credits: 04
Sub Code : 14CCT 114
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Introduction to Masonry structures, Materials for Masonry, Strength and elastic properties of masonry, Parameters influencing Masonry properties, Behaviour of masonry under shear, flexure, and axial loads (static and dynamic), Design of masonry structures, Masonry arches and Shells, Introduction to Reinforced Masonry

REFERENCE BOOKS

14CCT 115 DESIGN OF EARTHQUAKE RESISTANT STRUCTURES

Credits: 04  
Sub Code: 14CCT 115  
Hrs / Week: 04  
Total Hours: 52  
CIE: 50  
Exam Hours: 03  
SEE: 50

Introduction to engineering seismology, characteristics of earthquake and its quantification, seismological instrumentation in buildings, introduction to structural dynamics of buildings,


REFERENCE BOOKS:

6. Clough and Penzien, “Dynamics of Structures”.
FIRST SEMESTER M.TECH (CONSTRUCTION TECHNOLOGY)

14CCT 121 REMEDIAL ENGINEERING

Credits: 04
Sub Code : 14CCT 121
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

General: Introduction, Cause of deterioration of concrete structures, Diagnostic methods & analysis, preliminary investigations, experimental investigations using NDT, load testing, corrosion mapping, core drilling and other instrumental methods. Quality assurance for concrete construction as built, concrete properties - strength, permeability, thermal properties and cracking.

Influence on Serviceability and Durability: Effects due to climate, temperature, chemicals, wear and erosion, Design and construction errors, corrosion mechanism, Effects of cover thickness and cracking, methods of corrosion protection, corrosion inhibitors, corrosion resistant steels; cathodic protection.

Maintenance and Repair Strategies: Definitions: Maintenance, repair and rehabilitation, Facets of Maintenance importance of Maintenance Preventive measures on various aspects Inspection, Assessment procedure for evaluating a damaged structure, causes of deterioration - testing techniques.


Techniques for Repair: Rust eliminators and polymers coating for rebar during repair foamed concrete, mortar and dry pack, vacuum concrete, Gunite and Shot Crete Epoxy injection, Mortar repair for cracks, shoring and underpinning.

Examples of Repair to Structures: Repairs to overcome low member strength, Deflection, Cracking, Chemical disruption, weathering wear, fire, leakage, marine exposure, engineered demolition techniques for dilapidated structures - case studies

REFERENCE BOOKS
2. R.N. Raikar “Rehabilitation of Structures”- Edited by, Vol. 1, 2 and 3, Proc., Int. Symposium, Maharashtra Indian Chapter of ACI, Bombay
5. Raiker R.N. “Learning for failure from Deficiencies in Design, Construction and Service”- R&D Center (SDCPL)
6. Santhakumar A.R. “Training Course notes on Damage Assessment and Repair in Low Cost Housing”, Anna University
7. Key, T. “Assessment and renovation of concrete structures”
Introduction: Highway and airport pavements. Types and component parts of pavements, their differences - Factors affecting design and performance of pavements.

Stresses and Deflections In Flexible Pavements: Stresses and deflections in homogeneous masses. Wheel load stresses, various factors in traffic wheel loads; ESWL and EWL factors.


Stresses in Rigid Pavements: Factors affecting design and performance of pavements. Types of stresses and causes, factors influencing the stresses; general considerations in rigid pavement analysis, EWL, wheel load stresses, warping stresses, frictional stresses, combined stresses.

Rigid Pavement Design: Types of joints in cement concrete pavements and their functions, joint spacing; design of CC pavement for roads and runways, design of joint details for longitudinal joints, contraction joints and expansion joints. IRC method of design by stress ratio method. Design of continuously reinforced concrete pavements.

Equipment in Highway Construction: Various types of equipment for excavation, grading and compaction - their working principle, advantages and limitations. Special equipment for bituminous and cement concrete pavement and stabilized soil road construction

Subgrade: Earthwork grading and construction of embankments and cuts for roads. Preparation of subgrade, quality control tests.

Flexible Pavements: Specifications of materials, construction method and field control checks for various types of flexible pavement layers – WBM-BM- SDBC-BC

Cement Concrete Pavements: Specifications and method of cement concrete pavement construction; Quality control tests; Construction of various types of joints.

REFERENCE BOOKS
4. Huang, “Pavement Analysis”, Elsevier Publications
5. HRB/TRB/IRC/International Conference on “Structural Design of Asphalt Pavements”.
8. Relevant IRC Publications
9. CMA Hand Book
14CCT 123 SOIL EXPLORATION AND GROUND IMPROVEMENT TECHNIQUES

Credits: 04
Sub Code : 14CCT 123
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

**Principles of exploration:** Geophysical and sounding methods, Modern methods of boring and sampling; Preservation and transportation of samples; Sampling records, Soil profiles, Various types of field tests; Instrumentation; Investigation below sea/river bed; offshore investigation; investigation; interpretation of exploration data and report preparation; economics of field testing & lab testing. Engineering properties of soft & weak and compressible deposits; principles of treatment.

**Methods of soil improvement**-lime stabilization and injection; thermal, electrical and chemical methods; Dynamic consolidation; vibroflotation; compaction by blasting; pre-consolidation with vertical drains; Granular piles; soil nailing; Anchors; Grouting; Electro-osmosis; Soil freezing; Vacuum consolidation; Case histories Soil confinement.

**REFERENCE BOOKS**

14CCT 124 COMPUTER AIDED DESIGN IN CIVIL ENGINEERING

Credits: 04
Sub Code : 14CCT 124
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Concepts of computer aided design –Software tools for CAD, programming paradigms- object oriented programming – introduction to C++, –data structures- pointers, arrays, structures and classes, programming techniques for computer modeling of civil engineering problems, Computer graphics- basic principles, transformations, segmentations, Auto CAD, graphical user interfaces – windows, graphic standards- graphics programming, Data base management systems, data base models- concepts & uses of RDBMS. Artificial intelligence and expert systems- knowledge representation rules, frames semantic networks- inference strategies, process models- proto types in civil engineering, development of CAE systems for different civil engineering applications.

REFERENCE BOOKS
14CCT 125 ADVANCED REINFORCED CONCRETE DESIGN

Credits: 05
Sub Code : 14CCT 125
Hrs / Week : 04 + 02 (Field Work)
Total Hours : 52

1. Design of continuous beams.
2. Design of portal frames.
3. Yield line method of design of slabs.
4. Design of grid floors.
5. Design of flat slabs.
6. Design of silos and bunkers.
7. Art of detailing, earthquake resistant construction.
8. Expansion and construction joints.

REFERENCE BOOKS
1. A Park and Paulay, “Reinforced and Prestressed Concrete”, John Wiley & Sons
2. Lin TY and Burns N H, “Reinforced Concrete Design”, John Wiley & Sons
4. Dr.B.C.Punmia, Ashok Kumar Jain and Arun Kumar Jain, “Comprehensive RCC Design”
II SEMESTER
14CCT 201 CONSTRUCTION ECONOMICS AND FINANCE

Credits: 04
Sub Code: 14CCT 201
Hrs / Week: 04
Total Hours: 52

CIE: 50
Exam Hours: 03
SEE: 50


Short term financing – methods, Long term financing – methods, Fund based and non fund based facilities - Practical problems and case studies.

(Problems, case studies, quizzes, Class tests will be administered throughout the course as a part of continuous study and evaluation)

REFERENCE BOOKS
14CCT 202 MECHANISATION IN CONSTRUCTION

Credits: 05
Sub Code : 14CCT 202
Hrs / Week : 04 + 02 (Field Work)  CIE: 50
Total Hours : 52  Exam Hours: 03
SEE: 50

Introduction to mechanisation, Mechanization through construction equipment: earth excavation, moving and hauling, aggregate manufacturing; rebar fabrication, concrete production and placement- types of equipment, process, production outputs and costs. Mechanisation through construction, formwork and scaffolding- types, materials and design principles.
Mechanisation through construction methods/technologies: segmental construction of bridges, box pushing technology for tunnelling, trench-less technology.
Precast/Prefab construction.
Safety and Environmental issues in mechanisation.

REFERENCE BOOKS:
3. Current Literature
14CCT 203 CONSTRUCTION QUALITY & SAFETY

Credits: 05
Sub Code : 14CCT 203
CIE: 50
Hrs / Week : 04 + 02 (Field Work)
Exam Hours: 03
Total Hours : 52
SEE: 50


REFERENCE BOOKS
1. N. Logothetis, “Managing for Total Quality”, Prentice Hall.
14CCT 204 CONSTRUCTION AND CONTRACT MANAGEMENT

Credits: 04
Sub Code : 14CCT 204
Hrs / Week : 04
Total Hours : 52
CIE: 50
Exam Hours: 03
SEE: 50


REFERENCE BOOKS
1. Roshan Namavathi, “Professional Practice”
3. Collier, Kieth, “Managing Construction Contracts”
14CCT 211 ADVANCED SURVEYING

Credits: 04
Sub Code : 14CCT 211
Hrs / Week : 04
Total Hours : 52
CIE: 50
Exam Hours: 03
SEE: 50

THEORY OF ERRORS AND TRIANGULATION ADJUSTMENT

ELECTRONIC DISTANCE MEASUREMENT (EDM): Introduction, Electro magnetic (EM) waves. Phase comparison and modulations. Geodimeter, Tellurimeter, Distomat, Range finders, Radars, Introduction to GPS. Total station : basic principles, working and use of total station in surveying and leveling operations.

FIELD ASTRONOMY

HYDROGRAPHIC SURVEYING AND PHOTOGRAMMETRIC SURVEYING

SETTING OUT WORKS
Introduction; Setting out of buildings, culverts, bridge, pipeline and sewers, tunnels.

TEXT BOOKS

REFERENCE BOOKS
14CCT 213 REUSE AND RECYCLE TECHNOLOGY

Credits: 04
Sub Code : 14CCT 213
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50


REFERENCE BOOKS
3. Current Literature
14CCT 221 BUILDING SERVICES AND MAINTENANCE

Credits: 04
Sub Code : 14CCT 221
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Standard fire, fire resistance, classification of buildings, means of escape, alarms, etc., provisions of NBC.
Engineering services in a building as a system, Lifts, escalators, cold and hot water systems, waste water systems and electrical systems.

REFERENCE BOOKS
1. NBC, Relevant Parts, BIS New Delhi

Image Interpretation and Analysis techniques: Multispectral, Multitemporal, Multisensoral, Multistage concepts, Visual & Digital Image interpretation, Interpretation elements, False Colour Composites; Digital Analysis: pre-processing and processing (DIP), image restoration/enhancement procedures, information extraction, pattern recognition concepts, post processing procedures.

Geographic information concepts and spatial models: Fundamentals of GIS, spatial and non-spatial data, vector and raster GIS, hardware and software requirements for GIS, GIS softwares, georeferencing, digitization, use of digitizers and scanners of different types, linking spatial and non-spatial data, thematic maps, Operation of GIS, GPS, Co-ordinate systems and map projections: Rectangular, polar and spherical coordinates, types of map projections, choosing a map projection. Map scale, data display and cartography

GIS Functionality: Introduction, data acquisition, preliminary data processing, data storage and retrieval, spatial search and analysis, graphics and interaction.

Computer Fundamentals of GIS and GIS Data models and structures: Cartographic map model, Geo-relation model, vector/ raster methods, non – spatial data base structure viz.. hierarchial network, relational structures.

Data quality and sources of error: Sources of errors in GIS data, obvious sources, natural variations and the processing errors and accuracy. Principles of Spatial data access and search, regular and object oriented decomposition, introduction to spatial data analysis and overlay analysis, raster analysis, network analysis in GIS.

GIS and remote sensing data integration techniques in spatial decision support system, multi criteria evaluation, rule based systems, spatial interaction modeling, Virtual GIS.

Data base Management systems: desirable characteristics of data base management systems, components of a data base management system, understanding the data conceptual modeling.
TEXT BOOKS:


REFERENCE BOOKS:


REFERENCE BOOKS:

1. Banerjee, “Principles and Practice of valuation”
14CCT 224 ENVIRONMENTAL IMPACT ASSESSMENT

Credits: 04
Sub Code : 14CCT 224
Hrs / Week : 04
Total Hours : 52

CIE: 50
Exam Hours: 03
SEE: 50

Developmental activity and ecological factors; EIA, EIS, FONSI. Need for EIA studies, Baseline information, Procedure for conducting EIA, Limitation of EIA
Framework of impact assessment Development projects- environmental setting, EIA- Objective, content, methodologies and techniques
Assessment and prediction of attributes: Air, Water, Noise, Land, Ecology, Soil, socio-economic environment, Rapid and comprehensive EIA.

Public participation in environment decision making, practical consideration in preparing EIA and EIS, salient features of the project activity; Environmental parameter-activity relationship matrices Environmental Management Plan (EMP) and Disaster Management Plan (DMP).

REFERENCES:

5. Relevant Journals.