The page contains a course outline for the M. Tech in Construction Technology and Management program at BIJU PATNAIK UNIVERSITY OF TECHNOLOGY, ODISHA, ROURKELA. The outline is for SEMESTER-I and applicable to students admitted from the Academic year 2013 – 2014 onwards.

### Code No. | Course Title | L | T | P | C
--- | --- | --- | --- | --- | ---
CTPC101 | Construction Economics and Finance | 3 | 1 | 0 | 4
CTPC102 | Project Planning and Management | 3 | 1 | 0 | 4
CTPC103 | Infrastructure Valuation | 3 | 1 | 0 | 4

**Professional Electives -I (Any one)**

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<th>Code No.</th>
<th>Course Title</th>
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<tr>
<td>CTPE101</td>
<td>Quality and Safety Management</td>
<td>3</td>
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<td>CTPE102</td>
<td>Building Information Management</td>
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**Professional Electives –II (Any one)**

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<td>CTPE103</td>
<td>Construction Equipment Management</td>
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<td>CTPE104</td>
<td>Maintenance and Rehabilitation of Structures</td>
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**Sessional / Practical**

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<td>CTPR101</td>
<td>Construction Management Software laboratory</td>
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<td>0</td>
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<td>CTPT101</td>
<td>Pre-Thesis work and Seminar</td>
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**Total Credit -24**
CTPC101 CONSTRUCTION ECONOMICS AND FINANCE


Reading:

CTPC102 PROJECT PLANNING AND MANAGEMENT

UNIT-1
Project Planning and Scheduling - Processes of project planning, scheduling - progress control - project planning and scheduling techniques -

UNIT-2
Network Scheduling Techniques - Use of computer based models - Principles of Project management - Resource Management and Inventory - Implementation of Project Planning Management - Analysis and design of planning and control system

UNIT-3
Disputes and Claims Management - Use of computer based project management tools

REFERENCE
CTPC103 INFRASTRUCTURE VALUATION

Function analysis; FAST diagramming; brain storming; criteria scoring matrices; an introduction to value theory; an introduction to value management; definition of the creative and structured phases of value engineering; the workshop approach to achieving value; teambuilding theory; target setting; time management.

Reading:

CTPE101 QUALITY AND SAFETY MANAGEMENT


UNIT-1

Structural


UNIT-2

Maintenance and Safety

Component longevity in terms of operation performance and resistance to deleterious forces - Planning systems for least maintenance materials and construction – access for maintenance – Feasibility for replacement of damaged components – equal life elemental design – maintenance free exposed and finished surfaces, Ability of systems to protect fire – preventive systems – fire escape system design – planning for pollution free construction environmental – Hazard free Construction execution.

REFERENCES

CTPE103 CONSTRUCTION EQUIPMENT MANAGEMENT

UNIT- I
CONSTRUCTION EQUIPMENT MANAGEMENT

UNIT-2

UNIT-3
MATERIALS HANDLING EQUIPMENT -Forklifts and related equipment - Portable Material Bins – Conveyors - Hauling Equipment
EQUIPMENT FOR PRODUCTION OF AGGREGATE AND CONCRETING

REFERENCES:
UNIT I
MAINTENANCE AND REPAIR STRATEGIES -Maintenance, repair and rehabilitation, Facets of Maintenance, importance of Maintenance various aspects of Inspection, Assessment procedure for evaluating a damaged structure, causes of deterioration. SERVICEABILITY AND DURABILITY OF CONCRETE -Quality assurance for concrete construction concrete properties- strength, permeability, thermal properties and cracking. - Effects due to climate, temperature, chemicals, corrosion - design and construction errors - Effects of cover thickness and cracking

UNIT -2
MATERIALS AND TECHNIQUES FOR REPAIR
Special concretes and mortar, concrete chemicals, special elements for accelerated strength gain, Expansive cement, polymer concrete, sulphur infiltrated concrete, Ferro cement and polymers coating for rebars loadings from concrete, mortar and dry pack, vacuum concrete, Genie and Concrete, Epoxy injection, Mortar repair for cracks, shoring and underpinning. Methods of corrosion protection, corrosion inhibitors, corrosion resistant steels and catholic protection.

UNIT -3
REPAIRS TO STRUCTURES
Repair of structures distressed due to earthquake – Strengthening using FRP Strengthening and stabilization techniques for repair. DEMOLITION OF STRUCTURES-Engineered demolition techniques for structures - case studies

REFERENCES: