III- SEMESTER

S.No.	Subject Code	Name of Subject	Periods Per Week				Evaluation Scheme			
			L	T	P	D	Sessional	End Exam	Total	Duration
1	MTCE-31 MTCE-32	Elective-III(Any One)Advance Structural Design and DetailingComposite Materials	3	1	-	-	50	100	150	3
2	MTCE-33 MTCE-34	Elective-IV(Any One)Disaster Reduction and ManagementConstruction Costing and Financial Management	3	1	-	-	50	100	150	3
3	MTCE-35	Project	-	-	4	-	50	100	150	3
4	MTCE-36	Seminar	-	-	2	-	-	100	100	3
								Grand Total	550	

[MTCE-31]ADVANCED STUCTURAL DESIGN AND DETAILING

Introduction to limit state method of design, provisions in the Indian standard codes for loading wind loads and seismic loads, design and detailing of concrete structures.

BIS Hand book for design, Examples of design using hand book.

Design of Structures as perI.S.1893 for Earth quake Resistant Design Construction.

Design and Detailing Requirements as per 4326-1993.

Design and Detailing of Earthen Buildings as per 13827-1993.

Design and Detailing of Masonry Structures as per I.S. 13828-1993

Design and Ductile Detailing of R.C.C. Structures as perI.S.13920-1993

Repair and Seismic Strengthening of Buildings as per I.S.13935-1993.

Reference:

1. Dayaratnam, P. Reinforced Concrete Structure
2. Jain, A.K. Reinforced Concrete, Limit State Method of Design.
3. Punmia, B.C. Reinforced Concrete Structures, Vo lII
4. Jainand jai Krishna Plain and Reinforced Concrete VolII.
5. Design of Steel Structures by P.Dayaratnam
6. Design of Steel Structures by S.K.Duggal
7. B.I.S.Codes1893,4326,13827,13828,13 20,13935

[MTCE-32]COMPOSITE MATRIALS

FIBRE REINFORCED CONCRETE: Properties of Constituent Materials, Mix Proportions, Mixing and Casting Procedures, Properties of Freshly mixed FRC, Mechanics and properties of Fibre reinforced concrete, Composite Material approach, Application of fibre reinforced concrete.

FLY ASH CONCRETE : Classification of Indian Fly ashes, Properties of Fly ash, Reaction Mechanism, Proportioning of Fly ash concretes, Properties of Fly ash concrete in fresh and hardened state, Durability of fly ash concrete.

POLYMER CONCRETE: Terminology used in polymer concrete, Properties of constituent materials, Polymer impregnated concrete, Polymer modified concrete, Properties and applications of polymer concrete and polymer impregnated concrete.

FERRO CEMENT: Constituent materials and their properties, Mechanical properties of ferro cement, Construction techniques and application of ferro cement.

HIGH PERFORMANCE CONCRETE: Materials for high performance concrete, Supplementary cementing materials, Properties and durability of high performance concrete, Introduction to silica fume concrete, Properties and applications of silica fume concrete.

SULPHUR CONCRETE AND SULPHUR INFILTRATED CONCRETE : Process technology, Mechanical properties, Durability and

applications of Sulphur concrete, Sulphur in filtrated concrete, Infiltration techniques, Mechanical properties, Durability and applications of sulphur infiltrated concrete.

LIGHT WEIGHT CONCRETE: Properties of light weight concretes, Pumice concrete, Aerated cement mortars, No fines concrete, Design and applications of light weight concrete.

Reference:

1. Concrete, its Properties and Micro structure by P.K. Mehta, and P.J.M. Monterio.
2. Ferro cement by B.K. Paul, and R.P. Pama
3. Fibre Reinforced Concrete by Bentur and Mindess
4. Fly ash in Concrete by Malhotra and Ramezanianpour

[MTCE-33]DISASTER REDUCTION AND MANAGEMENT

Disaster Reduction : Earthquake resistant design of structures, Response spectra and design earthquake parameters, Principles and philosophies, Codal provisions, Factors affecting damage to structures, Enforcement of codal provisions, Strong motion instrumentation and data processing, Effective rescue operation, General planning and design aspects, Conventional earthquake resistant design, Seismic base isolation method, retrofitting, Training and lecturing at various levels, Preparedness to meet earthquake disaster, Programmes for public awareness, demonstrations and exhibitions, Information management (Safety, emergencies, management and planning, design, response, user experience problems and case studies), Proper land use practices, long term disaster preparedness measures. Precautions after a major earthquake, Preparedness for medical supply Emergency care (First aid, Home remedies), Disposal of dead bodies (Human and Cattle), Care for old and orphans.

Indirect Damages : Damage due to ground failures, Landslides, rockslides, liquefaction, fire, floods, tsunamis, release of hazardous material like poisonous gas, nuclear radiation.

Disaster Management : Management cell, Central crisis management core group, damage reconnaissance, Management of relief and rehabilitation (Infrastructure rehabilitation, Housing rehabilitation, Social rehabilitation), Role of volunteers, Emergency operation centers , Information system, Danger zone restrictions, Cooperation with local authority, Coordination for international relief, Role of government, NGO's, Business and donors, Role of remote sensing in relief operations, Information management and related technologies in engineering and disaster management. The design and management of Disaster Information Resource Network, Asian Disaster Prepare dness Centre, Regional data base, Contacts and Sources, CD - ROM Library for Natural Disaster Management, Regional Disaster Documentation Centre, Non GovernmentalOrganisations.

Reference:

1. Disaster Mitigation Experiences & Reflections by PardeepSahni, AlkaDhameja,and Uma Medury.
2. Disaster Management Report by Department of Agriculture and Cooperation, Govt. of India.

[MTCE-34] CONSTRUCTION COSTING AND FINANCIAL MANAGEMENT

Construction Costing: Costing of construction Works, different methods of costing, cost elements in a project, Analysis of rates, Non-scheduled items of work, Cost estimation for a small construction job, Purpose, methods and stages of cost control, cost monitoring, cost forecasting methods, variations in individual items of work and their effect to total contract price, valuation of variations.

Cash flow: Determining the funds required for a construction job, preparing cash flow statements, Cash inflow and outflow during contract period, Project expectations and performance models.

Cash and payment of works; Precautions in custody of cash, imp rest account and temporary advance, Maintenance of temporary advance and advance account, different types of payment, first running advance and final payments.

Material Management : Objectives and scope of material management classification, codification, ABC analysis, standardization and substitution, Introduction to inventory control, Stores management organization and lay out, receipt, inspection and issue, care and safety, store records and store accounting.

Financial Management: Meaning and scope financial statement analysis, funds flow analysis, Capital budgeting, cost benefit analysis.

Practical Exercise ;

Filling up of prescribed treasury challan form and imprest account form with given data.

Preparation of cash flow statement for a small construction project with given data.

Filing up of Daily labour report on prescribed form with given data.

Recording measurement in M.B. for different work components.

Preparation of analysis of rates for different items of work.

Preparation of cost estimates for a small project.

Material statement and material analysis.

Carry out financial statement analysis, ratio analysis and funds flow analysis for projects from given case studies.

Reference:

1. Mueller, F.W. Integrated cost and schedule control for construction projects.
2. Gobourne: Cost control in the construction industry.
3. Schedule of rates ,specification manuals etc from PWD.
4. Chris Hendrickson and Tung Au: project Management for construction.
5. Datta: material Management procedures, Text and Cases, 2e. Prentice Hall
6. Gopala Krishanan,P, Sundaresan, M Material Management-an Integrated Approach, Prentice Hall
7. Dobbler and Bart: Purchasing and supplies Management, Text and Cases,6e.
8. Chitkara, K.K. Construction Project Management, Tata-

[MTCE-35]PROJECT WORK

OBJECTIVE

The objective of the project work is to enable the students in convenient groups of not more than 3 members on a project involving theoretical and experimental studies related to the branch of study. Every project work shall have a guide who is the member of the faculty of the institution.

The student should select any one of the topics offered from the department or select one on his own duly approved from the department. Candidate is required to submit the detailed synopsis of the work that he would complete in the part-II

Each student shall finally produce a comprehensive report covering back ground information, literature survey, problem statement, project work details and conclusion. This final report shall be typewritten form as specified in the guidelines.

[MTCE-36]SEMINAR

OBJECTIVE

The students are to select one technical topic related its branch for Seminar. The student is to submit the synopsis for assessment and approval. Progress for preparation of the seminar topic would be continuously assessed from time to time. Two periods per week are to be allotted and students are expected to present the seminar Progress. A faculty guide is to be allotted and he / she will guide and monitor the progress of the student and maintain the attendance.

Students have to give a final presentation for 15 minutes on his topic. Students are encouraged to use various teaching aids such as over head projectors, power point presentation and demonstrative models. This will enable them to gain confidence in facing the placement interviews