

B. E. CIVIL ENGINEERING			
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)			
SEMESTER - VII			
QUALITY SURVEYING AND CONTRACT MANAGEMENT			
Course Code	18CV71	CIE Marks	40
Teaching Hours/Week(L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03
Course Learning Objectives: This course will enable students to;			
<ol style="list-style-type: none"> 1. Estimate the quantities of work, develop the bill of quantities and arrive at the Cost of civil engineering Project 2. Understand and apply the concept of Valuation for Properties 3. Understand, Apply and Create the Tender and Contract document. 			
Module -1			
Quantity Estimation for Building: study of various drawing attached with estimates, important terms, units of measurements, abstract, Types of estimates. Estimation of building by Short wall and long wall method - centre line method. Estimate of R.C.C structures including Slab, beam, column, footings.			
Module -2			
Estimate of Steel truss, manhole and septic tanks and slab culvert. Quantity Estimation for Roads: Computation of volume of earthwork fully in banking, cutting, partly cutting and partly Filling by mid-section, trapezoidal and Prismoïdal Methods.			
Module -3			
Specification for Civil Engineering Works: Objective of writing specifications essentials in specifications, general and detail specifications of different items of works in buildings and roads. Analysis of Rates : Factors Affecting Cost of Civil Works , Concept of Direct Cost , Indirect Cost and Project Cost Rate analysis and preparation of bills, Data analysis of rates for various items of Works, Sub-structure components, Rate analysis for R.C.C. slabs, columns and beams.			
Module-4			
Contract Management-Tender and its Process: Invitation to tender, Prequalification, administrative approval & Technical sanction. Bid submission and Evaluation process. Contract Formulation: Letter of intent, Award of contract, letter of acceptance and notice to proceed. Features / elements of standard Tender document (source: PWD / CPWD / International Competitive Bidding – NHAI / NHEPC / NPC). Law of Contract as per Indian Contract act 1872, Types of Contract, Joint venture. Contract Forms: FIDIC contract Forms, CPWD, NHAI, NTPC, NHEPC.			
Module -5			
Contract Management-Post award : Basic understanding on definitions, Performance security, Mobilization and equipment advances, Secured Advance, Suspension of work, Time limit for completion, Liquidated damages and bonus, measurement and payment, additions and alterations or variations and deviations, breach of contract, Escalation, settlement of account or final payment, claims, Delay's and Compensation, Disputes & its resolution mechanism , Contract management and administration. Valuation: Definitions of terms used in valuation process, Purpose of valuation, Cost, Estimate, Value and its relationship, Capitalized value. Freehold and lease hold and easement, Sinking fund, depreciation–methods of estimating depreciation, Outgoings, Process and methods of valuation: Rent fixation, valuation for mortgage, valuation of land.			
Course outcomes: After studying this course, students will be able to:			
<ol style="list-style-type: none"> 1. Taking out quantities and work out the cost and preparation of abstract for the estimated cost for various civil engineering works. 2. Prepare detailed and abstract estimates for various road works, structural works and water supply and sanitary works. 3. Prepare the specifications and analyze the rates for various items of work. 4. Assess contract and tender documents for various construction works. 5. Prepare valuation reports of buildings. 			
Question paper pattern:			
<ul style="list-style-type: none"> • The question paper will have ten full questions carrying equal marks. 			

- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Textbooks:

1. Datta B.N., “Estimating and costing”, UBSPD Publishing House, New Delhi.
2. B.S. Patil, “Civil Engineering Contracts and Estimates”, Universities Press.
3. M. Chakraborti; “Estimation, Costing and Specifications”, Laxmi Publications.
4. MORTH Specification for Roads and Bridge Works – IRC New Delhi.

Reference Books:

1. Kohli D.D and Kohli R.C, “Estimating and Costing”, 12 th Edition, S.Chand Publishers, 2014.
2. Vazirani V.N and Chandola S.P, “Estimating and costing”, Khanna Publishers, 2015.
3. Rangwala, C. "Estimating, Costing and Valuation", Charotar Publishing House Pvt. Ltd., 2015.
4. Duncan Cartlidge , "Quantity Surveyor's Pocket Book", Routledge Publishers, 2012.
5. Martin Brook, "Estimating and Tendering for Construction Work", A Butterworth-Heinemann publishers, 2008.
6. Robert L Peurifoy , Garold D. Oberlender , “ Estimating Construction Costs” – 5ed , Tata McGraw-Hill , New Delhi.
7. David Pratt, “Fundamentals of Construction Estimating” – 3ed, Edition.
8. PWD Data Book, CPWD Schedule of Rates (SoR). and NH SoR – Karnataka FIDIC Contract forms.
9. B.S. Ramaswamy “Contracts and their Management” 3ed, Lexis Nexis(a division of Reed Elsevier India Pvt Ltd).

B. E. CIVIL ENGINEERING
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)
SEMESTER - V

CONSTRUCTION MANAGEMENT AND ENTREPRENEURSHIP

Course Code	18CV51	CIE Marks	40
Teaching Hours/Week(L:T:P)	(2:2:0)	SEE Marks	60
Credits	03	Exam Hours	03

Course Learning Objectives: This course will enable students to

1. Understand the concept of planning, scheduling, cost and quality control, safety during construction, organization and use of project information necessary for construction project.
2. Inculcate Human values to grow as responsible human beings with proper personality.
3. Keep up ethical conduct and discharge professional duties.

Module -1

Management: Characteristics of management, functions of management, importance and purpose of planning process, types of plans.

Construction Project Formulation: Introduction to construction management, project organization, management functions, management styles.

Construction Planning and Scheduling: Introduction, types of project plans, work breakdown structure, Grant Chart, preparation of network diagram- event and activity based and its critical path-critical path method, PERT method, concept of activity on arrow and activity on node.

Module -2

Resource Management: Basic concepts of resource management, class of labour, Wages & statutory requirement, Labour Production rate or Productivity, Factors affecting labour output or productivity.

Construction Equipments: classification of construction equipment, estimation of productivity for: excavator, dozer, compactors, graders and dumpers. Estimation of ownership cost, operational and maintenance cost of construction equipments. Selection of construction equipment and basic concept on equipment maintenance

Materials: material management functions, inventory management.

Module -3

Construction Quality, safety and Human Values:

Construction quality process, inspection, quality control and quality assurance, cost of quality, ISO standards. Introduction to concept of Total Quality Management

HSE: Introduction to concepts of HSE as applicable to Construction. Importance of safety in construction, Safety measures to be taken during Excavation, Explosives, drilling and blasting, hot bituminous works, scaffolds / platforms / ladder, form work and equipment operation. Storage of materials. Safety through legislation, safety campaign. Insurances.

Ethics: Morals, values and ethics, integrity, trustworthiness, work ethics, need of engineering ethics, Professional Duties, Professional and Individual Rights, Confidential and Proprietary Information, Conflict of Interest Confidentiality, Gifts and Bribes, Price Fixing, Whistle Blowing.

Module -4

Introduction to engineering economy: Principles of engineering economics, concept on Micro and macro analysis, problem solving and decision making.

Interest and time value of money: concept of simple and compound interest, interest formula for: single payment, equal payment and uniform gradient series. Nominal and effective interest rates, deferred annuities, capitalized cost.

Comparison of alternatives: Present worth, annual equivalent, capitalized and rate of return methods, Minimum Cost analysis and break even analysis.

Module -5

Entrepreneurship: Evolution of the concept, functions of an entrepreneur, concepts of entrepreneurship, stages in entrepreneurial process, different sources of finance for entrepreneur, central and state level financial institutions.

Micro, Small & Medium Enterprises (MSME): definition, characteristics, objectives, scope, role of MSME in economic development, advantages of MSME, Introduction to different schemes: TECKSOK, KIADB, KSSIDC, DIC, Single Window Agency: SISI, NSIC, SIDBI, KSFC.

Business Planning Process: Business planning process, marketing plan, financial plan, project report and feasibility study, guidelines for preparation of model project report for starting a new venture. Introduction to international entrepreneurship opportunities, entry into international business, exporting, direct foreign investment, venture capital.

Course Outcomes: After studying this course, students will be able to:

1. Prepare a project plan based on requirements and prepare schedule of a project by understanding the activities and their sequence.
2. Understand labour output, equipment efficiency to allocate resources required for an activity / project to achieve desired quality and safety.
3. Analyze the economics of alternatives and evaluate benefits and profits of a construction activity based on monetary value and time value.
4. Establish as an ethical entrepreneur and establish an enterprise utilizing the provisions offered by the federal agencies.

Question paper pattern:

- The question paper will have ten full questions carrying equal marks.
- Each full question will be for 20 marks.
- There will be two full questions (with a maximum of four sub- questions) from each module.
- Each full question will have sub- question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module.

Textbooks:

1. P C Tripathi and P N Reddy, "Principles of Management", Tata McGraw-Hill Education
2. Chitkara, K.K, "Construction Project Management: Planning Scheduling and Control", Tata McGraw-Hill Publishing Company, New Delhi.
3. Poornima M. Charantimath , "Entrepreneurship Development and Small Business Enterprise", Dorling Kindersley (India) Pvt. Ltd., Licensees of Pearson Education
4. Dr. U.K. Shrivastava "Construction Planning and Management", Galgotia publications Pvt. Ltd. New Delhi.
5. Bureau of Indian standards – IS 7272 (Part-1)- 1974 : Recommendations for labour output constant for building works:

Reference Books:

1. Robert L Peurifoy, Clifford J. Schexnayder, Aviad Shapira, Robert Schmitt, "Construction Planning, Equipment, and Methods (Civil Engineering), McGraw-Hill Education
2. Harold Koontz, Heinz Weihrich, "Essentials of Management: An International, Innovation, and Leadership perspective", T.M.H. Edition, New Delhi
3. Frank Harris, Ronald McCaffer with Francis Edum-Fotwe, " Modern Construction Management", Wiley-Blackwell
4. Mike Martin, Roland Schinzinger, "Ethics in Engineering", McGraw-Hill Education
5. Chris Hendrickson and Tung Au, "Project Management for Construction - Fundamentals Concepts for Owners, Engineers, Architects and Builders", Prentice Hall, Pittsburgh
6. James L. Riggs, David D. Bedworth , Sabah U. Randhawa " Engineering Economics" 4

III/IV Semester

Constitution of India and Professional Ethics (CIP)													
Course Code	21CIP37/47	CIE Marks	50										
Teaching Hours/Week (L:T:P: S)	L:0,T:2,P:0 = 02 Hours	SEE Marks	50										
Total Hours of Pedagogy	02 Hours/Week	Total Marks	100										
Credits	01	Exam Hours	01 Hours										
<p>Course objectives: This course will enable the students</p> <ol style="list-style-type: none"> To know about the basic structure of Indian Constitution. To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution. To know about our Union Government, political structure & codes, procedures. To know the State Executive & Elections system of India. To learn the Amendments and Emergency Provisions, other important provisions given by the constitution. 													
<p>Teaching-Learning Process These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching -Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools.</p> <p>(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion.</p> <p>Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills.</p>													
Module - 1													
<p>Introduction to Indian Constitution: The Necessity of the Constitution, The Societies before and after the Constitution adoption. Introduction to the Indian constitution, The Making of the Constitution, The Role of the Constituent Assembly. The Preamble of Indian Constitution & Key concepts of the Preamble. Salient features of India Constitution.</p>													
Module - 2													
<p>FR's, FD's and DPSP's: Fundamental Rights and its Restriction and limitations in different Complex Situations. Directive Principles of State Policy (DPSP) and its present relevance in our society with examples. Fundamental Duties and its Scope and significance in Nation building.</p>													
Module - 3													
<p>Union Executive : Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet, Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Supreme Court of India, Judicial Reviews and Judicial Activism.</p>													
Module - 4													
<p>State Executive & Elections, Amendments and Emergency Provisions: State Executive, Election Commission, Elections & Electoral Process. Amendment to Constitution (How and Why) and Important Constitutional Amendments till today. Emergency Provisions.</p>													
Module-5													
<p>Professional Ethics: Ethics & Values. Types of Ethics. Scope & Aims of Professional & Engineering Ethics. Positive and Negative Faces of Engineering Ethics. Clash of Ethics, Conflicts of Interest. The impediments to Responsibility. Trust & Reliability in Engineering, IPRs (Intellectual Property Rights), Risks, Safety and liability in Engineering.</p>													
<p>Course outcome (Course Skill Set) : At the end of the course the student will be able to :</p> <table border="1"> <tbody> <tr> <td>C01</td> <td>Analyse the basic structure of Indian Constitution.</td> </tr> <tr> <td>C02</td> <td>Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.</td> </tr> <tr> <td>C03</td> <td>know about our Union Government, political structure & codes, procedures.</td> </tr> <tr> <td>C04</td> <td>Understand our State Executive & Elections system of India.</td> </tr> <tr> <td>C05</td> <td>Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.</td> </tr> </tbody> </table>				C01	Analyse the basic structure of Indian Constitution.	C02	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.	C03	know about our Union Government, political structure & codes, procedures.	C04	Understand our State Executive & Elections system of India.	C05	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.
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Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour)**

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks (duration 01 hours)**

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be scaled down to 50 marks

Total CIE : IA 20*3=60, Assignment 10+10=20, Quiz 20 = 100 /2 = 50

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject **(duration 02 hours)**

1. The question paper will have 50 questions. Each question is set for 01 mark.
2. Semester End Exam (SEE) Pattern will be in MCQ Model (Multiple Choice Questions) for 50 marks (60 minutes duration).

Suggested Learning Resources:**Textbook:**

1. **“Constitution of India” (for Competitive Exams)** - Published by Naidhruva Edutech Learning Solutions, Bengaluru. – 2022.
2. **“Engineering Ethics”**, M.Govindarajan, S.Natarajan, V.S.Senthilkumar, Prentice –Hall, 2004.

Reference Books:

1. **“Samvidhana Odu” - for Students & Youths by Justice HN Nagamohan Dhas, Sahayana, kerekon.**
2. **“Constitution of India, Professional Ethics and Human Rights”** by Shubham Singles, Charles E. Haries, and et al: published by Cengage Learning India, Latest Edition – 2019.
3. **“Introduction to the Constitution of India”, (Students Edition.) by Durga Das Basu (DD Basu):** Prentice –Hall, 2008.
4. **“The Constitution of India”** by Merunandan K B: published by Merugu Publication, Second Edition, Bengaluru.

HUMAN RESOURCE MANAGEMENT			
Course Code	22MBA21	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	4:0:0	SEE Marks	50
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	03
<p>Course Learning objectives: The student will be able to</p> <ul style="list-style-type: none"> • Recite the theories and various functions of Human Resources Management • Describe and explain in her/his own words, the relevance and importance of Human Resources Management at workplace • Apply and solve the workplace problems through Human Resources Management intervention • Compare and contrast different approaches of HRM for solving the complex issues and problems at the workplace • Design and develop an original framework and model in dealing with the problems in the organization. 			
Module-1 (7 Hours)			
<p>Introduction HRM: Introduction, meaning, nature, scope of HRM, Importance and Evolution of the concept of HRM, Major functions of HRM, Principles of HRM. Human Resource Management and Personnel Management, Models of Human Resource Management, HRM in India, The Factors Influencing Human Resource Management, The HR Competencies, Human Resource Management and Firm Performance.</p>			
Module-2 (9 Hours)			
<p>HR Planning: Importance of HR Planning, Manpower Planning to HR Planning, Factors Affecting HR Planning, Benefits of HR Planning, HRP Process, Tools for Demand Forecasting, Attributes of an Effective HR Planning, Barriers to HR Planning, The Challenges for HR, Process of Job Analysis, Job Description and Job Evaluation.</p> <p>Recruitment and Selection: Importance of Recruitment, Recruitment Policies, Factors Influencing Recruitment, Recruitment Process, Sources, Evaluation of Recruitment Process, Recruitment Strategy, Future Trends in Recruitment; Selection Process; Selection Tests; Factors Influencing Selections.</p>			
Module-3 (9 Hours)			
<p>Performance Management and Appraisal: Objectives of Performance Management, Performance Management and Performance Appraisal, Common Problems with Performance Appraisals, Performance Management Process, Types of Performance Rating Systems, Future of Performance Management.</p> <p>Compensation and Benefits: Introduction, Definitions, Total Compensation, Total Rewards System, Forms of Pay, External and Internal Factors, Establishing Pay Rates, Employee Benefits.</p> <p>Industrial Relations: Decent Workplace, International Labour Organisation, Industrial Relations, The Objectives of Industrial Relations, Approaches of Industrial Relations Systems, The Actors in Industrial Relations, Indian Context, Industrial Relations and Human Resource Management.</p>			
Module-4 (9 Hours)			

Human Resource Management in Small and Medium Enterprises: Introduction to SMEs, The Difference in Adoption of Human Resource Management, SMEs and Large Firms, Indian Experience, Impact of Weak Adoption of Human Resource Management in SMEs,

Human Resource Management in the Service Sector: Introduction, The Emergence of the Services Sector, Implications for Human Resource, Management Function, Differences Between Services Sector and the Manufacturing Sector, Difference in Human Resource Management in Services and Manufacturing Sectors, Human Resource Management and Service Quality Correlation, Trade Unions in Services Sector, Models of Union Strategies.

Module-5 (9 Hours)

Human Resource Management and Innovations: Factors Affecting the Innovation Process in organisations, Current Trends in Human Resource Management, Innovative Human Resource Management Practices in India, Sustainable and innovative Human Resource Management.

Module-6 (7 Hours)

Future trends in Human Resource Management: Hybrid work model, Employee skill development, Internal mobility, Diversity and inclusion in workforce, People analytics, Employee well-being, Multi-generational workforces and All-in-One HR tools.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE.

CIE Marks shall be based on:

- a) Tests (for 25Marks) and
- b) Assignments, presentations, Quiz, Simulation, Experimentation, Mini project, oral examination, field work and class participation etc., (for 25 Marks) conducted in the respective course. Course instructors are given autonomy in choosing a few of the above based on the subject relevance and should maintain necessary supporting documents for same.

Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.
- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.