Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

BBA Hons.-V SEMESTER (20-23)

BBAI501 HUMAN VALUES AND PROFESSIONAL ETHICS

SUBJECT CODE	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
		THEORY			PRACTICAL		L	T	P	CREDITS
		END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BBAI501	Human Values and Professional Ethics	60	20	20	-	-	4	-	-	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

The objective of the course is to disseminate the theory and practice of moral code of conduct and familiarize the students with the concepts of "right" and "good" in individual, social and professional context

Examination Scheme

The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of 5 questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

Course Outcomes

1. Help the learners to determine what action or life is best to do or live.
2. Right conduct and good life.
3. To equip students with understanding of the ethical philosophies, principles, models that directly and indirectly affect business.

COURSE CONTENT

Unit I: Human Value

1. Definition, Need for Human Values, Sources of Values

2. Essence of Values
3. Classification of Values (Temporal Values, Universal Values, Instrumental Values, Terminal Values)
4. Values Across Culture

Unit II: Morality

1. Morality its meaning and definition
2. Values Vs Ethics Vs Morality
3. Concept of Impression Management
4. Impression Management Strategies (Intimidation, Ingratiation, Self-promotion, Supplication, Exemplification)

Unit III: Leadership in Indian Ethical Perspective.

1. Leadership, Pre-requisites of Leadership
2. Approaches to Leadership, Leadership Styles
3. Ethical Leadership
4. Values in Leadership

Unit IV: Business Ethics

1. Business Ethics its meaning and definition
2. Relevance of Ethics in Business organizations.
3. Theories of Ethics (Teleological, Deontological)
4. Code of Ethics

Unit V: Globalization and Ethics

1. Globalization and Business Changes
2. Values for Global Managers
3. Corporate Social Responsibility
4. Benefits of Managing Ethics in Work Place.

Suggested Readings

1. Kaur, T. (2004). ***Values and Ethics in Management.*** Galgotia Publishing Company: New Delhi
2. Kaushal, S.L. (2006). ***Business Ethics. Concepts, Crisis and Solutions.*** Deep & Deep Publications Pvt. Ltd.: New Delhi
3. Beteille, Andre (1991). ***Society and Politics in India***. AthlonePress: New Jersey.
4. Chakraborty, S. K. (1999). ***Values and Ethics for Organizations***. Oxford University Press
5. Fernando, A.C. (2009). ***Business Ethics - An Indian Perspective*** .India: Pearson Education: India

6. Fleddermann, C. D. (2012). ***Engineering Ethics***. New Jersey: Pearson Education / Prentice Hall.
7. Boatright, J.R. (2012). ***Ethics and the Conduct of Business.*** Pearson. Education: New Delhi.
8. Crane, A.and Matten, D. (2015). ***Business Ethics***. Oxford University Press Inc:New York.
9. Murthy, C.S.V. (2016). Business ***Ethics – Text and Cases***. Himalaya Publishing House Pvt. Ltd:Mumbai
10. Naagrajan, R.R (2016). ***Professional Ethics and Human Values***. New Age International Publications: New Delhi.

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SEMESTER VII

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE701	DCS	DESIGN OF HYDRAULIC STRUCTURES	2	1	0	3	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

The students (A) will be able to design different Hydraulic Structures (B) according to condition and nature of work (C) efficiently & economically (D)

Course Outcomes:

1. Explain different hydraulic structures and their utilization according to the work
2. Design different hydraulic structures like Gravity Dam, Earth Dam, etc.
3. Identify different theories which are required according to the field conditions
4. Design Spillways and Energy dissipators
5. Design Canal irrigation structures & Hydro power plants

Syllabus:

UNIT I

Reservoir Planning: Investigations, Zones of storage; Mass Inflow and Mass Demand curves; Life of Reservoir.

Earth Dams: Types, causes of failure and design criteria; Soil suitability for earth dam construction, construction methods, foundation requirements; Typical earth dam sections, estimation of seepage through and below the dam, seepage control; Stability analysis of slopes by slip circle method; Pore pressures, sudden draw down, steady seepage and construction pore pressure condition.

UNIT II

Gravity dams:

Design criteria, forces acting on gravity dam; Elementary profile, low and high height gravity dams; Stability analysis, practical profile, evaluation of profile by method of zoning; Foundation treatment, construction joints, galleries in gravity dams.

UNIT III

Spillways: Ogee spillway and its design, details of syphon, shaft, chute and side channel spillways, emergency spillways; Spillway crest gates -vertical lift and radial gates, their design principles; Design of outlets and rating curves.

Energy Dissipators: Principles of energy dissipation; Energy dissipators based on tail water rating curve and jump height curves.

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UNIT IV

Structures on Pervious Formations: Bligh's creep theory, limitations, Khosla's theory of independent variable, Khosla's corrections; Design of Weir and Barrages: waterways and crest levels, design of impervious floors and protection works.

UNIT V

Canal Structures and Hydropower Plants: Design of canal falls, regulators, channel transitions, cross drainage works; Introduction of Hydropower development, general features of hydro-electric schemes, selection of turbines.

Text Books:

1. Irrigation & Water Power Engineering by B.C. Punmia & Pandey B.B.Lal, Laxmi Publications, Sixteenth edition (2019).
2. Water Resources Engineering Irrigation Engineering & Hydraulic Structures - Vol.2 by S.K.Garg, Khanna Publications (1976).

Reference Books:

1. Engineering for Dams (Volumes I, II & III) by Creager, Justin & Hinds, New York Wiley Publications (1961).
2. Hydroelectric Hand Book by Creager, John Wiley & Sons, Inc; Second edition (1952).
3. Hydraulic Structures by Varshney, Nem Chand & B Publications (2007).
4. Water Power Engineering by Dandekar, Vikas Publishing House; Second edition (2013).

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OURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE702	DCS	ESTIMATION AND COSTING	2	1	2	4	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; ***Teacher Assessment*** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

1. Demonstrate the knowledge of basic science, mathematics, material, engineering economy & techniques to evaluate the civil engineering construction project
2. To study estimates, rate analysis and valuation as per the detailing and specification of work.
3. To know about contracts and tenders in civil engineering construction project

Course Outcomes:

1. Prepare quantity estimates for buildings, roads, rails and canal works
2. Undertake rate analysis of Civil Engineering works
3. Calculate the quantity of materials required for Civil Engineering works as per specifications
4. Evaluate contracts and tenders in construction practices
5. Understand cost estimates and valuation.

Syllabus:

UNIT I

Introduction: Purpose and importance of estimates; Principles of estimating; Types of estimate, plinth area rate, cubical content rate, preliminary, original, revised and supplementary estimates, measurement sheet and abstract sheet.

UNIT II

Analysis of rates: Various factors involved in the rate of an item, material and labour requirement for various trades; Preparation for rates of important items of work brick work, plain cement concrete and plastering; Bill of quantities (B.O.Q.); Schedule of rates. (S.O.R.)

UNIT III

Detailed Estimates: Preparing detailed estimates of various types of buildings using long wall-short wall method and centre line method; Calculation for R.C.C. works for structural members like beam, column and slab; Bar bending schedule (B.B.S.)

UNIT IV

Specifications: Necessity of specification, types of specifications.

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Contracts: Essentials of contracts, types of engineering contracts – advantages and disadvantages

Tenders: Tender forms, tender documents and notices – time limits, necessity

UNIT V

Cost of Works: Factors affecting cost of work, overhead charges; Contingencies and work charge establishment; Preparation of DPR.

Valuation: Purposes, depreciation, sinking fund, scrap value, year's purchase, gross and net income, dual rate interest; Methods of valuation; Rent fixation of buildings.

Text Books:

1. Estimation and Quantity Surveying Book, B N Dutta, UBS Publishers Distributors Pvt. Ltd; 28th Revised Edition (2016)
2. A Text Book of Estimating and Costing for Civil Engineering, G.S. Birdie, Dhanpat Rai Publishing Company Private Limited-New Delhi; Sixth edition (2014)
3. Estimating Costing and Valuation, S. C. Rangwala, Charotar Books Dist.-Anand (2009)

Reference Books:

1. Civil Engineering Estimating, Costing & Valuation, V. N. Vazirani, S. P. Chandola, Khanna Publishers 2010
2. Estimating, costing, specification & valuation in civil engineering, M Chakraborti, twenty ninth revised & enlarged edition (2006)

List of Practical

1. Preparation of detailed estimate for single storey building.
2. Preparation of BBS for structural members.
3. Rate analysis for at least 3 items of work for construction.
4. Preparation of DPR of Civil Engineering Project.
5. Rent fixation of building.

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COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE703	DCS	DESIGN OF REINFORCED CONCRETE STRUCTURES-II	3	1	2	5	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; ***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective:

1. To understand and apply the codal recommendations for design of various types of RCC structures.
2. To analyse and design various reinforced concrete structures.

Course Outcomes:

1. Students will be able to implement codal provision in various designs.
2. Students will be able to analysis and design various types of tanks.
3. Students will be able to analysis and design various soil retaining structures.
4. Students will be able to understand behaviour of structure under Earthquake loading.

Syllabus:

UNIT I

Water Tanks Resting on ground: Design of tanks resting on ground and underground tanks; Design of Square, rectangular, circular tanks

UNIT II

Overhead water tanks: Design of square, rectangular, circular & intze tanks.

UNIT III

Design of Multistory Buildings: Design concepts of sway and non sway buildings; Introduction to earthquake resistant building as per Indian Standard codes; Design of shear walls and bracing elements.

UNIT IV

Earth Retaining Structures: Design and analysis of cantilever and counter fort type retaining walls.

UNIT V

Bridges: Introduction to T-beam and slab bridges for highway loading (IRC loads).
Pre-stress: Pre-stressing concepts, materials used for prestressing, systems of pre-stressing and losses

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Text Books:

1. Reinforced concrete, Vol.1 & 2, H. J. Shah, Charotar publishing house Pvt. Ltd. 2011.
2. Plain and Reinforced Concrete, B.C. Punamia, Laxmi Publications; Fifth edition , 2015.
3. Advanced Reinforced Concrete Design, P.C. Varghese, Prentice Hall of India, New Delhi, 2010

Reference Books:

1. Advanced Reinforced Concrete Design by S.S.Bhavikatti New Age International Publishers, 2016
2. Design of Reinforced Concrete Structures - N. Subramanian, Oxford, 2013

List of Practical

Detailed drawing of various structural systems as per the syllabus

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COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 704[1]	DCS	ENVIRONMENTAL ENGINEERING-II	2	1	2	4	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

The aim of this course is to teach students about the characteristics of waste water, selection of effective treatment with suitable disposal technique and environmental pollution with their causes and preventing measures

Course Outcomes:

1. To understand the importance of wastewater treatment in the global public health context
2. To perceive the treatment plant design and process selection
3. To determine the treatment efficiency of treatment units

Syllabus:

UNIT I

Quality of Waste Water : Characterisation and composition physical, chemical, microbiological; Primary parameters of pollution BOD, COD, ThOD, total solids, total organic carbon, nitrogen and its forms, pH, chlorides, colour, micro organisms etc; Indian Standards of disposal into natural watercourses and on land; Relative stability, population equivalent

Design of Sewerage System : Types of sewerage systems, sanitary sewers, storm sewers, combined and partially combined sewers; Quantity of sewage, design period, self cleaning velocity, maximum velocity; Design of circular sewer for full and partial flow; Laying of the sewer pipe, sewer appurtenances, ventilation of sewer

UNIT II

Waste Water Treatment: Introduction to waste water treatment, necessity of treatment; Layout plan of municipal waste water treatment plant; Primary treatment processes: screens, grit chambers, grease and oil removal, sedimentation tank, sedimentation with coagulation; Secondary treatment processes: Trickling filters, principles of working, design criteria.

UNIT III

Process theory and design consideration of various units; Activated sludge process; Oxidation ditch; Oxidation ponds: Types, advantage and disadvantage; Aerated lagoons; Anaerobic lagoons; Septic tank; Imhoff tank; Sludge digestion tank(SDT); Sludge thickening and disposal.

UNIT IV

Waste water Disposal: Disposal by dilution; Standards of dilution; Types of natural water bodies for sewage discharge; Lakes, Ocean, Stream etc; Comparison between ocean and stream

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dilution; Self purification of natural stream; Zones of pollution in stream, oxygen sag analysis, streeter- phelps equation; Disposal by land treatment; Comparison between disposal methods by land and dilution.

UNIT V

Air pollution and solid waste management: Air quality, primary and secondary pollutant; Effect of air pollution on human health and plants; Control of particulate and gaseous pollutant with mechanical devices; Cyclone separator, spray tower, wet- cyclone scrubber, and absorption units etc;

Solid Waste Management: Introduction; Waste collection, storage and transport; Waste disposal, waste processing techniques; Solid waste utilization

Text Books:

1. Environmental engineering volume -II by S.K.Garg, Khanna publisher (39th edition)
2. Water Supply Engineering by B.C. Punmia - Laxmi Publications (P) Ltd. New Delhi (2nd edition, 2019)
3. Environmental engineering -II by B.C.Punamia, Laxmi Publications (P) Ltd. New Delhi (2019)

Reference Books:

1. Environmental engineering volume 2 by Dr.P.M.Modi (15th edition)
2. Metcalf and eddy,(revised by G.Tchobanoglous) Wastewater Engineering: Treatment, disposal reuse, Tata-Mc Graw Hill, New Delhi (2017)
3. Environmental pollution engineering by C.S. Rao, wiley eastern

List of Practical

1. To study the Effluent standard for waste water.
2. To study sampling procedure for water and wastewater analysis.
3. To determine total solids of the given waste water sample.
4. To determine dissolved solids of a given waste water sample.
5. To determine the dissolved oxygen in a given sample of waste water.
6. To determine the biochemical oxygen demand of the given sample of sewage.
7. To determine the chemical oxygen demand of a given sample of sewage.
8. To study the sludge volume Index (SVI) of a given sample.
9. To study High volume air sampler, Respirable dust sampler.
10. To study determination of Total suspended particulate Matter & Respirable particulate matter with the help of RDS in the ambient air.

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COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 704[2]	DCS	URBAN TRANSPORTATION	2	1	2	4	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

The theory should be taught and practical should be carried out in such a manner that students are able to acquire required learning out comes

1. Justify the need for urban transportation system planning
2. Plan the process of trip generation and distribution
3. Understand the four steps of urban transportation demand forecasting
4. Communicate transportation planning ideas effectively

Course Outcomes:

1. To understand Principles and techniques of Traffic forecasting
2. To understand concept and purpose of trip generation
3. To analyze different distribution models and assignment of model.
4. Understand economic analysis in urban transportation.

Syllabus:

UNIT I

Introduction to transportation planning: Planning methods of transport system planning, stages of planning; Transportation study area, collection of travel data, external cordon and screen-line, survey, zoning types of surveys, concept of travel demand and supply

Traffic forecasting: Principles and techniques; Demand, price and capacity relationships, price elasticity; Forecasting for long term demand, variables, determination of the design hourly volume; Four step travel demand, forecasting models.

UNIT II

Trip Generation Models: Introduction and definition; Factors governing trip generation and attraction rates, multiple linear regression analysis, aggregated and disaggregated analysis, category analysis.

UNIT III

Distribution Models: Methods of trip distribution; Growth factor models; Gravity model; Tanner model; Intervening opportunity model; Competing opportunity model.

Assignment Models: General principle; Assignment techniques; All or nothing Assignment; Multiple route assignment; Capacity restraint assignment; Diversion curves.

UNIT IV

Economic analysis: Need, costs and benefits; Time horizon in Economic assignment; Basic

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principles, methods of Economic evaluation; Traffic and the environment effects of traffic on the environment.

UNIT V

Probability and Statistics for Traffic Engineering Design: Random variable and statistical measures; Basic concept of probability; Probability laws; Binomial, Poisson, Normal and Exponential distributions.

Sampling theory and regression analysis: General consideration of the accuracy, cost and time requirements of data collection; Sampling theory and principles for determining sample size and accuracy relationship; Principles of the population mean and standard deviation, regression analysis examples.

Text Books:

1. C. S. Papacostas and P. D. Prevedouros, Transportation Engineering and Planning, Prentice Hall of India Pvt. Ltd., 2001.
2. Traffic Engineering and Transport Planning, Kadiyali L.R., Khanna Publication,2015

Reference Books:

1. J. de D. Ortuzar and L.G. Willumsen, Modelling Transport, John Wiley and Sons, 2001.
2. C.J. Khisty and B.K. Lall, Transportation Engineering – An Introduction, Prentice Hall of India Pvt. Ltd., 2002.

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							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 704[3]	DCS	STRUCTURAL DYNAMICS	2	1	2	4	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective:

1. Learning methods to analyze structures subjected to any kind of dynamic excitation and computing quantities like displacements, forces, stresses, etc.
2. Understanding the analytical methods and procedures in a way that emphasize physical insight.
3. Ability to apply the structural dynamics theory to real-world problems like seismic analysis and design of structures.

Course Outcomes:

At the conclusion of this course, the students will have an understanding of:

1. fundamental theory of dynamic equation of motion
2. fundamental analysis methods for dynamic systems
3. dynamic properties and behavior of civil structures
4. modeling approach of dynamic response in civil engineering applications

Syllabus:

UNIT I

Need For Structural Dynamics: Typical Dynamics Loadings; Idealization Components of Dynamic Model; Significance of Spring Mass, dash pot; Un damped free vibrations of single degree freedom system (SDFS); Damped free vibrations of SDFS; Critical Damping; Under damped and Over damped Systems; Logarithmic Decrement.

UNIT II

Response of SDFS to Harmonic Loading; Response of Un-damped and Damped Systems; Dynamic Magnification Factor; Resonance Response; Evaluation of Damping in SDFS

UNIT III

Response of SDFS to Periodic and Impulsive Loading; Fourier Series representation of loading response to triangular and rectangular pulses; Response of SDFS to general dynamic loading; Duhamel Integration; Closed form solution for typical loadings

UNIT IV

Equation of Motion for Multi Degree Freedom Systems (MDFS); Spring Mass Dash pot Systems; Un-damped free vibrations for MDFS; Vector Iteration Method; Forced Vibration analysis of MDFS; Modal Analysis; Damping Matrix; Superposition of Modes; Continuous systems free vibrations of beams with various end conditions

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UNIT V

Earthquake analysis ground motion: Characteristic equations of motion: Modal Participation factor: Spectral Velocity: Earthquake design, general principles of earthquake design: Base shear method: Response Spectrum Method: Ductility requirements

Text Books:

1. Dynamics of Structures, Anil K Chopra, Pearson Education India: 3 edition
2. Structural Dynamics: Vibrations and Systems, Madhujit Mukhopadhyay, ANE Books, 2008
3. Structural Dynamics: Theory And Computation, Mario Paz, CBS: 3 edition,2012
4. Relevant IS Codes

Reference Books:

1. Dynamics of Structures, Hurtym Walter, Prentice Hall of India Pvt. Ltd.2013
2. Introduction to Structural Dynamics, Biggs John M, McGraw Hill Book Co., 2015

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							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 705[1]	DCS	SYSTEM APPLICATION IN CIVIL ENGINEERING	2	1	0	3	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

Student will understand fundamentals of optimization, focusing on model formulation for civil engineering problems.

Course Outcomes:

1. To understand the use of systems approach in Civil Engineering.
2. To analyze and understand different optimization process.
3. To understand queuing theory and queuing models.
4. To formulate Linear optimization models for Civil engineering applications.

Syllabus:

UNIT I

Introduction to System approach, Operations Research and Optimization Techniques, Use of systems approach in Civil Engineering, Methods, Introduction to Linear and Non linear programming methods (with reference to objective function, constraints), Local and Global optima, Unimodal function, Convex and Concave function.

UNIT II

Single variable unconstrained optimization: Sequential Search Techniques-Dichotomous, Fibonacci, Golden section Multivariable optimization without constraints-The gradient vector and Hessian Matrix, Gradient techniques, steepest ascent/decent technique, Newton's Method Multivariable optimization with equality constraints - Lagrange Multiplier Technique.

UNIT III

Sequencing– n jobs through 2, 3 and M machines
Queuing Theory: Elements of Queuing system and its operating characteristics; Waiting time and ideal time costs; Kendall's notation; Classification of Queuing models; Single channel queuing theory; Monte Carlo Simulation.

UNIT IV

Multi stage decision processes; Principle of optimality; Recursive equation; Applications of D.P.

UNIT V

Formulation of Linear optimization models for Civil engineering applications; Simplex method; Method of Big M; Two phase method; Duality

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Text Books:

1. Engineering Optimization: Methods and Application-- A. Ravindran, K. M. Ragsdell— Wiley India (2nd Edition 2006)
2. Engineering Optimization by S.S.Rao (4th Edition 2009)
3. Operations Research by Hamdy A. Taha (9th Edition 2011)
4. Quantitative Techniques in Management by N.D.Vohra, Mc Graw Hill (4th Edition 2009)
5. Operations Research by Premkumar Gupta and D.S.Hira, S. Chand Publications (7th Edition 2014).

Reference Books:

1. Topics in Management Science by Robert E. Markland.(Wiley Publication)
2. An Approach to Teaching Civil Engineering System by Paul J. Ossenbruggen.
3. A System Approach to Civil Engineering Planning & Design by Thomas K. Jewell (Harper Row Publishers)

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COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 705[2]	DCS	CONSTRUCTION PLANNING AND MANAGEMENT	2	1	0	3	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

Demonstrate the knowledge of basic science, mathematics, material, engineering economy & techniques to execute the civil engineering construction project. Students also understand the importance of professional ethics, moral values and norms of Civil Engineering practices.

Course Outcomes:

1. Planning & allocation of various construction resources during construction of Building, Roads, etc.
2. Understand the importance & uses of tenders & contracts in civil engineering construction.
3. Understand the importance of specifications & able to prepare public accounts.
4. Understand the importance of various construction equipment & there uses.
5. Understand the Quality and Safety measures at Site in civil engineering construction.
6. Understand & Evaluate Engineering economy.

Syllabus:

UNIT I

Project Management and Management Techniques: Elements and Objective of project management; Methods of project management; Fundamentals of network diagram; Programme evaluation review technique (PERT); Critical path method (CPM); Crashing, updating and resource allocation.

UNIT II

Tenders and Contracts: Different types of tenders and contracts ; Notice inviting tenders, Departmental method of construction; Contract document, conditions of contract, rate list, security deposit and earnest money; Arbitration; Administrative approval, technical sanction.

UNIT III

Specifications and Public Works Accounts: Types and importance of specifications, specifications for various trades of engineering works; Various forms used in construction works, measurement book, cash book, materials at site account, imprest account, tools and plants, various types of running bills; Secured advance, final bill.

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UNIT IV

Construction Equipments: Factors affecting selection of construction equipments; Investment and output of various equipments, operating cost; Brief study of equipments required for various jobs such as earth work, dredging, conveyance, concreting, hoisting, pile driving, compaction, grouting.

UNIT V

Site Organization and Engineering Economy: Accommodation of site staff, contractor's staff; Various organizational charts and manuals, personnel in construction; Labour laws and welfare facilities; Safety engineering.

Concept of time value of money, cash flow diagrams, nominal and effective interest rate, capitalized cost; Depreciation, Salvage value, methods for calculating depreciation, depletion.

Text Books:

1. Construction Management & Machinery by B.L. Gupta, Standard Publishers Distributors (2010)
2. Construction Equipment & Job Planning by S.V. Deodhar, Khanna publishers (2010)
3. Project Planning & control with PERT & CPM by DR. B.C. Punmia & K.K. Khandelwal, Laxmi Publications Private Limited; Fourth edition (1 September 2016)

Reference Books:

1. Construction Planning, Equipment and Methods, Robert Peurifoy, McGraw Hill Education; 7 edition (22 May 2010)
2. Pert And Cpm Principles And Applications, L S Srinath, Affiliated East-West Press (Pvt.) Ltd. (2001)
3. PERT & CPM by P.N. Modi, Standard Book House Since 1960 (2017)
4. Construction, Management & Accounts by Harpal Singh, McGraw Hill Education India Pvt Ltd (22 January 2001)

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COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BTCE 705[3]	DCS	ADVANCED BUILDING DESIGN	2	1	0	3	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objective

1. Be able to perform analysis and design of reinforced concrete members and connections.
2. Be able to identify and interpret the appropriate relevant industry design codes.

Course Outcomes:

1. To understand the general mechanical behavior of reinforced concrete portal frames.
2. To analyze and design reinforced concrete Multistoried Building.
3. To analyze and design reinforced concrete shells, domes and folded plates

Syllabus:

UNIT I

Design of R.C.C: Portal frame, Knee braced portals in steel for factory; Analysis of building frames for lateral loads by portal method, cantilever method, their assumptions and limitations

UNIT II

Multistoried Building: Introduction, example of frames, structural layout, estimation of loads, load combinations; Analysis and design of R.C.C. multistoried building frames; Design of multistoried buildings in steel

UNIT III

Advance R.C.C. Structures: Design of R.C.C. circular cylindrical shells; R.C.C. Folded Plates; Design of Domes, introduction, Stresses in domes: Formulae for forces in spherical domes, design of a spherical dome

UNIT IV

Gantry Girders: Design of Gantry Girders and Gantry Columns.

UNIT V

Formwork: Introduction, requirements of good formwork; Materials for forms, choice of formwork; Loads on formwork, permissible stresses for timber; Design of formwork, shuttering for columns, shuttering for slabs and beams; Erection of formwork; Action prior to and during concreting; Striking of forms.

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SEMESTER VII

Text Books:

1. Basic Structural Analysis, C S Reddy, McGraw Hill Education; 3 edition (1 July 2017)
2. Advanced Reinforced Concrete Design, Raju n.k., CBS; 3rd Revised edition (2016)

Reference Books:

1. Thin Shell Concrete Structures, David P. Billington, McGraw-Hill College; Subsequent edition
2. Design and Analysis of Steel Structures, Prof. V.N. Vazirani and Dr. M.M. Ratwani, Khanna Publishers;

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