I YEAR I – SEMESTER

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*For Dissertation Work Review - I, Please refer 7.8 in R19 Academic Regulations.*

**Audit Course I & II:**

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by yoga
8. Personality Development Through Life Enlightenment Skills
QUANTITATIVE METHODS IN CONSTRUCTION MANAGEMENT (PC-I)

Course Objective: To impart knowledge on statistical tools, linear and dynamic programming.

Course Outcomes: The learner will be able to use effectively different decision-making theories and PERT/CPM techniques.

UNIT-I
Introduction and concepts of probability and statistics-Probability Theory-Statistical tools.

UNIT-II
Linear programming Transportation and assignment problems.

UNIT-III
Dynamic programming, Queuing theory, Decision theory, Games theory.

UNIT-IV
Simulations applied to construction, Study of various effects.

UNIT-V
Modifications and improvement on CPM/PERT techniques.

TEXT BOOKS:
Course Objectives: To impart knowledge on various equipment related to different types and stages of construction of civil engineering structures.

Course Outcomes: The learner will be able to know the different equipment required for handling different materials.

UNIT-I
Selection of equipment-factors effecting-relative advantages and disadvantages-technical and economic aspects.

UNIT-II
Construction engineering fundamentals-analysis of production outputs and costs

UNIT-III
Characteristics and performance of equipment for earth moving.

UNIT-IV
Erection and material transport equipments- their performance advantages-pile driving-dewatering.

UNIT-V
Study of performance of equipment used for concrete construction including batching and mixing units-equipment used for tunneling.

TEXT BOOKS:
CONSTRUCTION ENGINEERING PRACTICES (PE- I)

**Course Objective:** To impart knowledge on ready mixed concrete, economics and design of formwork, modular construction and implementation procedure.

**Course Outcomes:** The learner will be able to design the form work, use ready mix concrete and understands the advantages of modular construction.

**UNIT-I**
Reinforced and prestressed concrete construction-Prefabricated structures.

**UNIT-II**
Production of ready mixed concrete-productivity analysis-Economics of formwork-Design of form work and their reusability.

**UNIT-III**
Modular construction practices-Fibonacci series, its handling and other reliable proportioning concepts.

**UNIT-IV**
Modular coordination-standardization-system building-advantages.

**UNIT-V**
Lamination and advantages of modular construction-concepts implementation procedures.

**TEXT BOOKS:**
Course Objectives: To impart knowledge on value theory, value management and brain storming methods

Course Outcomes: The learner will be able to build effective team and effectively manage the time

UNIT-I
Function analysis; FAST diagramming; brain storming; criteria scoring matrices.

UNIT-II
An introduction to value theory; an introduction to value management.

UNIT-III
Value Engineering-Definition and concepts of the creative and structured phases of value engineering.

UNIT-IV
The workshop approach to achieve value- procedures- merits and demerits-detailed analysis.

UNIT-V
Teambuilding theory; target setting; time management.

TEXT BOOKS:
FORMWORK AND SCAFFOLDING DESIGN (PE- I)

Course Objectives: To impart knowledge on common form work and special form works, and design of form work with different materials for various structural elements.

Course Outcomes: The learner will be able to design ensuring the safety of structure.

UNIT-I
Formwork and false work - Temporary work systems, construction planning and site constraints.

UNIT-II
Materials and construction of the common formwork and false work systems; Special, and proprietary forms.

UNIT-III
Concrete pressure on forms. Design of timber and steel forms; Loading and moment of formwork.

UNIT-IV
Types of beams, decking and column formwork; Design of decking; False work design; Effects of wind load.

UNIT-V
Foundation and soil on false work design; The use and applications of special forms; Sequence of construction; Safety use of formwork and false work.

Text Books:
REPAIR & REHABILITATION OF BUILDINGS (PE- II)

Course Objectives: To impart knowledge on the distress in structures.

Course Outcomes: The learner will be able to understand the reasons for distress in structures and will be able to suggest suitable solutions.

UNIT – I

UNIT – II

UNIT – III
Inspection and Testing – Symptoms and Diagnosis of Distress - Damage assessment – NDT.

UNIT – IV

UNIT – V
Health Monitoring of Structures – Use of Sensors – Building Instrumentation

REFERENCES
1. Concrete Technology by A.R. Santhakumar, Oxford University press
3. Non-Destructive Evaluation of Concrete Structures by Bungey - Surrey University Press
4. Maintenance, Repair & Rehabilitation and Minor Works of Buildings by P.C. Varghese, PHI.
Course Objectives: To impart knowledge on site investigation and soil testing methods and design of different types of foundation appropriate to the type of soil for different structures.

Course Outcomes: The learner will be able to design shallow and deep foundations like piles for railway and highway bridges, harbor structures and also sheet piles.

UNIT – I
Site Investigation for Infrastructure Projects: Methods of site investigation, types of soil samples and samplers- Geotechnical field testing – SPT, CPT, Plate Load Test, Pile Load Test.

UNIT – II
Shallow Foundations for Railway & Highway Bridges and Port & Harbour Structures: Types of foundations, design forces, safe and allowable bearing capacity of shallow foundations, settlement computation;

UNIT – III
Pile Foundations for Railway & Highway Bridges and Port & Harbour Structures: Pile foundations – types, axial and lateral capacity of pile, pile group analysis and pile cap; Introduction to drilled piers, caissons, well foundations.

UNIT – IV
Foundations for Transmission Line, Radar Antenna, Microwave and TV Tower and Chimneys: Introduction, foundations for towers and chimneys, design forces, behaviour of pad and chimney foundations, design of chimney and pad foundations, anchor foundations (rock anchors), design of foundations for towers and chimneys, analysis of raft on pile foundations; design and construction of shallow foundations on rocks.

UNIT – V
Sheet Piles - introduction, types of sheet pile walls, cantilever sheet pile wall, anchored sheet pile wall, stability analysis of anchored bulkhead by free earth support and fixed earth support method, position of anchorage.

Expansive and Collapsible Soil: Difficult soils- loose granular soils, soft clays and shrinkable soils- identification, swell and swell pressure.

REFERENCES:
5. IS: 4091 (1979) - Design and construction of foundations for transmission line towers
INTEGRATED WATER RESOURCES MANAGEMENT (PE-II)

Course Objectives: To impart knowledge on runoff, discharge measurement, estimation of flood, and flood disaster mitigation measures.

Course Outcomes: The learner will be able to estimate the quantum of water resources from different sources and able to implement and manage water resources effectively.

UNIT – I

UNIT – II
Surface water: River engineering and river training works – Hydrologic routing – Hydraulic routing – Hydrology of basin management.

UNIT – III
Groundwater: Steady groundwater flow towards a well in confined and unconfined aquifers – Dupit’s and Theism’s equations, Assumptions, Formation constants, yield of an open well interface and well tests.

UNIT – IV

UNIT – V
Conjunctive use: Concepts of conjunctive use Models, Case studies for IWRM.

REFERENCES:
4. Hydrology by Madanmohan das & Mimi Das Saikia PHI Learning Private Limited
5. Ground water Hydrology by David Keith Todd, John Wiley & Son, New York.
7. Engineering Hydrology by K. Subramanya, TMH Publishing Company limited,
Course Objectives: To impart knowledge on testing procedures for determining the properties of the materials used in concrete making.

Course Outcomes: The learner will be able to effectively use the results of different tests for recommending the materials for making good concrete.

1. Evaluation of properties of cement, fine aggregates and coarse aggregates.
2. Evaluation of properties of reinforcing steel, timber, building block and tile.
3. Variation of workability with time for different grades of concrete experimental observations.
4. Experimental observation on influence of following parameters on strength characteristics of concrete (Some of these parameters may be considered depending up on time)
   i. Size, shape and grade of course aggregate.
   ii. Grading of fine aggregate.
   iii. Hand Mixing/ Machine Mixing.
   iv. Aggregate- Cement Ratio.
   v. Coarse aggregate- Fine aggregate Ratio.
   vi. Size and shape of Test specimen.
   vii. Admixtures.
APPLICATION SOFTWARE LAB (Lab – II)

Course Outcomes: At the end of the course, students will be able to
1. Find Roots of non-linear equations by Bisection method and Newton’s method.
2. Do curve fitting by least square approximations
3. Solve the system of Linear Equations using Gauss - Elimination/ Gauss - Seidal Iteration/Gauss - Jorden Method
4. To Integrate Numerically Using Trapezoidal and Simpson’s Rules
5. To Find Numerical Solution of Ordinary Differential Equations by Euler’s Method,

Syllabus Contents:
1. Find the Roots of Non-Linear Equation Using Bisection Method.
3. Curve Fitting by Least Square Approximations.
5. Solve the System of Linear Equations Using Gauss - Seidal Iteration Method.
8. Integrate numerically using Simpson’s Rules.
   Practice with MAT lab
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. Tech – I YEAR – I SEMESTER.
CONSTRUCTION MANAGEMENT

RESEARCH METHODOLOGY AND IPR

Prerequisite: None

Course Objectives:
- To understand the research problem
- To know the literature studies, plagiarism and ethics
- To get the knowledge about technical writing
- To analyze the nature of intellectual property rights and new developments
- To know the patent rights

Course Outcomes: At the end of this course, students will be able to
- Understand research problem formulation.
- Analyze research related information
- Follow research ethics
- Understand that today’s world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
- Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
- Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

UNIT-I:
Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

UNIT-II:
Effective literature studies approaches, analysis, Plagiarism, Research ethics

UNIT-III:
Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

UNIT-IV:

UNIT-V:
TEXT BOOKS:
2. Wayne Goddard and Stuart Melville, “Research Methodology: An Introduction”

REFERENCES:
MANAGEMENT OF QUALITY AND SAFETY IN CONSTRUCTION (PC - III)

**Course Objective:** To impart knowledge on quality in construction, inspection procedures, standards, and safety aspects.

**Course Outcome:** The learner will be able to know inspection procedures to identify the quality of construction.

**UNIT - I**
Quality policy in construction industry-Consumer satisfaction- Ergonomics-Time of completion-Statistical tolerance.

**UNIT - II**
Taguchi's concept of quality-contract and construction programming-inspection procedures.

**UNIT- III**
Quality assurance/Quality control programme and cost implication.

**UNIT- IV**
Different aspects of quality-appraisals-failure mode analysis-stability methods and tools-Influence of drawings-detailing.

**UNIT- V**
Specifications-standardization-Bid preparation-construction activity-Environmental safety-social and environmental factors.

**TEXT BOOKS:**
CONSTRUCTION AND CONTRACT MANAGEMENT (PC - IV)

Course Objectives: To impart knowledge on municipal bye laws, types of construction contracts, arbitration and litigation procedures.

Courses Outcomes: The learner will be able to prepare plans and get approval from municipal or urban development authorities

UNIT - I
Introduction and concepts of Construction law-public law-government departments and local authorities.

UNIT - II
Private law-contracts-torts-property law and building law-concepts-salient features-sections.

UNIT - III
Construction contracts-contracts specifications-types of contract documents used for construction.

UNIT - IV
Contract procurement- selection of contractor-contract procedure-salient features.

UNIT - V
Arbitration and litigation procedure-preparation, settlement, evidence, price adjustment-need for the formulae-civil engineering and building formulae-practical implications.

TEXT BOOKS:
CONSTRUCTION ECONOMICS AND FINANCE (PE - III)

Course Objectives: To impart knowledge on cost analysis, economics accounting, contract bidding and awards.

Course Outcomes: The learner will be able to understand different budgeting procedures

UNIT - I
Construction accounting-income statement-depreciation and amortization.

UNIT - II
Engineering economics-benefit-cost analysis-replacement analysis-break even analysis-assessment of time for arriving break even.

UNIT - III
Risks and uncertainties and management decision in capital budgeting-Uncertainties due to improper planning.

UNIT - IV
Taxation and inflation-work pricing-contract bidding and award-revision-escalation.

UNIT - V
Turnkey activities-project appraisal and yield - Working capital management-international finance-budgeting and budgetary-performance-appraisal.

TEXT BOOKS:
WASTE MANAGEMENT SYSTEMS (PE - III)

Course Objectives: To impart knowledge on necessity of waste & waste water management, understanding treatment of industrial waste water, effluent treatment plants.

Course Outcomes: The learner will be able to acquire the knowledge of different waste disposal techniques.

UNIT – I
Introduction Solid Waste problem, Meaning and definition of solid waste, concept and classification of municipal solid waste, Impacts of solid waste on environment, solid waste management rules and regulations.

UNIT – II
Waste Disposal Techniques Introduction, composting, principles of composting, factors affecting composting, vermi composting, waste to energy techniques, Landfill technique, and design and operating procedure of landfill. Solid Waste management techniques Solid waste management Hierarchy, waste avoidance /waste prevention, Definition of source Reduction, waste reduction at source using 5R’s Technique.

UNIT – III

UNIT-IV

UNIT – V
Common Effluent Treatment plants – Advantages and suitability, limitations, Effluent Disposal Methods.

TEXT BOOKS:
1. Solid waste management by K. Sasi Kumar & S. Gopi Krishna
2. Waste water Treatment by M.N.Rao and Dutta, Oxford and IBH, New Delhi
3. Modern Technology of Waste Management: Pollution Control, Recycling, Treatment and Utilization by NIIR board, Asia Pacific Business Press Inc.
Course Objectives: To impart knowledge on providing proper ventilation, fire protection measures and vertical transportation.

Course Outcomes: The learner will be able to effectively plan for a green building.

UNIT - I
Orientation and Planning - Grouping and circulation - lighting and ventilation.

UNIT - II
Termite proofing of buildings - Lightning protection of buildings - Fire protection of buildings.

UNIT - III
Vertical transportation – Prefabrication systems in residential buildings: Planning and modules and sizes of components in prefabrication.

UNIT - IV
Shell structures - Domes - Folded plate structures - Skeletal and space frame structures - Grain storage structures

UNIT - V
Earthquake resistant structures - Air-conditioning and heating - Acoustics and Sound insulation – Plumbing services

TEXT BOOKS:
Course Objectives: This course will provide the students with
1. State-of-the-art knowledge on durable and sustainable cement and concrete, on the various mineral additions and chemical admixtures to enhance the workability, strength, durability and sustainability of concrete,
2. It will empower them in the decision-making process regarding the various concrete products, construction procedures and performance test methods that will improve the durability and sustainability of concrete civil infrastructure.
3. This course will empower students to become technical leaders in the concrete. The materials science aspects of concrete production will be explored in the context of various performance criteria with emphasis on durability and sustainability.

Course Outcomes: At the end of the course, students will be able to
1. Identify Quality Control tests on concrete making materials
2. Understand the behavior of fresh and hardened concrete
3. Understand the high strength concrete properties
4. Understand the properties and need of special concrete
5. Design form work

UNIT - I

UNIT - II
Fresh and Hardened Concrete: Fresh Concrete – workability tests on Concrete – Setting Times of Fresh Concrete – Segregation and bleeding.
Hardened Concrete: Abrams Law, Gel space ratios, Maturity concept – Stress strain behavior – Creep and Shrinkage – Durability Tests on Concrete – Non-Destructive Testing of Concrete.

UNIT - III
High Performance Concrete – Requirements and Properties of High-Performance Concrete – Design Considerations

UNIT - IV
Special Concretes: Self Compacting concrete, Polymer Concrete, Fibre Reinforced Concrete – Reactive Powder Concrete – Requirements and Guidelines – Advantages and Applications.
Concrete Mix Design: Quality Control – Quality Assurance – Quality Audit - Mix Design Method – BIS Method – DOE Method – Light Weight Concrete, Self-Compacting Concrete.

UNIT - V
REFERENCES BOOKS:
CIVIL ENGINEERING MATERIALS AND RECENT ADVANCES (PE - IV)

Course Objectives: To impart knowledge on different types of concrete and to effectively recycle and reuse waste materials.

Course Outcomes: The learner will be able to use different types of concrete for different purposes

UNIT- I
Light weight aggregate concrete - fiber reinforced concrete - High strength concrete.

UNIT- II
Changes in concrete with time, Corrosion of rebars in concrete- control measures.

UNIT- III
Different Industrial waste materials – their usage in concrete –study of properties.

UNIT- IV
Effects of temperature on Concrete- high temperature - Ferro-cement – advantages and properties and strength.

UNIT- V
Polymers - Fibre reinforced plastic in sandwich panels - Adhesives and sealants. Structural elastomeric bearings, Moisture barriers.

TEXT BOOKS:
UNDER WATER CONSTRUCTION (PE- IV)

**Course Objectives:** To impart knowledge on construction of foundation under water and also design retaining walls, sheet piling and tunneling methods.

**Course Outcomes:** The learner will be able to design different under water structures.

**UNIT - I**
Under Water construction - Site preparation, temporary roads, site drainage.

**UNIT - II**

**UNIT - III**
Support of excavation by timbering and sheet piling. Retaining walls and sheet pile design - requirements for shorting and underpinning.

**UNIT - IV**
Methods of shoring of Underpinning - Tunneling in touch, medium-tough and soft rocks.

**UNIT - V**
Tunneling by bolts shield tunneling - Culverts and conduits - Design of piles, pile load tests. Foundation design for dynamic conditions.

**TEXT BOOKS:**
Course Objectives: To impart knowledge on different methods of mix design and also methods of testing hardened concrete.

Course Outcomes: The learner will be able to correlate the results of destructive and non-destructive testing.

List of Experiments:
1. Concrete mix design by BIS, ACI and BS method-proportioning, batching, mixing, modeling of specimens for compression, modulus of elasticity and modulus of rupture-testing of specimens as per relevant codes of practice (Comparative study).
2. Development of correlation between Non-Destructive and Destructive tests using Rebound Hammer & UPV instruments.
3. Influence of following parameters on NDT reading-experimental observations.
   i. Aggregate Cement Ratio.
   ii. Water Cement Ratio.
   iii. Excess/Deficient Cement.
   v. Aggregate type.
   (Some of the above parameters may be considered depending upon time)
4. Strain and deflection measurement for a structural member under single point/ two-point loading- crack propagation observation. Measurement and plotting.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH.- I YEAR- II SEMESTER
CONSTRUCTION MANAGEMENT

SENSOR TECHNOLOGIES FOR HEALTH MONITORY LAB (Lab – IV)

Course Objectives: To impart knowledge on different methods of Sensor technology in monitoring structures
Course Outcomes: The learner will be able to perform health monitoring of structures.

List of Experiments:
1. Ultrasonic Test
2. Eddy Current Test
3. Acoustic Emission Test
4. Thermal Infrared Test
5. Laser Vibrometer
6. Fibre Optics Sensor Test
CONSTRUCTION PROJECT PLANNING AND ADMINISTRATION (PE - V)

Course Objective: To impart knowledge on project planning and management, investment decisions, risks involved and resource management.

Course Outcome: The learner will be able to plan, schedule and monitor the project effectively.

UNIT-I
Construction administration, control of quality in construction, organizational structure, responsibility for co-ordination of the trade-Introduction to Project planning and Scheduling-Processes of project planning- Project scheduling- Progress control.

UNIT-II
Project planning and scheduling techniques- Network scheduling techniques. Project planning using computer-based models- Principles of project management.

UNIT-III
Certainty, risk and uncertainty, risk management, identification and nature of construction risks, contractual allocation of risk, types of risks, minimizing risks and mitigating losses, use of expected values, utility in investment decisions, decision trees, sensitivity analysis.

UNIT-IV
Resource management and inventory-Implementation of project planning management.

UNIT-V
Analysis and design of planning and control system- Disputes and claims management-Use of computer-based project management tools.

TEXT BOOKS:
URBAN/REGIONAL TRANSPORTATION ANALYSIS AND PLANNING METHODS (PE - V)

Course Objectives: To impart knowledge on traffic studies, effective transportation systems based on forecasting demand and intelligent transport systems.

Course Outcomes: The learner will be able to design suitable transportation system based on future demands

UNIT – I
Traffic studies: Background of traffic studies and surveys; Basic principles of - Speed and density, volume, headways and accidents; Road Safety auditing, Measures to increase Road safety.

UNIT – II
Statistics and Probability Concepts in Transportation Systems: Statistical Distributions – Binomial, Poisson, exponential and normal distribution, fitness tests, their apperception to transportation system; probability concepts in transportation studies.

UNIT – III
Transportation Demand Forecasting: Travel Demand Scenario; Demand Forecasting Approaches; Time Services Analysis as approach in demand assessment, Factor Analysis apparatus, Behavior modeling forms in travel demand estimation.

UNIT – IV
Pedestrian Delays And Gaps: Pedestrian Gap acceptance and delays; Concept of Blocks, Anti-blocks, Gaps and Non-Gaps; Underwood’s analysis for Pedestrian Delays; Warrants for Pedestrian Crossing Facilities – Minimum Vehicular Volume Warrant, Minimum Pedestrian Volume Warrant, Maximum Pedestrian Volume Warrant;

UNIT – V
Intelligent Transport Systems: ITS Definition, Benefits of ITS, user services, Detectors, Automatic Vehicle Location (AVL), Automatic Vehicle Identification (AVI), Introduction to ITS applications; Advanced Traffic Management systems (ATMS), Advanced Traveler Information systems (ATIS), Commercial Vehicle Operations (CVO), Advanced Vehicle Control systems (AVCS), Advanced Public Transportation systems (APTS), Electronic Road Pricing (ERP).

REFERENCES:
4. Sensor technologies and Data requirements of ITS, Lawrence A. Klein.
Course Outcomes: At the end of the course, students will be able to
1. Diagnosis the distress in the structure understanding the causes and factors.
2. Assess the health of structure using static field methods.
3. Assess the health of structure using dynamic field tests.
4. Suggest repairs and rehabilitation measures of the structure

UNIT – I
Structural Health: Factors affecting Health of Structures, Causes of Distress, Regular Maintenance.

UNIT – II
Structural Audit: Assessment of Health of Structure, Collapse and Investigation, Investigation Management, SHM Procedures.

UNIT – III
Static Field Testing: Types of Static Tests, Simulation and Loading Methods, sensor systems and hardware requirements, Static Response Measurement.

UNIT – IV

UNIT – V
Introduction to Repairs and Rehabilitations of Structures: Case Studies (Site Visits), piezo–electric materials and other smart materials, electro–mechanical impedance (EMI) technique, adaptations of EMI technique.

REFERENCE BOOKS:
1. Structural Health Monitoring, Daniel Balageas, Claus_Peter Fritzen, Alfredo Güemes, John Wiley and Sons, 2006
ENGLISH FOR RESEARCH PAPER WRITING (Audit Course - I & II)

Prerequisite: None

Course objectives: Students will be able to:
- Understand that how to improve your writing skills and level of readability
- Learn about what to write in each section
- Understand the skills needed when writing a Title Ensure the good quality of paper at very first-time submission

UNIT-I:
Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness

UNIT-II:

UNIT-III:
Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check.

UNIT-IV:
key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature,

UNIT-V:
skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions. useful phrases, how to ensure paper is as good as it could possibly be the first-time submission

TEXT BOOKS/ REFERENCES:
Prerequisite: None

Course Objectives: Students will be able to
- learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
- critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
- develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.
- critically understand the strengths and weaknesses of disaster management approaches,
- planning and programming in different countries, particularly their home country or the countries they work in

UNIT-I:
Introduction:
Disaster: Definition, Factors and Significance; Difference Between Hazard and Disaster; Natural and Manmade Disasters: Difference, Nature, Types and Magnitude.

Disaster Prone Areas in India:
Study of Seismic Zones; Areas Prone to Floods and Droughts, Landslides and Avalanches; Areas Prone to Cyclonic and Coastal Hazards with Special Reference to Tsunami; Post-Disaster Diseases and Epidemics

UNIT-II:
Repercussions of Disasters and Hazards:

UNIT-III:
Disaster Preparedness and Management:
Preparedness: Monitoring of Phenomena Triggering A Disaster or Hazard; Evaluation of Risk: Application of Remote Sensing, Data from Meteorological and Other Agencies, Media Reports: Governmental and Community Preparedness.

UNIT-IV:
Risk Assessment Disaster Risk:

UNIT-V:
Disaster Mitigation:
Meaning, Concept and Strategies of Disaster Mitigation, Emerging Trends In Mitigation. Structural Mitigation and Non-Structural Mitigation, Programs of Disaster Mitigation in India.
TEXT BOOKS/ REFERENCES:
2. Sahni, Pardeep Et. Al. (Eds.),” Disaster Mitigation Experiences and Reflections”, Prentice Hall of India, New Delhi.
SAKSHIT FOR TECHNICAL KNOWLEDGE (Audit Course - I & II)

Prerequisite: None

Course Objectives:
- To get a working knowledge in illustrious Sanskrit, the scientific language in the world
- Learning of Sanskrit to improve brain functioning
- Learning of Sanskrit to develop the logic in mathematics, science & other subjects enhancing the memory power
- The engineering scholars equipped with Sanskrit will be able to explore the huge knowledge from ancient literature

Course Outcomes: Students will be able to
- Understanding basic Sanskrit language
- Ancient Sanskrit literature about science & technology can be understood
- Being a logical language will help to develop logic in students

UNIT-I:
Alphabets in Sanskrit,

UNIT-II:
Past/Present/Future Tense, Simple Sentences

UNIT-III:
Order, Introduction of roots,

UNIT-IV:
Technical information about Sanskrit Literature

UNIT-V:
Technical concepts of Engineering-Electrical, Mechanical, Architecture, Mathematics

TEXT BOOKS/ REFERENCES:
1. “Abhyaspustakam” – Dr. Vishwas, Samskrita-Bharti Publication, New Delhi
2. “Teach Yourself Sanskrit” Prathama Deeksha-Vempati Kutumbshastri, Rashtriya Sanskrit Sansthanam, New Delhi Publication
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. Tech. (CONSTRUCTION MANAGEMENT)

VALUE EDUCATION (Audit Course - I & II)

Prerequisite: None

Course Objectives: Students will be able to
- Understand value of education and self-development
- Imbibe good values in students
- Let the should know about the importance of character

Course outcomes: Students will be able to
- Knowledge of self-development
- Learn the importance of Human values
- Developing the overall personality

UNIT-I:

UNIT-II:

UNIT-III:
Personality and Behavior Development - Soul and Scientific attitude. Positive Thinking. Integrity and discipline, Punctuality, Love and Kindness.

UNIT-IV:

UNIT-V:

TEXT BOOKS/ REFERENCES:
Prerequisite: None

Course Objectives: Students will be able to:
- Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
- To address the growth of Indian opinion regarding modern Indian intellectuals’ constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
- To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

Course Outcomes: Students will be able to:
- Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
- Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
- Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
- Discuss the passage of the Hindu Code Bill of 1956.

UNIT-I:

UNIT-II:

UNIT-III:
Organs of Governance: Parliament, Composition, Qualifications and Disqualifications, Powers and Functions, Executive, President, Governor, Council of Ministers, Judiciary, Appointment and Transfer of Judges, Qualification, Powers and Functions.

UNIT-IV:

UNIT-V:
TEXT BOOKS/ REFERENCES:
1. The Constitution of India, 1950 (Bare Act), Government Publication.
PEDAGOGY STUDIES (Audit Course - I & II)

Prerequisite: None

Course Objectives: Students will be able to:
- Review existing evidence on the review topic to inform programme design and policy making undertaken by the DFID, other agencies and researchers.
- Identify critical evidence gaps to guide the development.

Course Outcomes: Students will be able to understand:
- What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
- What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
- How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?

UNIT-I:

UNIT-II:
Thematic overview: Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries. Curriculum, Teacher education.

UNIT-III:
Evidence on the effectiveness of pedagogical practices, Methodology for the indepth stage: quality assessment of included studies. How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy? Theory of change. Strength and nature of the body of evidence for effective pedagogical practices. Pedagogic theory and pedagogical approaches. Teachers’ attitudes and beliefs and Pedagogic strategies.

UNIT-IV:
Professional development: alignment with classroom practices and follow-up support. Peer support, Support from the head teacher and the community. Curriculum and assessment, Barriers to learning: limited resources and large class sizes

UNIT-V:
Research gaps and future directions: Research design, Contexts, Pedagogy, Teacher education, Curriculum and assessment, Dissemination and research impact.

TEXT BOOKS/ REFERENCES:
STRESS MANAGEMENT BY YOGA (Audit Course - I & II)

Prerequisite: None

Course Objectives:
- To achieve overall health of body and mind
- To overcome stress

Course Outcomes: Students will be able to:
- Develop healthy mind in a healthy body thus improving social health also
- Improve efficiency

UNIT-I:
Definitions of Eight parts of yog. (Ashtanga)

UNIT-II:
Yam and Niyam.

UNIT-III:
Do’s and Don’t’s in life.
   i) Ahinsa, satya, astheya, bramhacharya and aparigraha
   ii) Shaucha, santosh, tapa, swadhyay, ishwarpranidhan

UNIT-IV:
Asan and Pranayam

UNIT-V:
i) Various yog poses and their benefits for mind & body
ii) Regularization of breathing techniques and its effects-Types of pranayam

TEXT BOOKS/ REFERENCES:
1. “Yogic Asanas for Group Tarining-Part-I”: Janardan Swami Yogabhyasi Mandal, Nagpur
2. “Rajayoga or conquering the Internal Nature” by Swami Vivekananda, Advaita Ashrama
   (Publication Department), Kolkata
PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS  
(Audit Course - I & II)

Prerequisite: None

Course Objectives:
- To learn to achieve the highest goal happily
- To become a person with stable mind, pleasing personality and determination
- To awaken wisdom in students

Course Outcomes: Students will be able to
- Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life
- The person who has studied Geeta will lead the nation and mankind to peace and prosperity
- Study of Neetishatakam will help in developing versatile personality of students

UNIT-I:
Neetisatakam-Holistic development of personality
- Verses- 19,20,21,22 (wisdom)
- Verses- 29,31,32 (pride & heroism)
- Verses- 26,28,63,65 (virtue)

UNIT-II:
Neetisatakam-Holistic development of personality
- Verses- 52,53,59 (don’ts)
- Verses- 71,73,75,78 (do’s)

UNIT-III:
Approach to day to day work and duties.
- Shrimad Bhagwad Geeta: Chapter 2-Verses 41, 47,48,
- Chapter 3-Verses 13, 21, 27, 35, Chapter 6-Verses 5,13,17, 23, 35,
- Chapter 18-Verses 45, 46, 48.

UNIT-IV:
Statements of basic knowledge.
- Shrimad Bhagwad Geeta: Chapter2-Verses 56, 62, 68
- Chapter 12 -Verses 13, 14, 15, 16,17, 18
- Personality of Role model. Shrimad Bhagwad Geeta:

UNIT-V:
- Chapter2-Verses 17, Chapter 3-Verses 36,37,42,
- Chapter 4-Verses 18, 38,39
- Chapter18 – Verses 37,38,63

TEXT BOOKS/ REFERENCES:
1. “Srimad Bhagavad Gita” by Swami Swarupananda Advaita Ashram (Publication Department), Kolkata.
2. Bhartrihari’s Three Satakam (Niti-sringar-vairagya) by P.Gopinath, Rashtriya Sanskrit Sansthanam, New Delhi.