JK LAKSHMIPAT UNIVERSITY
JAIPUR

AIM: The course file is prepared to help students in designing & planning of outcome based teaching-learning in a given course. File contents lecture schedule, learning objectives, course outcome, reading material & references, projects to be carried-out & industrial visits to be organised and evaluation scheme.

Course Code: CE 701	Course Name: Construction Project Management
Name of the Faculty: Dr. Kedar Sharma	E-mail : kedarsharma@jklu.edu.in

Course Objectives:

1. To prepare the students for a successful career as a Project Manager in construction field.
2. To develop the ability among students to understand the importance of Project Management, Time scheduling and resources allocation
3. To aware students about the contract management of Civil Engineering Projects
4. To aware students about the safety aspect in the project management

Course outcomes

(B) After successful completion, the students will be able to answer following questions:

1. Importance of the construction project management.

2. Be able to select the proper network and schedule for a construction project.

3. Be able to understand the various methods of tendering in construction projects

4. Be able to understand the various risk and safety aspects associated with construction projects

I.1 LESSON PLANNING (Theory)		
Sr. No.	Unit/ Chapter/ Topic	Lecture [hr]
	Introduction to the subject	1
	FINANCIAL EVALUATION OF PROJECTS AND PROJECT PLANNING:	
1	Capital Investment proposals, criterions to judge the worthwhileness of capital projects viz. net present Value, benefit cost ratio, internal rate of return,	2
2	Risk cost management, main causes of project Failure.	1
3	Categories of construction projects, objectives, project development process,	2
4	Functions of project Management, Project management organization and staffing, Stages and steps involved in project Planning,	2
5	Plan development process, objectives of construction project management.	1
	PROJECT SCHEDULING	
6	Importance of project scheduling, project work breakdown process determining activities involved,	1
7	work breakdown structure, assessing activity duration, duration Estimate procedure,	1
8	Project work scheduling,	2
9	Project management techniques – CPM and PERT networks analysis,	3
10	Concept of precedence network analysis.	1
	PROJECT COST AND TIME CONTROL:	
11	Monitoring the time progress and cost controlling measures in a construction project,	1
12	Time cost trade-off process:	2
13	direct and indirect project costs,	1
14	Cost slope, Process of crashing of activities, determination of the optimum duration of a project,	2
15	Updating of project networks,	1
16	Resources allocation.	1
	CONTRACT MANAGEMENT:	

17	Elements of tender operation,	1
18	Types of tenders and contracts,	1
19	Contract document, Legal aspects of contracts,	2
20	Contract negotiation & award of work,	1
21	Breach of contract, determination of a contract, arbitration.	1
	SAFETY AND OTHER ASPECTS OF CONSTRUCTION MANAGEMENT:	
22	Causes and prevention of accidents at construction sites,	2
23	Safety measures to be followed in various construction works like excavation, demolition of structures, explosive handling, hot bitumen work.	2
24	Project Management Information System – Concept, frame work, benefits of computerized information system.	2
25	Environmental and social aspects of various types of construction projects.	1

I.1 LESSON PLANNING (Practical)		
Sr. No.	Unit/ Chapter/ Topic	Lecture [hr]
	Syllabus (Practical)	
1	Introduction to Project Management	1
2	Use of Software in Project Management	1
3	Introduction to PRIMVEERA	3
4	Practice of a residential Building with PRIMVEERA	2
5	Practice of a ROB Design with PRIMVEERA	1
6	Introduction to MS PROJECT	2
7	Practice of a residential Building with MS PROJECT	2

Activities Related to Skill Development and Employability

Quiz

Quizzes were taken from each unit to improve the course understanding.

J K Lakshmipat University

Department of Civil Engineering

Construction Project Management

Quiz 1

1. Draw a network diagram for following activities (Use activity on arrow notation).

Activity	Duration	Precedence
A	7	-
B	9	A
C	12	A
D	4	C
E	5	B
F	7	D
G	9	D
H	10	E
I	11	H
J	3	F
K	7	G
L	10	I,J,K

2. Find the critical path, EST, EFT, LST and LFT for Q. 2.

3. Find the critical path, EST, EFT, LST and LFT for following network.

Activity	t_o	t_m	t_p	Precedence
A	7	9	11	-
B	8	10	12	-
C	3	4	7	-
D	7	9	10	A
E	6	8	11	B
F	12	13	16	C
G	19	20	27	D
H	15	16	20	E

I	3	5	8	F
J	6	8	11	G
K	4	6	9	H,I
L	7	8	10	J,K

J K Lakshmipat University

Department of Civil Engineering

Construction Project Management
Quiz 2

1. What is time cost optimization?
2. What is the role of critical activities in time optimization?
3. What are the various steps in time cost optimization?
4. Find the minimum possible time of the project and the cost associated with this.

Activity	Precedence	Normal Time	Crash Time	Normal Cost	Crash Cost
A	-	2	1	10000	15000
B	-	8	5	15000	21000
C	A	4	3	20000	24000
D	B	1	1	7000	7000
E	B	2	1	8000	15000
F	C,D	5	3	10000	16000
G	E	6	2	12000	36000
H	F	6	5	15000	13000
I	F	6	4	15000	12000
J	G	9	7	25000	22000
K	H	4	3	19000	16000
L	I, J	5	3	18000	15000
M	K,L	5	4	17000	15000

JK LAKSHMIPAT UNIVERSITY
JAIPUR

AIM: The course file is prepared to help students in designing & planning of outcome based teaching-learning in a given course. File contents lecture schedule, learning objectives, course outcome, reading material & references, projects to be carried-out & industrial visits to be organised and evaluation scheme.

Course Code: CE 703	Course Name: Construction Equipment's Method
Name of the Faculty: Dr. Kedar Sharma	E-mail : kedarsharma@jklu.edu.in
Office location: Cabin No. 221, Engg. Block 1	Telephone: 0141-7107595

Time Table:

Course Objectives:

1. To prepare the students for a successful career as civil engineer expert in handling the construction equipments.
2. To develop the ability among students to understand the requirement and working of various construction equipments
3. To aware students about the safety and maintenance features required to construction equipments

Course outcomes (*after completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes)*

(B) After successful completion, the students will be able to answer following questions:

1. Requirement of various type of construction machinery, working principles and their efficiencies.

2. Be able to select proper machinery for specific work.

3. To develop new machinery for specific work.

I.1 LESSON PLANNING (Theory)		
Sr. No.	Unit/ Chapter/ Topic	Lecture [hr]
	Introduction to the subject	1
	UNIT I CONSTRUCTION EQUIPMENT MANAGEMENT	
1	Identification, Planning and Equipment Management in Projects	02

2	Maintenance Management	01
3	Replacement	01
4	Cost Control of Equipment	01
6	Depreciation Analysis	02
7	Safety Management	01
	UNIT II EQUIPMENT FOR EARTHWORK	
8	Fundamentals of Earth Work Operations	02
9	- Earth Moving Operations	01
10	- Types of Earth Work Equipment	02
11	- Tractors, Motor Graders,	01
12	Scrapers, Front end Waders and Earth Movers	01
	UNIT III OTHER CONSTRUCTION EQUIPMENTS	
13	Equipment for Dredging and Trenching	02
14	Tunneling, Drilling and Blasting -	01
15	Equipment for Compaction -	02
16	Erection Equipment -	01
17	Types of pumps used in Construction - Equipment for Dewatering and Grouting –.	01
18	Foundation and Pile Driving Equipment	02
19	Equipment for Demolition	01
	UNIT IV MATERIALS HANDLING EQUIPMENT	
20	Forklifts and related equipment -	01
21	Portable Material Bins –	01
22	Conveyors -	01

23	Hauling Equipment	02
	UNIT V EQUIPMENT FOR PRODUCTION OF AGGREGATE AND CONCRETING	
24	Crushers – Feeders - Screening Equipment- Handling Equipment	01
25	- Batching and Mixing Equipment -	01
26	Hauling,	01
27	Pouring and Pumping Equipment –	01
28	Transporters	01

Activities Related to Skill Development and Employability

Quiz

Quizzes were taken from each unit to improve the course understanding.

J K Lakshmipat University

Department of Civil Engineering

Construction Equipment Methods
Quiz 1

1. What is bulking of sand?
2. What is the difference between continuous and batch mixing? Generally which type of mixing is observed in our nearby area?
3. What is the effect of concrete pumping on speed of work, quality of work and cost of the project?
4. What is boom pumping and pipe pumping?
5. Can we use ready mix concrete without concrete pumping? Describe your answer in detail.

6. What are the benefits of ready mix concrete in comparison to cast in situ concrete?
7. What are the various purposes of Tunnel?

J K Lakshmipat University

Department of Civil Engineering

Construction Equipment Methods
Quiz 2

1. What are the various steps in dewatering at construction site?
2. Write the advantages and disadvantages of well system.
3. What are the precautions should be taken care during the dewatering?
4. What is positive displacement and dynamic pumps?
5. Define any four heads of a pump.
6. Give the name of various type of compactors as per type of soil.
7. What is overhead (Gantry Crane) and where it is used?

CSE701 Data Warehousing & Data Mining

Syllabus (Theory)

Overview, Motivation(for Data Mining),Data Mining-Definition & Functionalities, Data Processing, Form of Data Preprocessing, Data Cleaning: Missing Values, Noisy Data,(Binning, Clustering, Regression, Computer and Human inspection),Inconsistent Data, Data Integration and Transformation. Data Reduction:-Data Cube Aggregation, Dimensionality reduction, Data Compression, Numerosity Reduction, Clustering, Discretization and Concept hierarchy generation.

Concept Description:- Definition, Data Generalization, Analytical Characterization, Analysis of attribute relevance, Mining Class comparisions, Statistical measures in large Databases. Measuring Central Tendency, Measuring Dispersion of Data, Graph Displays of Basic Statistical class Description, Mining Association Rules in Large Databases, Association rule mining, mining Single-Dimensional Boolean Association rules from Transactional Databases– Apriori Algorithm, Mining Multilevel Association rules from Transaction Databases and Mining Multi-Dimensional Association rules from Relational Databases.

Classification and Predictions: What is Classification & Prediction, Issues regarding Classification and prediction, Decision tree, Bayesian Classification, Classification by Back propagation, Multilayer feed-forward Neural Network, Back propagation Algorithm, Classification methods Knearest neighbor classifiers, Genetic Algorithm.

Cluster Analysis: Data types in cluster analysis, Categories of clustering methods, Partitioning methods. Hierarchical Clustering- CURE and Chameleon, Density Based Methods-DBSCAN, OPTICS, Grid Based Methods- STING, CLIQUE, Model Based Method –Statistical Approach, Neural Network approach, Outlier Analysis

Data Warehousing: Overview, Definition, Delivery Process, Difference between Database System and Data Warehouse, Multi-Dimensional Data Model, Data Cubes, Stars, Snow Flakes, Fact Constellations, Concept hierarchy, Process Architecture, 3 Tier Architecture, Data Marting. Aggregation, Historical information, Query Facility, OLAP function and Tools. OLAP Servers, ROLAP, MOLAP, HOLAP, Data Mining interface, Security, Backup and Recovery, Tuning Data Warehouse, Testing Data Warehouse.

Syllabus (Practical)

1. Gain insight for running pre- defined decision trees and explore results using MS OLAP Analytics.
2. Using IBM OLAP Miner - Understand the use of data mining for evaluating the content of multidimensional cubes.
3. Using Teradata Warehouse Miner - Create mining models that are executed in SQL.
4. Publish and analyze a business intelligence portal. Metadata & ETL Lab: The objective of this lab exercises is to implement metadata import agents to pull metadata from leading business intelligence tools and populate a metadata repository. To understand ETL processes.
5. Publish metadata stored in the repository.
6. Load data from heterogeneous sources including text files into a pre-defined warehouse schema.

7. Design a data mart from scratch to store the credit history of customers of a bank. Use this credit profiling to process future loan applications.

Text Books & Reference:

1. M.H.Dunham,"DataMining:Introductory and Advanced Topics" Pearson Education
2. Jiawei Han, MichelineKamber, "Data Mining Concepts & Techniques" Elsevier
3. Sam Anahory, Dennis Murray, "Data Warehousing in the Real World : A Practical Guide for Building Decision Support Systems, 1/e " Pearson Education
4. Mallach,"Data Warehousing System",McGraw –Hill

CSE702 Mobile Computing

Syllabus (Theory)

UNIT I: Introduction to Mobile Communications and Computing: Mobile Computing (MC): Introduction to MC, novel applications, limitations, and architecture GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

UNIT II: (Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT III:Mobile Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

UNIT IV:Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /timeout freezing, Selective retransmission, Transaction oriented TCP.

UNIT V: Database Issues: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power aware and context aware computing, transactional models, query processing, recovery, and quality of service issues.

Data Dissemination: Communications asymmetry, classification of new data delivery mechanisms, push based mechanisms, pull based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.

Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.

Protocols and Tools: Wireless Application Protocol WAP. (Introduction, protocol architecture, and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

Text Book(s)

1. Jochen Schiller, “Mobile Communications”, AddisonWesley. (Chapters 4, 7, 9, 10, 11), second edition, 2004.

2. Stojmenovic and Cacute, “Handbook of Wireless Networks and Mobile Computing”, Wiley, 2002, ISBN 0471419028.

3. Reza Behravanfar, “Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML”, ISBN: 0521817331, Cambridge University Press, October2004,

4. Adelstein, Frank, Gupta, Sandeep KS, Richard III, Golden, Schwiebert, Loren, “Fundamentals of Mobile and Pervasive Computing”, ISBN: 0071412379, McGrawHill Professional, 2005.

5. Hansmann, Merk, Nicklous, Stober, “Principles of Mobile Computing”, Springer, second

JK Lakshmipat University, Jaipur
Institute of Management
BBA
Academic Year- 2016-17
Managing Sales & Distribution

Course Code: BBA604
Credits: 4
Semester: VI

Course Description:
Sales and Distribution is an integral part of Marketing. Increased competition, rapid changes in communication and information technology and need for higher level of customer orientation have made sales and distribution management extremely important. The objective of this course is to make students appreciate the role of Sales and Distribution to solve complex managerial problems.

Course Learning Outcomes:
Upon completion of the course, students will be able to:

- Understand fundamental concepts and principles of Sales and Distribution Management.
- Develop analytical and conceptual abilities pertaining to Sales and Distribution Decisions.
- Understand strategic and tactical issues related to Sales and Distribution and solve complex managerial problems.

Course Syllabi:

- **Sales Management:** Selling as Part of Marketing, Sales Management Process, Role of Sales Manager, Concept of Personal Selling, Sales Management and Salesmanship, Theories of Personal Selling, Process of Personal Selling, Qualities of a Successful Salesman.
- **Sales Objectives and strategies**: Sales Territories and Quota Goal Setting Process in Sales Management, Analyzing Market Demand and Sales Potential, Techniques of Sales Forecasting, Preparation of Sales Budget, formulating Selling Strategies.
- **Sales Force Management:** Designing Sales Territories and Sales Quota; Organizing the Sales Force, Designing the Structure and Size of Sales Force, Recruitment and Selection of Sales Force, Leading and Motivating the Sales Force, Sales Force Training and Compensation, Sales Incentives and Review of Performance.
- **Distribution Management:** Introduction, Need and Scope of Distribution Management, Importance of Channel, Types of Channels and Levels of Channels.
- **Channel Management Decisions:** Components of Distribution System, Distributors Selection and Appointment, Channel Conflict and Their Resolutions, Training and Motivating the Channel Partners.

Activities Related to Skill Development and Employability

Case 1: Selling Personal Computers to Management Institute
Case 2: Sales Beat Optimization of HUL Sales Territory in Kolkata
Case 3: A Day in the Life of a Salesperson
Case 4: Warehousing of Online Fashion Retailers
Case 5: Parmeet Oil Company

JK Lakshmipat University, Jaipur
Institute of Management
Bachelor of Commerce (H)
Academic Year- 2016-17

Indian Banking System

Course Code: BCH 504
Credit: 4
Semester: V

Activities Related to Skill Development and Employability

In class room discussion on different branches of banking and their significance.

Assignment 1 on credit creation capacity of SCBs.

Assignment 2 on Monetary policy tools to control credit.

Assignment 3 on opportunities and challenges in front of Indian Banking Sector

Case 1: The Microfinance Industry in India

Case 2: ICICI bank- Innovation in Microfinance

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2016-17
Marketing Management

Course Code: MK01
Credits: 3
Semester: II

Course Description:
Marketing is the sum of the activities undertaken to create, promote and distribute products, services or idea, at a price and quality deemed valuable by the company's customers, in order to create value and profit for the company. Marketing is integral to establishing a company's strategic direction. This in turn makes marketing skills and perceptive essential to the success of all business managers in any business. The course is designed to enable students to develop an appreciation of the role of marketing and the management of marketing functions in the contemporary business environment. This course provides an introduction to the fundamentals of marketing management and managerial introduction to the strategic and tactical aspects of marketing decisions, which include product policy, pricing, promotion, distribution, sales management, and customer segmentation and retention. Key issues covered in the course are: the marketing concept; understanding the market environment; understanding buyer behaviour; marketing planning and strategies; and managing important elements of marketing mix.

Course Learning Outcomes:

By the end of the course the student would be able to:

- Understand fundamental concepts and principles of marketing, including the basic roles, skills, and functions of marketing manager.
- Describe a range of common strategies for use with each of the various marketing mix tools: product, pricing, promotion, and distribution.
- Develop analytical and conceptual abilities pertaining to marketing decisions.
- Understand strategic and tactical issues related to marketing and solve complex marketing problems.
- Use examples from current events and real-world marketing situations to apply, illustrate, and discuss different marketing strategies

Course Syllabi:

- Nature, scope and basics of Marketing, Company orientation toward the market place (The old and the new concepts, integrated marketing)
- Marketing environment – micro and macro environment
- **Developing Marketing Strategies and plans:** Corporate Strategic Planning, Evaluating Business Portfolios, Growth Strategies, Marketing Plan, Creating Customer Value and Satisfaction
- Understanding Consumer Behavior and
  Buying Process, Organizational Buying Process
- Differentiated and Undifferentiated Marketing, Segmentation and Targeting, Competitive Dynamics, Crafting the Brand positioning, Creating Brand Equity
- Product Classification and Product Mix, New Product Development Process, Product Life Cycle Strategies
- Developing Pricing Strategies and Programs.
- Designing and Managing Distribution Channels
- Designing and Managing Integrated Marketing Communication
- Tapping into Global Markets
- Managing Holistic Marketing Organization for Long-Run

Activities Related to Skill Development and Employability

Case 1: Google: Marketing Excellence
Case 2: Intel: Developing Marketing Strategies and plans
Case 3: Disney **:** Understanding Consumer Behavior
Case 4: BMW: Differentiated Marketing
Case 5: Samsung: Crafting the Brand positioning
Case 6: McDonald's: Creating Brand Equity
Case 7: Toyota: Product Mix
Case 8: eBay: Pricing Strategies
Case 9: Amazon.com: Managing Distribution Channels
Case 10: Red Bull: Managing Integrated Marketing Communication
Case 11: L'Oreal: Tapping into Global Markets
Case 12: Starbucks: Managing Holistic Marketing Organization for Long-Run
Assignment 1: on Marketing Mix
Assignment 2: on Segmentation, Targeting and Positioning

JK Lakshmipat University, Jaipur
Institute of Management

MASTERS OF BUSINESS ADMINISTRATION
AC02
Cost and Management Accounting
COURSE OUTLINE
SEMESTER I, 2016-17

INSTRUCTOR DETAILS
NAME: PROF.LOKANATH MISHRA
E-Mail: lokanathmishra@jklu.edu.in
OFFICE: Room# 206(2nd FLOOR, IM BLOCK)
OFFICE TEL: 0141-7107535

L-T-P: 3-0-0
COURSE CREDITS: 3
SESSION DURATION: 60 MINUTES

COURSE DESCRIPTION

This is a core course mandatory for all the management students. The modern economic environment has become so complex and competitive that last year's financial statements are no longer adequate for the successful running of an organization. There is an increasing demand for accountants who are able to provide current information (today's facts and tomorrow's probabilities) that is essential for the efficient running of a modern organization.

The course is designed to help individuals in the private and public sector to understand the costing process and how to determine costs. It also covers the management of funds by means of budgets and the use of management accounting information to make informed and accountable decisions. Topics such as absorption, variable, job and process costing; traditional cost allocation versus activity-based costing; and cost-volume-profit relations will be discussed.

COURSE OBJECTIVES

The various objectives of this course are -

1. To emphasizes the use of accounting information for internal planning and control purposes.
2. To help in taking business decisions and evaluate the performance of business units using data obtained from the accounting system.
3. To familiarize students about vocabulary and mechanics of cost accounting, basic issues involved in the design of a cost accounting system.
4. To develop competency in using various tools and techniques for making business decisions concerning resource allocation and performance evaluation.

LEARNING OUTCOMES

By the end of this course it is expected that the student will be able to:

1. Understand the different cost accounting systems and how they account for product costs;
2. Relate revenue and cost management concepts and techniques to particular types of organization structures
3. Identify appropriate information for planning and decision making
4. Understand and apply management control techniques in organizations.

TENTATIVE SESSION PLAN

Chapter	Session	T/P	Topic	Reading
C1	S1	T	Introduction: Three Branches of Accounting and Study of differences between Financial/Cost/Management Accounting	Text Book1-Ch1
	S2	T	Objective/Functions/Essentials/Advantages /Objection of Cost Accounting	Text Book1-Ch1
C2	S3	T	Importance and significance of cost objects, cost units, and cost centers	Text Book 1-Ch2
	S4	T	Types of Costing System and Various methods of costing	Text Book 1-Ch2
	S5	T	Classification of Costs	Text Book 1-Ch2
	S6	P	Case study discussion and case Assignment	Text Book 1-Ch2
	S7	P	Class Test-1	
	S8	T	Elements of Costs and expenses excluded from cost, Preparation of Cost Sheet - Practical	Text Book-2 Ch2

	S10	P	Practical Assignment check & Discussion	
C3	S11	T	Scope of material control, 5R's of material purchase, procedure of material purchase	Text Book1-Ch3
	S12	T	Pricing of material receipts &Issues	Text Book1-Ch3
	S13	P	Methods of material issues- practical problems	Text Book1 & Text Book-2
	S14	P	Practical problems (Continue)	
	S15	P	Practical Assignment check & Discussion	
	S16	T	Inventory control techniques- ABC analysis, VED analysis, Perpetual inventory system, JIT	Text Book1-Ch3
	S17	P	Case study discussion and case Assignment	Text Book1-Ch3
	S18	P	Class Test-2	
C4	S19	T	Labour cost: Classification of labour cost/ Time Rate / piece rate	Text Book1-Ch4
	S20	T	Incentive wage plans- Halsey, Rowan	Text Book1-Ch4
	S21	T	Taylor's Differential piece wage plan, Merricks differential piece rate system, Emerson's efficiency plan	Text Book1-Ch4
	S22	P	Practical Assignment Check & discussion	
C5	S23	T	Marginal costing Vs. Absorption costing	Text Book1-Ch16
	S24	T	CVP analysis, Relationship of costs and	Text Book1-

			profits with volume	Ch16
	S25	T	Calculation of Break-even point and Margin of Safety	Text Book1-Ch16
	S26	P	Practical exercises	
	S27	P	Case study analysis	Text Book1-Ch16
	S28	P	Practical application of Marginal Costing-Evaluation of performance, profit planning	Text Book1-Ch17
	S29	P	Fixation of selling price, make or buy decision, decision to accept a special order	Text Book1-Ch17
	S30	P	Case study Analysis	Text Book1-Ch17
C6	S31	T	Standard Cost, Objective of standard costing, Fixation of standards, Variance Analysis and classification of variances	Text Book1-Ch13
	S32	P	Material cost variances- practical exercises	Text Book1-Ch13
	S33	P	Labour cost variances- practical exercises	Text Book1-Ch13
	S34	P	Overhead variances- practical exercises	Text Book1-Ch13
	S35	P	Practical Assignment Check & Discussion	Text Book1-Ch13
	S36	P	Case analysis-	Text Book1-Ch13
	S37	P	Class Test-3	

C7	S38	T	Budget and Budgeting, features, procedure for preparation of budget, budget center and budget manual	Text Book1-Ch12
	S39	T	Classification of budget- based on time period, condition, capacity and coverage.	Text Book1-Ch12
	S40	T	Preparation of various functional budget	Text Book1-Ch12
	S41	P	Case study analysis	Text Book1-Ch12
	S42	T	Zero Based Budgeting, Target costing	Text Book1-Ch12
	S43	T	Activity based costing and its adv. Over traditional costing	Text Book1-Ch19

T= Theory session in Lecturer Mode through PPT.

P= Practical sessions meant for Case analysis, exercises, class test, class presentation, Assignment Check and review of progress.

TEXT BOOK AND ADDITIONAL READING MATERIALS

Text book

Paresh Shah.(2015). ***Management Accounting.*** Oxford publication 3rd Edition.

Reading Materials

C.T. Horngreen, G.L. Sundem, W.O. Stratton.(2014). ***Introduction to management accounting***, Pearson Prentice Hall, 14th Edition

Bhabtosh Banerjee.(2014). ***Cost Accounting Theory and Practice.*** PHI Learning, 13th Edition

M .Y.Khan and P.K.Jain.(2013). ***Management Accounting: Text Problems and cases***. Mc Grawhill Publication, 6th Edition

Ravi M. Kishore. (2011). ***Cost and Management Accounting.*** Tax Mann Publication, 5th Edition.

TEACHING METHODOLOGY/PEDAGOGY

The course will be covered within 40 sessions includes Class room lecture, Practical exercises & Case analysis & discussion. The students will be given practical assignments (individually) for hands on practice and submission, and case studies in (Groups) for presentation.

The teaching strategy includes:

1. **Enhanced modified Lecture**: Traditional lecture modified to include active elements including: pausing for discussion among students, including immediate mastery tests/quizzes over lecture material, using demonstrations, responding to pre-submitted student-generated questions.
2. **Classroom Practice:** Practical questions based on chapters will be given for hands on practice to encourage and enable the students to solve accounting problems.
3. **Problem-Based Learning- Cases:** Students use knowledge, concepts, and skills relevant to a course to solve realistic business problems.
4. **Group Learning—Teamwork:** Students work together in teams, collaborating to complete a problem or case studies.

Teaching material Include:

1. Practical exercises related to each chapter for class room practice.
2. Case studies to simulate real life business situations and getting students involved for discussion and getting innovative solutions.
3. Practical Assignment for practice at home and submission.
4. Company financial statements for analysis will be downloaded from web based platform from CMIE (Pro-ways), available at LRC.

CLASS CONDUCTING POLICY, ACADEMIC INTEGRITY AND REGULATIONS

I regard my role in the class as academic coach and Guide. I am open-minded, friendly, and enthusiastic about my class and students. The success of the course is completely depended upon your total involvement in the conduct of the class. Anyone who follows plain English and knows basis math of (+ - x /) can excel in this subject. Accounting is a quantitative and practical oriented paper requires regular practice and continuous attendance in the class room. Before entering the class room, please ensure the following three things:

- You have completed the practical assignments given in the previous class.
- You have read the chapter from text book scheduled for the day.
- You are ready with your queries for discussion in the class room.

Does and Don'ts of the Course:

- You must raise your hand, if you want to ask a question.
- Absolute Silence must be maintained while the class is in session.

- There will be NO makeup for any missed components of the course.
- Assignment and cases are to be submitted on the due dates only.
- You are responsible for all lecture notes and material given out in class. If you miss class, then make sure you get the notes and assignments from another student.
- You will not be allowed to enter the class beyond 5 minutes pass the class scheduled time.
- No cellular or Mobile phone in class room will be allowed and if anybody found engaged in such electronic equipment in the class room will be fined with deduction of 5 attendances.

Intellectual Integrity and Honesty:

'Plagiarism' in any form is not acceptable. Cheating during examinations or plagiarism in group work will result removal from the course with a failing grade.

OUTCOME ASSESSMENT & GRADING

Assessment Matrix

The examinations are considered as part of learning process rather as an assessment tool. There will be weightage for continuous evaluation of 30%, Mid-Term examination of 20% and Final examination of 50%. The exact date of mid-term and final examination will be as per IM's guidelines. The following criteria will be applied to assess the learning outcomes of this course:

Assessment Criteria	Percentage	Efforts Category
Mid Term Assessment	**20%**	**Individual**
End Term Assessment	50%	Individual
Class Test, Quiz	10%	Individual
Case Analysis and presentation	10%	Group
Class Assignment	10%	Individual
Grand Total:	**100%**	

Grading Rules:

Grades will be provided as per the University norms.

ACTIVITIES RELATED TO EMPLOYABILITY ENHANCEMENT SKILLS

CASE STUDIES-

a. Cost Classification exercises- "Cases in Financial Management" by IM Pandey & Ramesh Bhat- Case -7
b. Cost Allocation- "Star Engineering Ltd" –Case-8
c. Break Even Analysis- "Sulphuric Acid Plant" –Case-9
d. Budgeting-(1) "Sagar Company" (2) Parshwa & Company", from Text Book.
e. Standard Costing & Varuabce Analysis(1) "Delux Company"(2)Indumati Company (3) "Priety Company" from Text Book.
f. Marginal Costing- (1) Avon company (2)Super Toys Ltd (3)Suraj Mehta (4)Sunlink Company(5)Vimal(6)Adinath Ltd(7)Jyoti Ltd(8)Gautam (9) Sawasthi Company, from Text Book.
g. Sahara Sporting Goods- Reworked Units
h. Hiramani- Change in Output Measure
i. Pavapuri Company- Physical Unit Method by products, and decision Making
j. Padmaprabhu Company- relative Sales Value Method
k. Sunny Trailers Nursery- Joint Cost allocation

ASSIGNMENTS

1. On Classification of cost and cost behavior
2. On preparation of cost sheet
3. On cost management and decision making
4. On Analysis and Interpretation of Financial Statements
5. On Common Size, Comparative, Trend Analysis
6. On Ratio Analysis
7. On Cash flow statement
8. On Standard Costing and Variance Analysis
9. On Budget and Budgetary Control
10. On Marginal Costing and CVP Analysis
11. On Decision Involving Alternative Choices

BACHLOR OF COMMERCE(H)

Advanced Financial Accounting

Course outline

SEMESTER II- 2016-17

Course Code	**:**	**AC08**
Course Credits	**:**	**4**
Total Hours per Week	**:**	**3**

Course Description

Students of business expected to have knowledge in the subjects like accounting, because business is built on a foundation of numbers - Revenues, cost ratios, valuations, performance measures etc. These numbers are the science behind the art of making crucial business decisions that would determine the current and future health of a company. Accounting relates to each functional activity due to its measurability in numbers and primacy of profit in a business organization. The financial health of an organization is determined by its Profit & Loss Account and the Balance Sheet. The subject is an advanced and developed over the basic couse of financial accounting, in this subject students will be introduced to accounting process of specific business areas.

COURSE SYLLABI:

Accounting fundamentals: Rectification of Errors,

Accounting for Bills of Exchange,

Financial statements from incomplete records (Single entry system).

Measurement of Business Incomes,

Revenue Recognition and Recognition of Expenses,

Accounting for Liability and Accounting Standards.

Partnership Accounts: Past adjustments, Admission, Retirement,

Death and Dissolution of Partnership.

Accounting for Consignment & Accounting for Joint Venture.

LEARNING OUTCOMES

1. Students should be able to pass the rectification entries and prepare accounts for Bills of Exchange.
2. They should be able to prepare income statement and balance sheet for partnership business.
3. Understand the account for Consignment and Joint Ventures.

TEXT BOOK:

- Khatri K.Dhanesh,(2012), ***Financial Accounting***. New Delhi: McGraw- Hill

REFERENCE BOOKS:

1. Chowdhry, A,(2011) ***Fundamentals of Accounting & Financial Analysis***. Pearson Education.
2. Agarwal, R.& Srinivasan, R.(2010) ***Accounting Made Easy***. New Delhi: Tata McGraw-Hill.
3. Rajasekaran V., Lalitha R.(2009) ***Financial Accounting*** . New Delhi: Pearson Education
4. Gupta, A.(2011) ***Financial Accounting for Management***. New Delhi: Pearson Education.
5. Maheshwari, S. N.(2011) ***Financial Accounting for Management.*** New Delhi: Vikas Publishing.

Activities Related to Skill Development and Employability

Case 1: Baron Company
Case 2: Giridhar Cloting Company
Case 3: Bengal Aluminimum Company
Case 4: Flexi Bank
Case 5: Chandra Rubber Company
Case 6: Sandra Corporation
Assignment 1: on Rectification of Errors
Assignment 2: on Bills of Exchange
Assignment 3: on Single entry System of Accounting
Assignment 4: on Consignment and Joint Venture
Assignment 5: on Partnership Admission, Retirement
Assignment 6: on Partnership death and dissolution of firm

2016-17 BBA504 Quality Management

Activities Related to Skill Development and Employability

Case #	Case Title
1.	Narayan Hrudayalay
2.	Made in China
3.	LE Consulting
4.	Converting Paper to Electronic Document
5.	Introduction and Implementation of TQM in Hospital

Auditing- B.Com(H)
2016-17

Course Code	**:**	**BCH503**
Course Credits	**:**	**4**
Total Hours Per Week	**:**	**3**
Semester	**:**	**4**

COURSE DESCRIPTION:

This course is designed to provide an introduction to auditing. The objectives include principles and practices used by public accountants and internal auditors in examining financial statements and supporting data. Special emphasis is given to assets and liabilities. This course is a study of techniques available for gathering, summarizing, analyzing and interpreting the data presented in financial statements and procedures used in verifying the fairness of the information. Also emphasizes on fraud detection, verification of assets and liabilities, ethical and legal aspects present in the organization.

COURSE CONTENTS

Introduction: Meaning: Importance; Objectives of Auditing: Types of Audit.

Audit Process; Audit Program: Basic Principles Governing an audit: Evidence in Auditing: Working Papers; Routine Checking and Test Checking.

Internal Check: Meaning, Essentials of an efficient system of internal check, Internal Check system regarding cash sales and credit sales, cash purchase and credit purchase, wage payment.

Vouching meaning. Importance, Types of Vouchers; Vouching of cash purchase: Credit purchase: Cash Sales: credit Sales, wage payments purchase of Fixed Assets.

Valuation and Verification of Assets and Liabilities.

Concept of true & fair: distinction between report and Certificate, contents of the Audit Report, types of the Auditor's report

Fraud Detection: Meaning, Purpose, investigation to detect frauds, Misappropriations and Defalcations: Investigations under companies Act: Investigations in connection with purchase of a business appraisal by Banks and Financial Institutions.

LEARNING OUTCOMES

1. The student should be able to understand the concepts, principles and techniques of auditing, and their applications in practical situations.
2. The student can understand about the various audit and process, types of audit.
3. They can be able to prepare a qualified or unqualified audit report.

TEXT BOOK

Basu, S. K. (2011). ***Auditing Principles & Techniques*.** New Delhi: Pearson India.

REFERENCE BOOKS

1. Kumar Ravindra & Sharma Virender. (2011). ***Auditing Principles and Practices***. New Delhi: PHI Publication.
2. Alvin A. Arens, Beasley S Mark & Elder j Randal.(2012).**Auditing and Assurance *Services*.** Prentice Hall

ACTIVITIES RELATED TO EMPLOYABILITY ENHANCEMENT SKILLS

Case Studies on:

1. Are published financial statements Really Reliable?
2. Tax shelter Frauds- Should KPMG be sheltered?
3. Volkswagen Das Scandal: A Case of 'Diesel Dupe'
4. Rajat Gupta: American Dream Gone Wrong?
5. WikiLeaks: Issues in Whistle Blowing
6. Satyam Computers Corporate Governance Fiasco (G)

JK Lakshmipat University, Jaipur
Institute of Management
B. Com (H) (2014-17 Batch)
Academic Year- 2016-17
Fundamentals of E-Business

Course Code: BCH506
Credits: 4
Semester: V

Course Learning Outcomes:
Upon successful completion of the course, student is expected to –

1. Develop a basic understanding of E-Commerce and its enabling technologies
2. Understand various E-Business Models
3. Critically examine the issues involved in E-marketing, E-Security and E-Payments
4. Develop a business sense of IT investments
5. Analyze the security, legal and ethical issues

Course Syllabi:

- **Introduction:** Origin of E-Commerce, Business Context, Advantages and Limitations of E-Commerce, Readiness, E-Transition Challenges, IT Act 2000
- **Business Models:** E-Business Models Based on Transacting Parties (B2C, B2B, C2C, C2B) and Transaction Types
- **Enabling Technologies**: Internet Client-Server Applications, Networks and Internets, Software Agents, Internet Standards and Specifications, Broadband Technologies
- **E-Marketing:** Goals of Web Presence, Browsing Behavior Model, Online Marketing, E-Advertising, Internet Marketing Trends and Strategies
- **E-Security:** Information System Security, E-Business Risk Management Issues, Information Security Environment in India, NASSCOM Initiatives
- **E-Payment:** Digital Payment Requirements, Online Payment Categories, E-Cash, and E-Cheques, Digital Signature, Online Financial Services
- **E-CRM & E-SCM:** Customer Relationship Management, E-CRM Solutions, Supply Chain Management, E-SCM Components and Trends
- **E-Strategy and Ethical Issues:** Information and Strategy, Dimensions of E-Commerce Strategy, Ethical Issues in Digital Economy, Cyberstalking, Privacy and Cookies, Phishing, Copyright Issues, Threats to Children

Activities Related to Skill Development and Employability

- Develop an E-business model for a product/service.
- Identify channels of E-marketing for the proposed model.
- Critically evaluate the security issues in the proposed model.
- Enumerate and suggest resolution of various social and ethical issues of the proposed model.

JK Lakshmipat University, Jaipur
Institute of Management
Bachelor of Commerce
Academic Year- 2016-17

Financial Reporting and Analysis

Course Code: BCH 604
Credit: 3
Semester: VI

Activities Related to Skill Development and Employability

Case Study 1 On Debacle of Satyam Computers Ltd.: A case study of India's Enron
Project 1 on Curbing of Creative Accounting Practices and Quality of Financial Reporting using research paper titled International Financial Reporting Standards and Moral Hazards of Creative Accounting on Hedgeing
Project 2 on Comparative Financial Statement Analysis of Indian FMCG Companies
Assignment 1on practical problems related to valuation and Measurement of Inventory
Assignment 2 on practical problems related to Shareholders Equity
Assignment 3 practical problems related to Impairment and Valuation of Fixed Assets

JK Lakshmipat University, Jaipur
Institute of Management
B.Com (H)
Academic Year- 2016-17
PROJECT WORK

Course Code	**:**	**BCH606**
Course Credits	**:**	**4**

COURSE DESCRIPTION:
As part of the B.Com (H) Programme, the final year students take up a Research Project under the faculty mentor / guide. They would need to submit the Project Report and make presentation on the same in the final semester.

Activities Related to Skill Development and Employability
Collection of Primary/ Secondary Data for a research problem and preparing a report and making presentation for the same.

JK LAKSHMIPAT UNIVERSITY JAIPUR

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CE702	Geoinformatics	3	0	2	4

Syllabus (Theory)

Aerial Photographs- Basic terms & Definitions, scales, relief displacements, Flight Planning, Stereoscopy, Characteristics of photographic images, Fundamentals of aerial photo interpretation

Physics of remote sensing, Ideal remote sensing system, Remote sensing satellites and their data products, Sensors and orbital characteristics, Spectral reflectance curves, resolution and multi-concept

Satellite Image – Characteristics and formats, Image histogram, Introduction to image rectification, Image Enhancement, Land use and land cover classification system, Supervised Classification, Applications of remote sensing

Basic concepts of geographic data, GIS and its components, Data acquisition, Raster and Vector formats, topology and Data models, Spatial modelling, Data output, GIS Applications

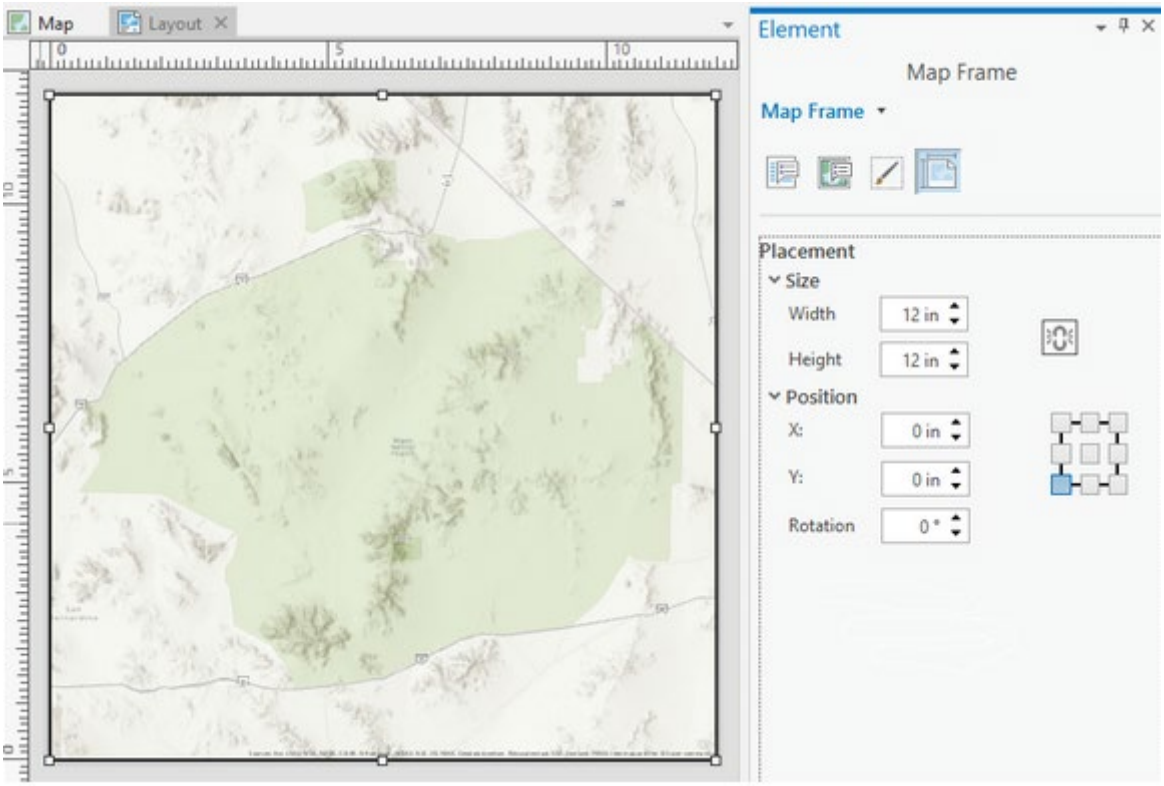
Introduction, Satellite navigation System, GPS- Space segment, Control segment, User segment, GPS satellite signals, Receivers, Static, Kinematic and Differential GPS.

Syllabus (Practical)

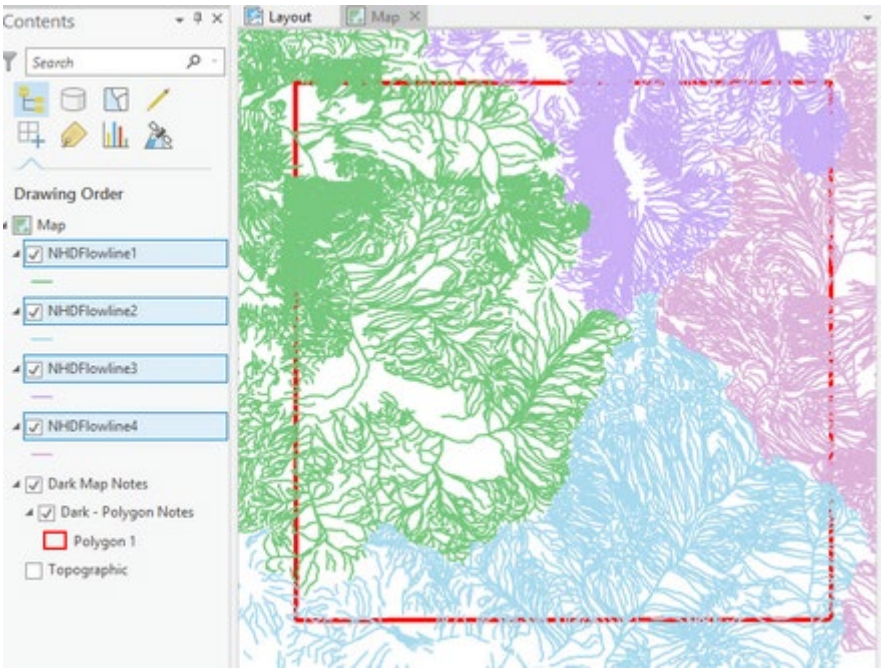
Introduction and Exercise to remote sensing and GIS Software (ARC-GIS and ILWIS)

Employability Related Activities:

- Students using ArcGIS Software to Develop Maps



(a)



(b)

Figure 1 (a) & (b). Students making map

- Quiz for Internal Evaluation

JK LAKSHMIPAT UNIVERSITY JAIPUR

Semester VII

Quiz 2

CE702 Geoinformatics **Time: 15 minutes** **10 marks**

Question No	Question Text	Option 1	Option 2	Option 3	Option 4
1	Which one of the following errors is produced by platform characteristics of the sensor ?	altitude variation	altitude	orbit drift	All of these
2	Which one of the following helps to identify the objects on the earth surface ?	atmospheric window	signature	radiometric error	None of these
3	In GPS, receivers are used are	electronic clocks	atomic clocks	quartz clocks	mechanical clocks
4	GIS deals with which kind of data	Numeric data	Binary data	Spatial data	Complex data
5	'Spatial databases' are also known as	Geodatabases	Monodatabases	Concurrent databases	None of the above

Figure 2. MCQ quiz conducted to assess the skill developed by the students in this course

- **Classroom Presentation by Students**

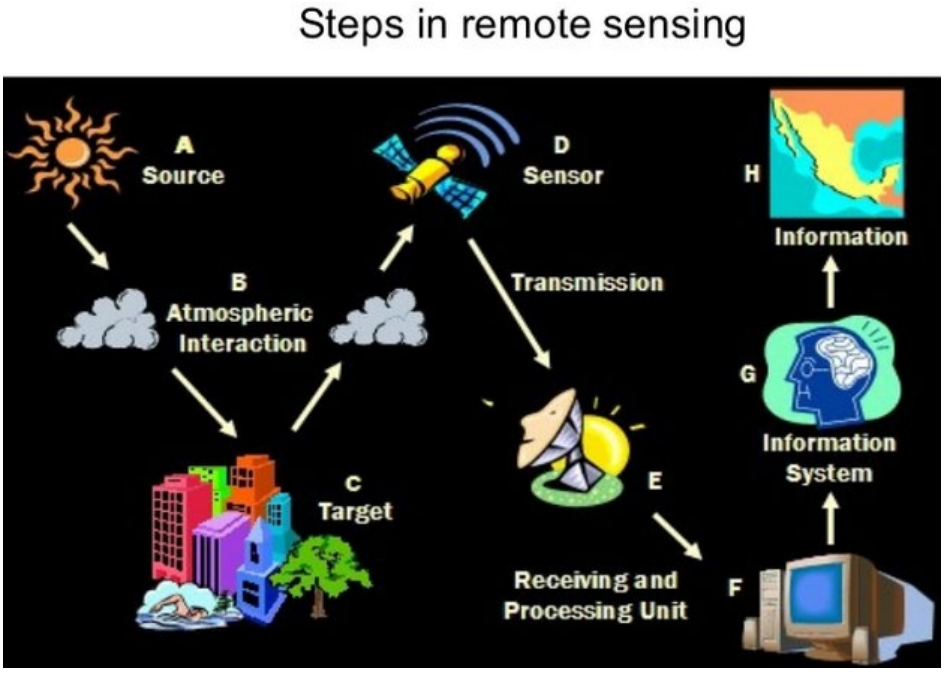


Figure 3. Students presenting to the class mentioning the topics learnt at the end of this course

JK LAKSHMIPAT UNIVERSITY JAIPUR

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CE 735 (Elective IV)	GROUND IMPROVEMENT TECHNIQUES	3	0	0	3

Syllabus (Theory)

INTRODUCTION

Role of ground improvement in foundation engineering – methods of ground improvement – Geotechnical problems in alluvial, laterite and black cotton soils -Selection of suitable ground improvement techniques based on soil condition.

DRAINAGE AND DEWATERING

Drainage techniques – Well points – Vacuum and electroosmotic methods – Seepage analysis for two dimensional flow-fully and partially penetrating slots in homogeneous deposits (Simple cases only).

INSITU TREATMENT OF COHESIONLESS AND COHESIVE SOILS

Insitu densification of cohesionless and consolidation of cohesive soils – Dynamic compaction and consolidation – Vibrofloation – Sand pile compaction – Preloading with sand drains and fabric drains – Stone columns – Lime piles – Installation techniques only – Relative merits of various methods and their limitations.

EARTH REINFORCEMENT

Concept of reinforcement – Types of reinforcement material – Application of reinforced earth – use of Geotextiles for filtration, drainage and separation in road and other works.

GROUT TECHNIQUES

Types of grout – Grouting equipment and machinery – Injection methods – Grout monitoring – Stablilisation with cement, lime and chemicals – Stabilisations of expensive soils.

Employability Related Activities:

- Laboratory Demonstration and Experimentation

Figure 1. Laboratory demonstration of usage reinforcement grid for ground improvement

- **Classroom Presentation by Students**

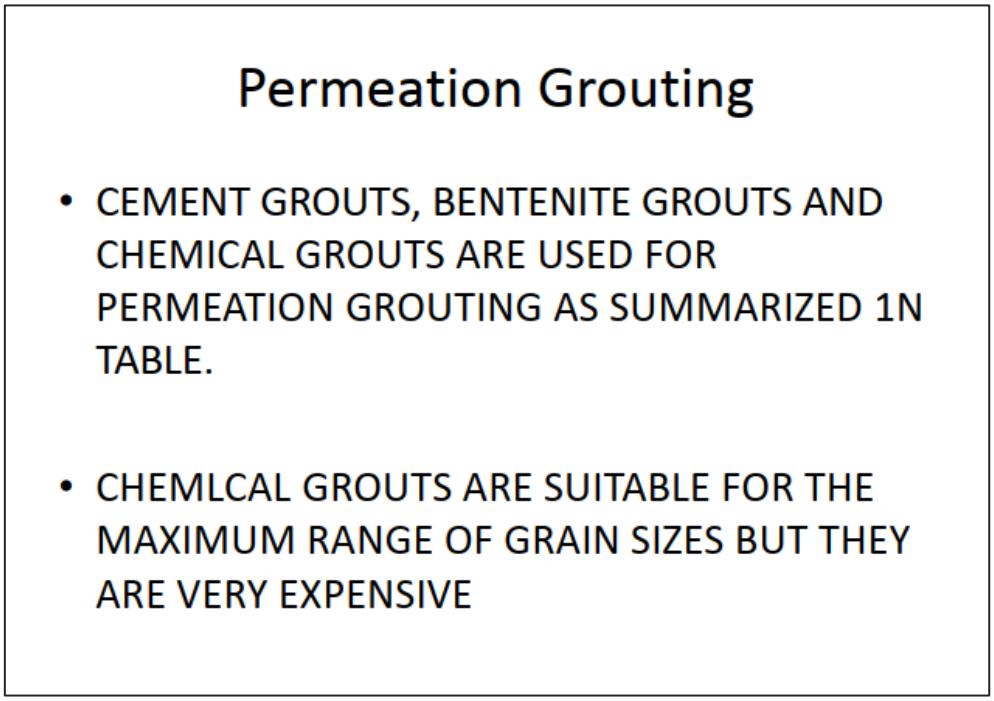


Figure 2. Student presenting the concepts related to the course in classroom

- **Geotechnical Analysis by Students using Plaxis (Students' Version)**

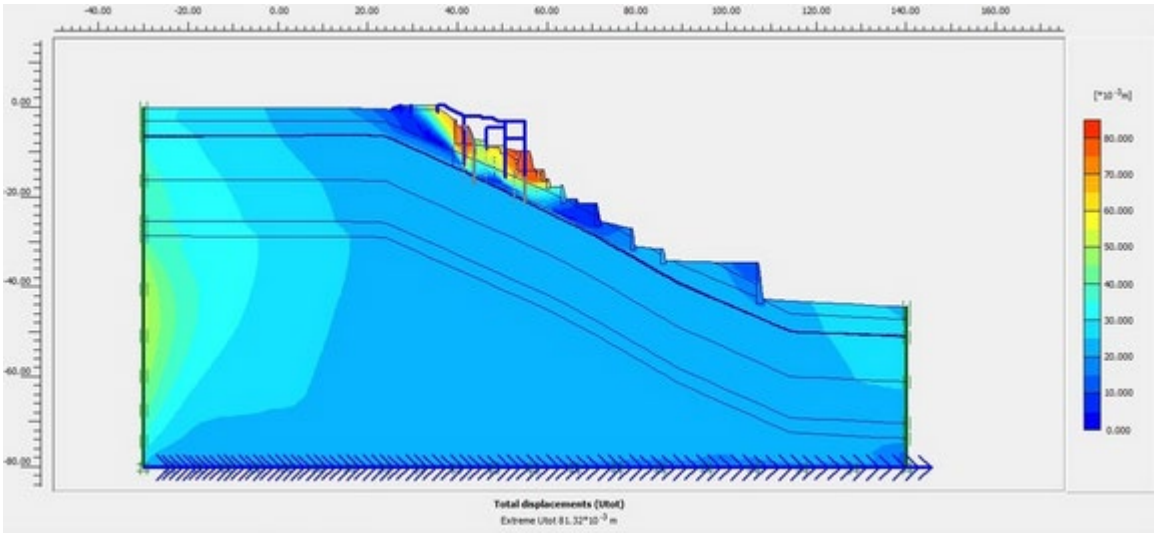


Figure 3. Students using Plaxis (student version) to carry out geotechnical analysis

- **Internal Assignments**

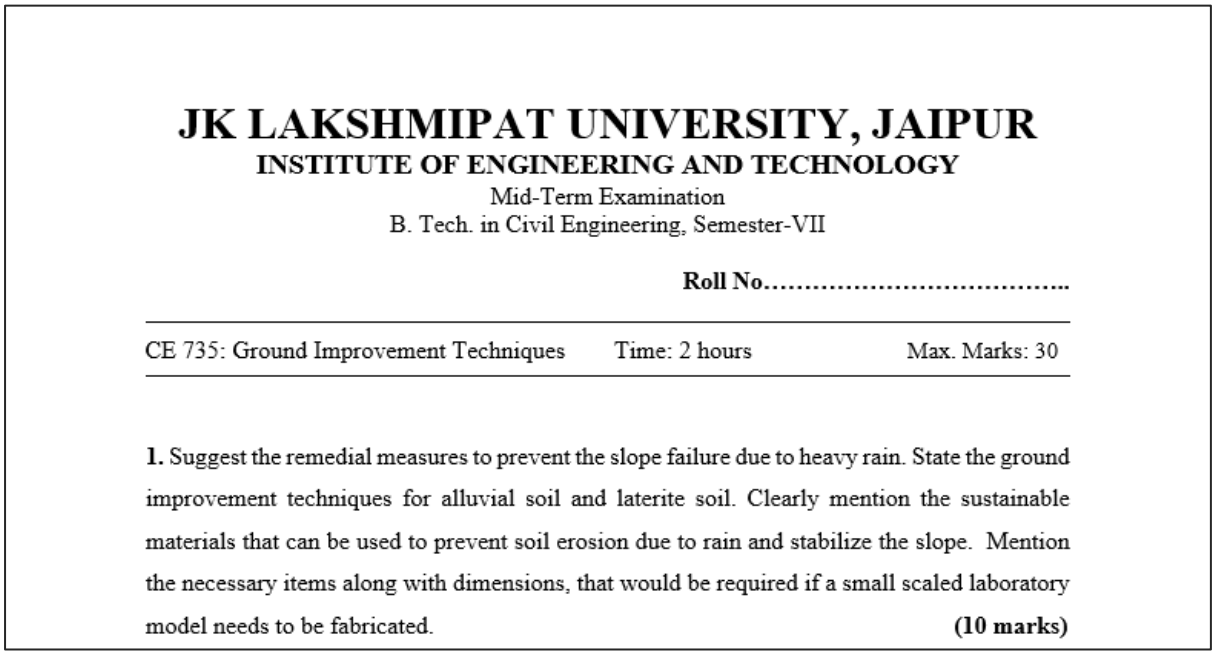
CE 735 GROUND IMPROVEMENT TECHNIQUES

Assignment-1

1. For a pile foundation to be installed in black cotton soil of very low bearing capacity, suggest the ground improvement measures and techniques that would be necessary to improve the subsoil condition. The piles must support load of 10 storey building without failure.

Figure 4. Assignment to evaluate the understanding of student in the course

- **Mid-Term Theory Exam**



JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mid-Term Examination

B. Tech. in Civil Engineering, Semester-VII

Roll No……..

CE 735: Ground Improvement Techniques Time: 2 hours Max. Marks: 30

1. Suggest the remedial measures to prevent the slope failure due to heavy rain. State the ground improvement techniques for alluvial soil and laterite soil. Clearly mention the sustainable materials that can be used to prevent soil erosion due to rain and stabilize the slope. Mention the necessary items along with dimensions, that would be required if a small scaled laboratory model needs to be fabricated. **(10 marks)**

Figure 5. Mid-Term examination conducted to assess the skill developed by the students in this course

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2016-17
Integration (Case Analysis and Presentation)

Course Code : GN22
Course Credits : 1

Course Description:
This single credit course has been introduced with the objective to make students undergo a Comprehensive Case covering most of the functional areas in management. This develops managerial decision making keeping all the aspects in mind. The faculty can select the Case for this purpose. This may be conducted as a two day exercise or appropriately spread over few weeks.

Activities Related to Skill Development and Employability

Case Analysis on 'Essar Steel – Implications of CEO Decision on Corporate Strategy'.

JK Lakshmipat University, Jaipur

Institute of Management

Masters of Business Administration

Academic Year- 2016-17

Leadership and Change

Course Code: MBAHR302

Credit: 3

Semester: III

Activities Related to Skill Development and Employability

Case 1: Steve Jobs - Apple

Case 2: The Bill and Melinda Gates Foundation

Case3: Employee Networks at Whirlpool Corporation

Case4: Misappropriation of power

Debate 1: Leaders are born or made

Debate 2: What matters in business is leadership

Discussion 1: Key capabilities of a successful leaders

Discussion 2: Importance of ethics for leaders

MASTER OF BUSINESS ADMINISTRATION

MBAHR402

LABOUR LAWS AND INDUSTRIAL RELATIONS

COURSE OUTLINE

HUMAN RESOURCES ELECTIVE, 2016-2017

INSTRUCTOR DETAILS
NAME: Dr. UPASANA SINGH
E-Mail: upasanasingh@jklu.edu.in
OFFICE: Room# 221(2nd FLOOR, IM BLOCK)
OFFICE TEL: 0141-7107549

L-T-P: 3-0-0
COURSE CREDITS: 3
SESSION DURATION: 60 MINUTES

COURSE DESCRIPTION:

This course focuses on institutional structures, policies and procedures in industrial relations conflict resolution under arbitration and bargaining. The course covers topics and issues of importance in the employment and industrial law field. Others include the nature and purposes of the legal system and industrial law, the law concerning the contract of employment, Trade union law and industrial law powers of governments.

COURSE OBJECTIVES:

The course is intended to:

1. Provide students with knowledge of labour laws, especially the nature and scope of labor law, the rationale of labor laws in organizations, the international labor organization, the labor laws in India, occupational hazards and risk, and managing employee relations at work.
2. To examine the theoretical aspects, problems and issues in arbitration and bargaining and models of bargaining and arbitration.
3. Information about different industrial laws
4. Understanding practical difficulties associated with the implementation of laws

LEARNING OUTCOMES:

By the end of this course, students should be able to understand

1. The nature and scope of labor laws
2. The rationale of labor laws in organizations
3. The international labor organization visa-viz the labor laws in India
4. Managing employee relations at work.

COURSE OUTLINE (TENTATIVE SESSION PLAN):

Session No.	Topic	Session Details	
1-2	Introduction of Industrial Relations	Text book	Ch-1
3-5	Historical evolution of IR, IR in India	Text book	Ch-2-3
6	Contemporary issues in IR and Labour Laws		
7-8	International regulatory and normative organisations such as ILO	Text book	Ch-4-5
9-11	Status of trade union, Trade Unionism, Trade unions in the era of liberalization		
12-15	Labour problems	Text book	Ch-7-10
16	Case Analysis	TBA	
17-18	Discipline and misconduct	Text book	Ch-11-13
19	Role Play		
20-22	Grievance handling procedures	Text book	Ch-14
MID TERM EXAMINATION			
23-26	Staff's participation in management	Text book	Ch-15
27	Case analysis	TBA	

28-29	IR-Employment issues in the IT era		Ch-16
30	Debate and discussion		
31	Discipline and Disputes: Negotiation, Mediation, Arbitration - Works Committee, Conciliation, Board of Conciliation, Court of enquiry		
32	Case Analysis	TBA	
33-36	Introduction of labour legislations: Industrial Dispute Act, Factories Act, Payment of Wages Act, Workmen's Compensation Act, Employees' State Insurance Act, Payment of Gratuity Act and Employees Provident Fund Act in the Indian context		Ch-17
37-38	Debate and discussion		
39-40	Recapitulation		
END TERM EXAMINATION			

TEXT BOOK AND ADDITIONAL READING MATERIAL:

1. Srivastava, S C (2000). ***Industrial Relations and Labour Laws.*** New Delhi: Vikas

ADDITIONAL READING MATERIAL:

1. Venkata Ratnam (2006). ***Industrial Relations.*** New Delhi: Oxford.

TEACHING METHODOLOGY/ PEDAGOGY:

The course will be mostly delivered through covered in the format of lecture method as students will be explained lectures, collaborative work, independent study, and problem-based learning. The pedagogical approach is adopted to develop problem solving skills, analytical skills, team work and communication. Surprise quizzes may be conducted at times and therefore, attending all classes are desirable. Assignments turned in late will receive one-half grade lower than they

would earn if on time. the chapter content should be regarded as requisite background preparation for case analyses and discussions. The students are expected to come prepared to the class with the case readings and other suggested readings mentioned in the outline. Assignments and reading material will be put across through respective official email IDs.

CLASS CONDUCTING POLICY, ACADEMIC INTEGRITY AND REGULATIONS:

In addition to completing the scheduled activities on time for the on-campus sessions, students are expected to follow below mentioned guidelines:

1. Students must attend 75% of the total classes conducted for the course in the semester.
2. Students must be present on time in the class as per the scheduled time table. No student would be allowed after 5 minutes from the commencement of the class.
3. Student presentations would be allotted on a selected Topic / Problem / Theme related with the subject, before presenting in the class gather relevant data, analyze and interpret the same in a systematic and scientific manner.
4. Although individual assignments and presentations will be allotted to students but few assignments and presentation could be allotted in group, wherein individual participation is essential for learning and assessment purpose.
5. Assignments are to be submitted on the due dates only and it must be based on student's own ideas and works. Plagiarism will not be tolerated.
6. Case studies would be provided well in advance therefore advance reading is required for the same, read the case carefully before class discussion.
7. Students are required to put their mobile phones on switch off or on airplane mode. Usage of mobile in the class is strictly prohibited.

The above mentioned guidelines are required to be follow strictly, failing to which adversely impact your learning as well your grade.

Academic Honesty

'Plagiarism' in any form is not acceptable. Cheating during examinations or plagiarism in group work will result removal from the course with a failing grade. Punctuality is must in the classes.

OUTCOME ASSESSMENT AND GRADING:

The criteria that will be applied to assess the learning outcomes of this course:

Assessment Criteria	Percentage
Continuous Assessment	30%
Class Participation and Class Attendance	10%
Assignment Report and Presentation	10%
Quiz and Class Test	10%
Mid-term Examination	20%
End-term Examination	50%
Grand Total:	100%

Grading: Grading system will be followed as per the University norms.

Activities Related to Employability:

1. Case on Grievance Handling:

   Rajaram is working in a multinational company employing 1400 workmen. The wages in this company is paid on the 10th of each month. The unpaid wages are paid on the 13th of the month. In the month of January 2011, Rajaram was on leave from 8th till the 12th of the month. He resumed duties on the 13th of the month and went to the cash counter to collect his unpaid wage. The cashier asked for his token number and started searching for his unpaid wage pay packet. When he was unable to find his wage packet he asked for his identity card. Rajaram told him that his identity card had been lost about which he had already intimated to the Personnel Manager. The cashier told Rajaram that his wages had already been collected by someone else. He showed him the counterfoil containing the signature of the person who had collected wages on behalf of Rajaram. Rajaram told the cashier that he had not given authority to any one to collect his wages. On seeing the counterfoil, Rajaram told the cashier that it did not contain his signature and that his signature was forged. He demanded his wages. The cashier expressed his inability to pay him the wages. Therefore, Rajaram met his Union leader and explained him his case and both of them went to the Personnel Manager with the grievance of Rajaram. You are the Personnel Manager of this company. Explain how will you handle the grievance of Rajaram ? What short term and long term measures will you adopt in this case to solve Rajaram's grievance and ensure that such incidents do not occur in future?

2. Application based questions for Assignment

   a) Examine the causes of indiscipline in Industry. Suggest measures to check and curb indiscipline activities in Industry.
   b) Critically examine the 'Employees' Provident Scheme' under the Employees' Provident Funds are Miscellaneous Provisions Act, 1952.

2016-17 MBAOM301 Project Management

Activities Related to Skill Development and Employability

	Project Brief
1.	The students were required to develop a hypothetical project of an industry with the help of the tools studied during the project management course.

2016-17 MBAOM302 TQM & Six Sigma

Activities Related to Skill Development and Employability

Case #	Case Title
1.	Six Sigma Quality at Flyrock Tires

2016-17 MBAOM401 World Class Manufacturing

Activities Related to Skill Development and Employability

Case #	Case Title
1.	Decoding the DNA of the Toyota Production System

2016-17

MBAOM402

Contemporary Practices in Operations Management

Activities Related to Skill Development and Employability

Case #	Case Title
1.	Oberoi Hotels: Train Whistles in the Tiger Reserve

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2016-17
Business Research Methods

Course Code: QT03
Credits: 3
Semester: II

Course Description:
This course is designed to provide students with the necessary skills and knowledge to determine the information necessary to address an identified research problem (basic or applied) and, using this understanding, develop and use an actionable research proposal. In this process, the students will gain an understanding of relevant approaches and elements of undertaking a research enquiry specifically to provide insights to solving a relevant business problem. They will develop critical core competencies and skills required to carry out such an enquiry. These competencies and skills include: defining research questions; Setting appropriate research objectives; Study design that incorporates research objectives and budgetary constraints; Secondary and primary data collection and instruments; Sampling and analysis methods; And effective reporting of results; As well as the importance of ethical conduct in conducting research in both a domestic and in international business contexts.

Course Learning Outcomes:
Upon successful completion of this course, students will be able to:

- Gain an understanding of research in order to achieve precision in business decisions.
- Have an applied approach with practical applications that gives the basic understanding of the scope of business research.
- Understand the fundamental concepts of business research methods.
- Appreciate these vital terminologies in business research.
- Ability to identify one's own practical position in business research.

Course Content:

- Introduction to Research
- Importance of research in Management, Types of research
- Market research, Scientific Research
- The Research process: Research Problem
- Literature Review
- Theoretical Framework & Hypothesis Development
- Research design
- Recapitulation of concepts covered so far and case discussion
- Measurement of Variables
- Scaling, Reliability, Validity
- Data Collection Methods: Sources of Data
- Methods for Data Collection, Advantages and Disadvantages, Issues in Data Collection
- Sampling: Basic Concepts
- The Sampling Process, Types of Sampling, Appropriateness of Sampling Method, Sampling Design and size
- Quantitative Data analysis: Coding, Editing and Transformation of Data
- Descriptive Statistics and Inferential Statistics using MS Excel and IBM SPSS, Introduction to other Data Analysis Packages, Introduction to Multivariate Analysis.
- Qualitative Data Analysis**:** Introduction
- Reliability and Validity in Qualitative Research
- Methods for Qualitative Data Analysis
- Recapitulation of concepts covered so far and case discussion

- The Research Report**:** Contents of the Research Report
- Presentation of Report, Applications of research findings for managers and management.

Activities Related to Skill Development and Employability

Case 1**:** Online Booking,
Case 2: Max New York Life Insurance,
Case 3: Perception of people about ban on plastic bags,
Case 4: Managing Balance in work and life

JK Lakshmipat University, Jaipur
Institute of Management
B Com H

2016-17

Fundamentals of Entrepreneurship

Course Code: BCH605

Course Credits: 4

Semester: VI

COURSE SYLLABI:

Introduction: Meaning, definition and functions of an entrepreneur, qualities of a successful entrepreneur, types of entrepreneurs, concept of entrepreneurship, significance of entrepreneur and entrepreneurship in economic development, Women entrepreneur

Ownership and Location of Industrial Units: Different forms of industrial Organization, Theories of industrial location.

Promotion of a venture: Opportunity Analysis, feasibility study, economic feasibility, technical feasibility, financial feasibility and managerial competence, procedural steps in setting up of an industry, reasons of failure and the visible problems for business

Financing of a venture: Government support to new enterprise, Incentives, sources of finance, role of government and promotional agencies in entrepreneurship development

Entrepreneurship Development in India: Entrepreneurship development programme, role of various institutions in developing entrepreneurship in India.

Activities Related to Skill Development and Employability

Case 1: Luck and Persistence

Case 2: How I make my first million

Case 3: SEWA for Women Empowerment

Case 4: Go Gold : How and where to approach finance

In-class exercises 1: Meet Entrepreneurs and Identify their characteristics and competencies

In-class exercises 2: : Idea Generation Activity

In-class exercises 3: Back up envelope Exercise

In-class exercises 4: One dollar activity

In class exercise5: Story Telling

Assignment 1: Find out Entrepreneurship role in Economic Development with facts

Assignment 2: Find out the emerging opportunities in India

Campus company project: Prepare a project on an idea of Campus Company

JK Lakshmipat University, Jaipur
Institute of Management
MBA

2016-17

Indian Business Environment

Course Code: GN03

Course Credits: 3

Semester: II

COURSE DESCRIPTION

This is a core course mandatory for all the management students. The modern business is placed in a very complex and intricate environment. The constraints and opportunities provided by the nature of the economy and the economic system, political and legal framework, social system, geographical and ecological conditions, demographic factors etc. have profound impact on the business. The type of product to be manufactured and marketed, the marketing strategies to be employed, the way the business should be organised, the technology to be adopted etc., are influenced by the environment factors. For formulating appropriate business strategies, one should, therefore, have a proper understanding of the business environment. This course provides the theories and empirics on topical issues with examples and cases. All these will be immensely useful for the students of management in understanding the linkages between business and the ambience of environment.

COURSE OUTLINE (TENTATIVE SESSION PLAN)

Session No.	Topic/Sub Topic	Session Details
1-3	Introduction: meaning of business environment, objectives and types – internal and external environment, Interaction Matrix of Different Environmental Factors **Case-Study: Business Environment to Business Ecosystems**	Text Book : Chapter 1
4-5	Environmental Analysis and Forecasting	Text Book : Chapter 3
6-7	Political and Government Environment	Text Book: Chapter 5

	Case-Study: Indian Politics and Its Impact on Its Business Environment	
8-9	Natural and Technological Environment **Case-Study: A.K. Sen on Choice of Technique**	Text Book: Chapter 6
10-11	Demographic Environment **Case-Study: Indian Population: Boon or Bane?**	Text Book: Chapter 7
12-13	Societal Environment	Text book: Chapter 8
14-15	Social Responsibility of Business **Reading:** 3. Sachar Committee Report on Social Responsibility of Business	Text Book: Chapter 9
16-17	Consumer Rights, Consumerism and Business	Text Book: Chapter 13
18-19	Nature of the Indian Economy, structure of the economy, economic conditions **Case Study: Is India a capitalist Country?**	Text Book: Chapter 4
20-21	Monetary and Fiscal Policies, Objectives, Instrument and Mechanism	Text Book: Chapter 22

	Case Study: Monetary and Credit Management in India	
22-22	Fiscal Reforms **Case Study: Contemporary Fiscal Scenario in India**	Reference Book
23-24	Financial systems	Text Book: Chapter 23 and 24
25-25	Industrial Policy	Text Book: Chapter 12
26-26	Public Sector	Text Book: Chapter 14
27-28	Privatization and Disinvestment **Case Study: PPP Projects in India**	Text Book: Chapter 15
29-30	Problems of Indian Industrial Economy, Industrial Relations and Trade Unions	Text Book: Chapter 30 & 31
31-31	Competition Policy	Text Book: Chapter 21
32-32	Industrial Development Strategy	Text Book: Chapter 36
33-34	Problems of Developmental Planning, India's Planning Models	Text Book: Chapter 35
35-35	Meaning and Features of Globalization, Components of Globalization	Text Book: Chapter 41
36-37	Multinational corporations, International Investments	Text Book: Chapter 39 & 40

	Case Study: Foreign Direct Investment in China and India	
39-40	Wrap Up	

Activities Related to Skill Development and Employability

Project: Prepare on any current/ emerging economic issue with facts/data

Assignment: Write up on any issue concerned with Indian Economy

Case 1: **Business Environment to Business Ecosystems**

Case 2: Indian Politics and Its Impact on Its Business Environment

Case3: Indian Population: Boon or Bane?

Case 4: Foreign Direct Investment in China and India

Case 5: PPP Projects in India

JK Lakshmipat University, Jaipur
Institute of Management
B COM H

2016-17

Micro Economics

Course Code: GN14

Course Credits: 4

Semester: I

Activities Related to Skill Development and Employability

Project: Exhibit the economic concepts through live examples, movie clippings and animations

Assignment: Prepare dictionary of economic terms

JK Lakshmipat University, Jaipur
Institute of Management
B COM H

2016-17

Macro Economics

Course Code: GN15

Course Credits: 4

Semester: II

Activities Related to Skill Development and Employability

Project: Article writing in any topic / issue of macro economics

Class Activity: Discussion and debate on newspaper articles

Course Title and Code: Infrastructure Planning and Finance Management's 705	
Hours per week	**L-T-P: 3-0-0**
Credits	**3**
Students who can take	**B.Tech Semester-VII (Batch** 2013-17**civil Engg)**

Syllabus (Theory)

INFRASTRUCTURE: Governing Features, Historical overview of Infrastructure development in India. Infrastructure Organizations &Systems.

INFRASTRUCTURE PLANNING: Infrastructure Project Budgeting and Funding; Regulatory Framework; Sources of Funding

FINANCIAL MANAGEMENT FUNDAMENTALS: Time value of money, cash flow, Inflation - depreciation, taxes, inflation, Personnel cost - Equipment costs – overheads

INFRASTRUCTURE FINANCE MANAGEMENT: Life-cycle costing, evaluation of alternatives, cost-benefit analysis, Feasibility Studies.

CONSTRUCTION FINANCE MANAGEMENT: Procurement and Efficient use of resources – Statement of Changes in Financial Position (SCFP), Preparation of SCFP on Working Capital Basis, Cash Basis, and Total Resources Basis – SCFP usefulness.

Activities Related to Skill Development and Employability

Civil Engineering is going to conduct an Expert talk cum workshop on **"Infrastructure Planning and Finance Management"** by Dr. Kusum Lata and Ar. Priyanka Kumar from IIPA New Delhi on 30 Oct, 2017. Details about experts are as follows:

1. Dr. Kusum Lata
Associate Professor
Department of Urban and Regional Planning
Indian Institute of Public Administration, Delhi

2. Ar. Priyanka Kumar
Department of Urban and Regional Planning
Indian Institute of Public Administration, Delhi

Date: 30.10.2017 (Monday)
Venue: IET: EB2-204
Time: 09:00 am to 05:00 pm

(Department of Civil Engineering)

NOTICE

All the students of B.Tech Civil engineering Semester 7 are hereby informed that Department of Civil Engineering is going to conduct expert lectures on **"Infrastructure Planning and Finance Management"** by Dr. Broto Rauth Bhardwaj. Details about experts are as follows:

Dr. Broto Rauth Bhardwaj,
Professor and Head, Entrepreneurship Cell,
Bharati Vidyapeeth University, New Delhi

Date: 9th and 10th November
Venue: IET: EB2-204
Time: 10:00 am to 05:00 pm

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CE304	ENGINEERING GEOLOGY AND CONSTRUCTION MATERIAL	3	0	2	4

Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks**
20	20	50	10	100	20	50	30	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Part 1: Engineering Geology

Syllabus (Theory)

Unit I-Earth Sciences: Introduction,

Basics of Engineering Geology: Scope of Engineering Geology for a Civil Engineer

Types of Geology: Physical geology and mineralogy

Unit II- Petrology: Classification of rocks and their uses as building and road materials

Failures in Earth crust: Historical geology; Structural geology: Folds, faults, unconformity etc.

Unit III-Investigation in Geology: Engineering geology: Geological investigations at dam, tunnel and bridge sites and influence of various structures

Precautions in different earth planes: Precautions against faulting, folding, bedding planes, joints, cracks, fissures, permeability and ground water condition.

Syllabus (Practical)

1. Megascopic study of minerals
2. Megascopic study: Igneous, Sedimentary, Metamorphic
3. Understand fold and faults within a rock mass
4. Study geological features of rocks such as strike and dip
5. Soil erosion and physical weathering in the rocks
6. Structural analysis using stereo nets or Wulff's net
7. Geological maps representing the geological structure of some segment
8. Use of GPS instrument for geological data generation

Text Book(s)

1. Prof Parbin Singh, 'Engineering & General Geology" S K Kataria& Sons, 8 th edition, 2008
2. Principles of Engineering Geology, Bangar,

Reference Book(s)

1. Structural Geology by Billings
2. Petrology by Tyrll.

Part 2: Building Construction and Materials

Course Syllabi (Theory):

UNIT IV

Components of a building and their functions, foundation, shallow and deep foundation, grillage, raft, inverted arches, causes of failure of foundations and remedial measures, Masonry: types- Bricks and stone masonry, functions, material requirements, different bonds, damp proofing course

UNIT V

Shoring, under pining, scaffolding, horizontal and vertical shores, purpose and methods of under pinning, different types of scaffolding, floors and roofs: types, details of construction and materials

UNIT VI

Doors: paneled, glazed, flushed doors, collapsible steel doors, Windows: Casement, Sash, and Skylight windows, Staircase: Requirement of a good staircase, different types of stair cases

UNIT VII

Physical and chemical characteristic of commonly used building materials in Civil Engineering construction – Clay, Sand, Stone, Lime, Cement, Concrete, Bricks, Silica, Aluminum and Timber with reference to its specifications. Plywood, asbestos, plastics and polymer based materials.

Text Book(s)

1. B.C. Punmia, 'Building Construction' Laxmi Publications Pvt. Ltd Principles of Engineering Geology, Bangar,
2. Sushil Kumar, Building Construction, Standard Publishers, Delhi.

Reference Book(s)

1. Surendra Singh, Engineering Materials, Konark Publishers Pvt. Ltd.

2. D.S.Arora, 'Text Book of Engineering Materials', Kalyani Publishers

Employability skill activities

Fig: Geological Specimen (Minerals and Rocks) demonstration for students in lab

Fig: Students Visit to JK Lakshmi Cement Plant Sirohi as a part of their curriculum

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

EndTerm Examination (Regular), November2016

B. Tech in Civil Engineering, Semester III

Roll No……..

CE304: ENGINEERING GEOLOGYAND CONSTRUCTION MATERIAL

Time: 3 hours Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
i.	The intensity of wind erosion depends on which of the following factors : (a) Nature of the region (b) Velocity of wind i.e. Direction and magnitude of wind (c) Duration of exposure (c) All of these	
ii.	Diamond is : (a) Highly valuable mineral (b) Rare mineral	

JK LAKSHMIPAT UNIVERSITY, JAIPUR
INSTITUTE OF ENGINEERING AND TECHNOLOGY
EndTerm Examination (Regular), November2016
B. Tech in Civil Engineering, Semester III
Roll No……..
CE304: ENGINEERING GEOLOGYAND CONSTRUCTION MATERIAL
Time: 3 hours Max. Marks: 100
Instructions to students:
1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
i.	Wind-blown Deposits of silt and clay grade particles are known as: (a) Crescentic dunes (b) Yardangs (c) Loess (d) Scree Deposits	
ii.	Arenites Rocks made up of : (a) sediments of coarse grain size (b) sediments of finest grain size (c) sediments of sand grade grain size (d) None of these	
iii.	"Disconformity" a kind of structural disturbance in rocks may be identified by one of the following feature: (a) Different inclination (b) No angular variation (c) Both of above (d) None of these	
iv.	Typical character associated with metamorphic rocks are: (a) Plastic Deformation (b) Recrystallization of mineral constituents (c) Development of features like cleavage, foliation, etc. (d) b and c are correct (e) All are correct	
v.	Some mineral shows minimum color either in their interior or on the exterior of	
vi.	Corrosion of Concrete is a : (a) Chemical process (b) Physical Process (c) Physico-chemical process (d) None of these	
vii.	Which mortar type is best suited for situations requiring high lateral strength? (a) Type M (b) Type S (c) Type N (d) Type O (e) None of the above	
Viii.	Which of the following is not considered to be a type of safety glass? (a) Wired glass (b) Plate glass (c) Laminated glass (d) tempered glass (e) All of these are types of safety glass.	
ix.	Wooden, metal or masonry vertical member supporting a hand rail in a stairs is known as: (a) Flight (b) Baluster (c) Rise (d) Flier	
x.	Which of the following is shallow foundation system: (a) Wall footings (b) Pier Foundation (c) Pile Foundation (d) both b and c (e) None of above	
Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
	Write brief note on the following: i. Stretcher Bond ii. English Bond	
	Define the following terms : a. Scree deposit and Talus slope b. Eluvium and Deluvium	
Q.3A	Explain the dominant process of chemical weathering for the following types pf rocks: (a) Iron containing rocks (b) Silicate bearing rocks	05

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CE408	Geographic Information System and Remote Sensing	3	0	2	4

Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks**
20	20	50	10	100	20	50	30	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others
**The ratio of weightage between Theory and Practical content will be 60%: 40%

Course Syllabi (Theory):

Unit1: Trigonometrically leveling, geodetical observation, Triangulation systems, selection, grade and computation. Survey adjustment and treatment of observations.

Unit 2: Elements of photogrammetry: terrestrial and aerial photographs, stereoscopic vision and stereoscopies. Flight planning, principle of photo interpretation and photogrammetric monitoring in civil engineering.

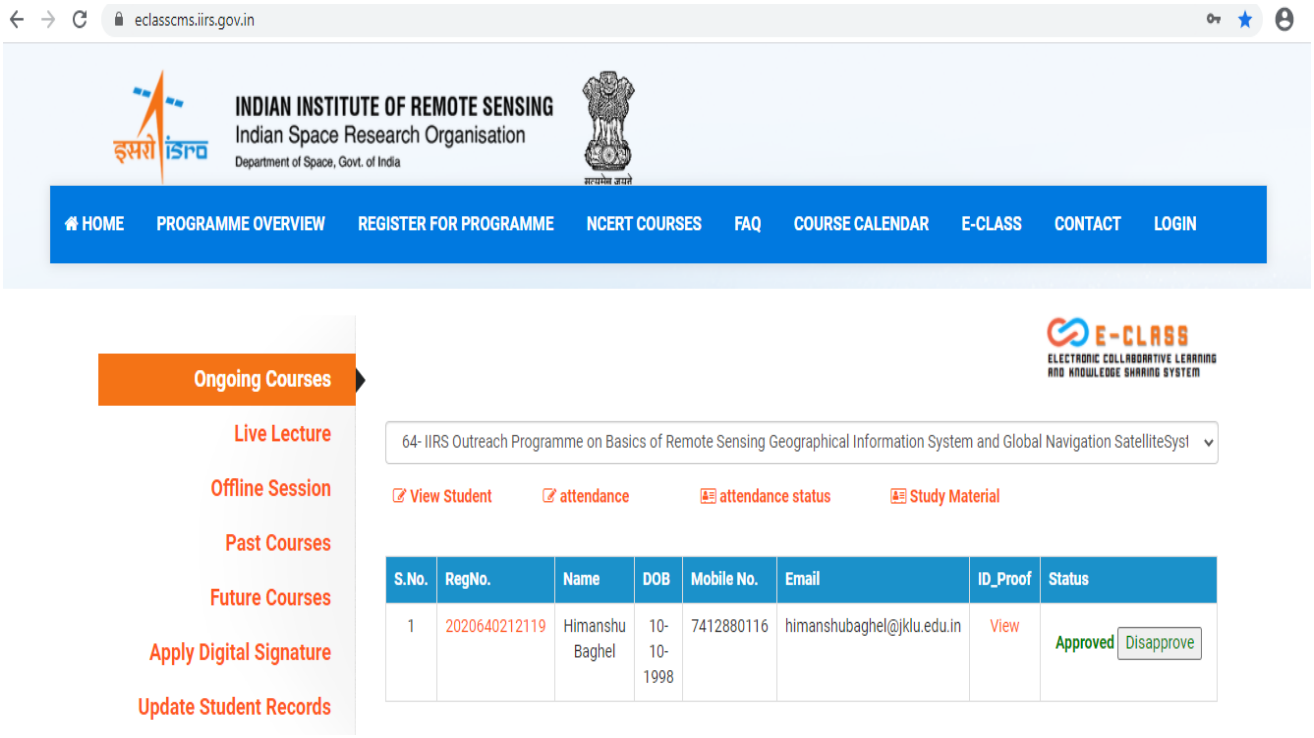
Unit 3:Introduction to Remote sensing; energy source and radiation principles; remote sensing systems, multispectral scanners (MSS); thermal infrared line scanner, sideways looking airborne radar; spectral pattern recognition; visual and digital techniques; classification; Data acquisition from LANDSAT,SPOT,ERS,IRS; analysis of digital data products from MSS and TM; Digital enhancement techniques (LAB); Application of remote sensing in resource evaluation. Introduction to Lidar Technology.

Unit 4: What is GIS? Geographic concepts for GIS. Spatial relationships, topology, spatial patterns, spatial interpolation. Data acquisition, Raster and Vector formats, topology, Spatial modelling, Data outputData storage, data structure, no-spatial database models. Populating GIS, digitizing data exchange, data conversion. Spatial data models, Raster and Vector data structures and algorithms. Digital Elevation Model (DEM) and their application. Triangulated Irregular Network (TIN) model. GIS application areas,Satellite navigation System, GPS-Space segment, Control segment, User segment, GPS satellite signals, Receivers, Static, Kinematic and Differential GPS.
Spatial analysis, quantifying relationships, spatial statistics, spatial search. Decision making in GIS context.

Syllabus (Practical)

1. Lab Exercise using Bentley Map Enterprise v8i,
2. Lab Exercise using Arc GIS
3. Lab Exercise using ERDAS and ENVI.

Employability skill activities



JK Lakshmipat University
(recognized by Government of Rajasthan and covered u/s 2(f) of the UGC Act, 1956)
INSTITUTE OF ENGINEERING AND TECHNOLOGY

I.2 LAB PLANNING (Practical)		
Pract.	**Unit/ Title**	**Lab [hr]**
1	Introduction and overview of different GIS Software's	2
2	Learn how to use the **Arc-Catelog** to import data into ArcGIS	2
3	Learn how to use **Arc Toolbox** dialogs	2
4	To begin exploring the functionality of various toolbars in ArcGIS.	2
5	Learn how to assign a **projection** to data.	2
6	Learn how to Displaying maps in data view and layout view.	2
7	Use IDL to calculate temperature from ETM+ image	2
8	Lab Exercise using Bentley Map Enterprise v8i.	2
9	Lab Exercise using ERDAS and ENVI	2
10	Lab Exercise using ERDAS and ENVI	2

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

EndTerm Examination (Regular), April-May 2017

B. Tech in Civil Engineering, Semester IV

Roll No.....

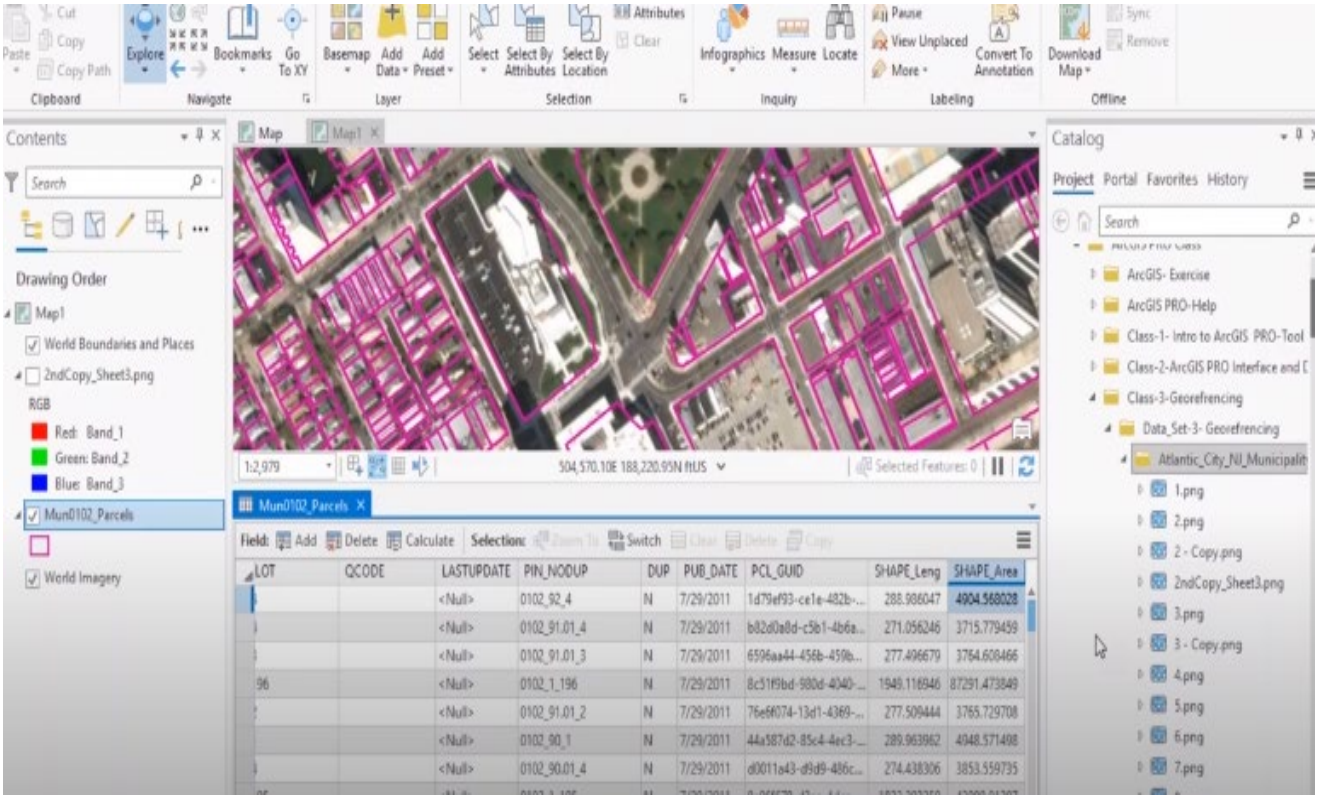
CE408: Geographic Information System and Remote Sensing — Time: 3 hours — Max. Marks: 100

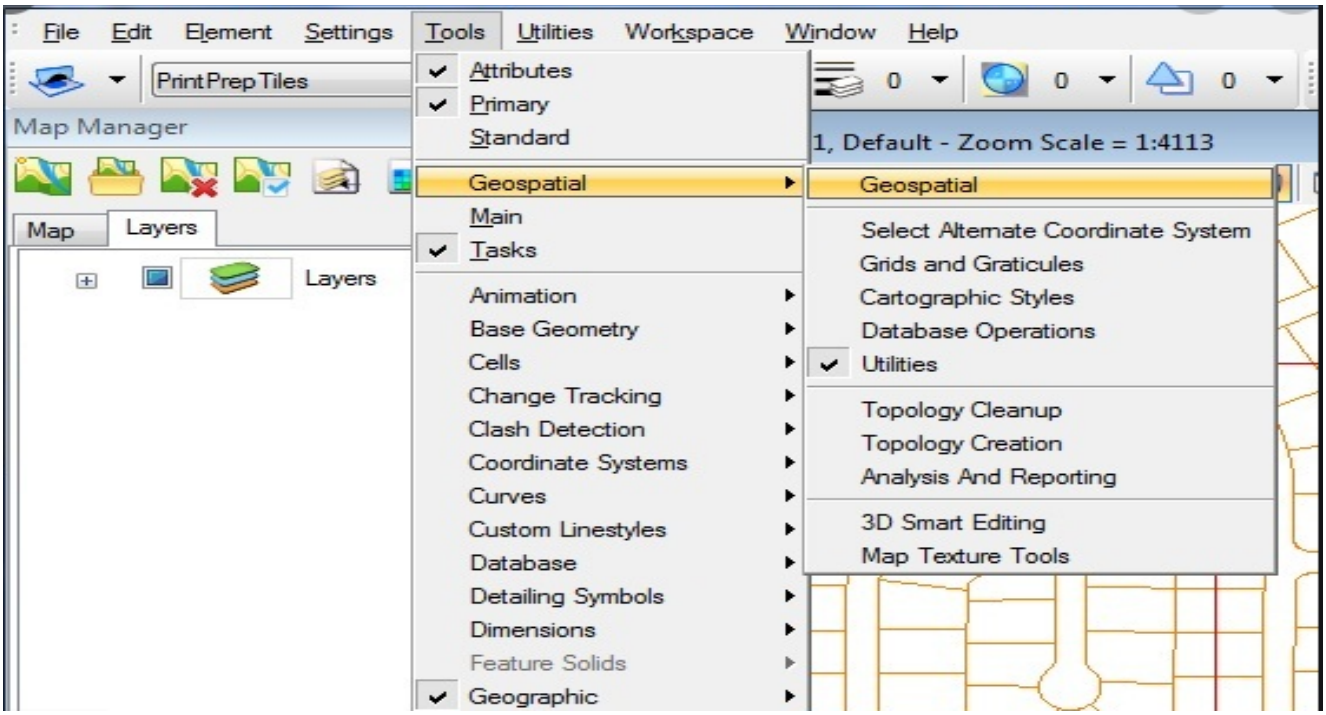
Instructions to students:

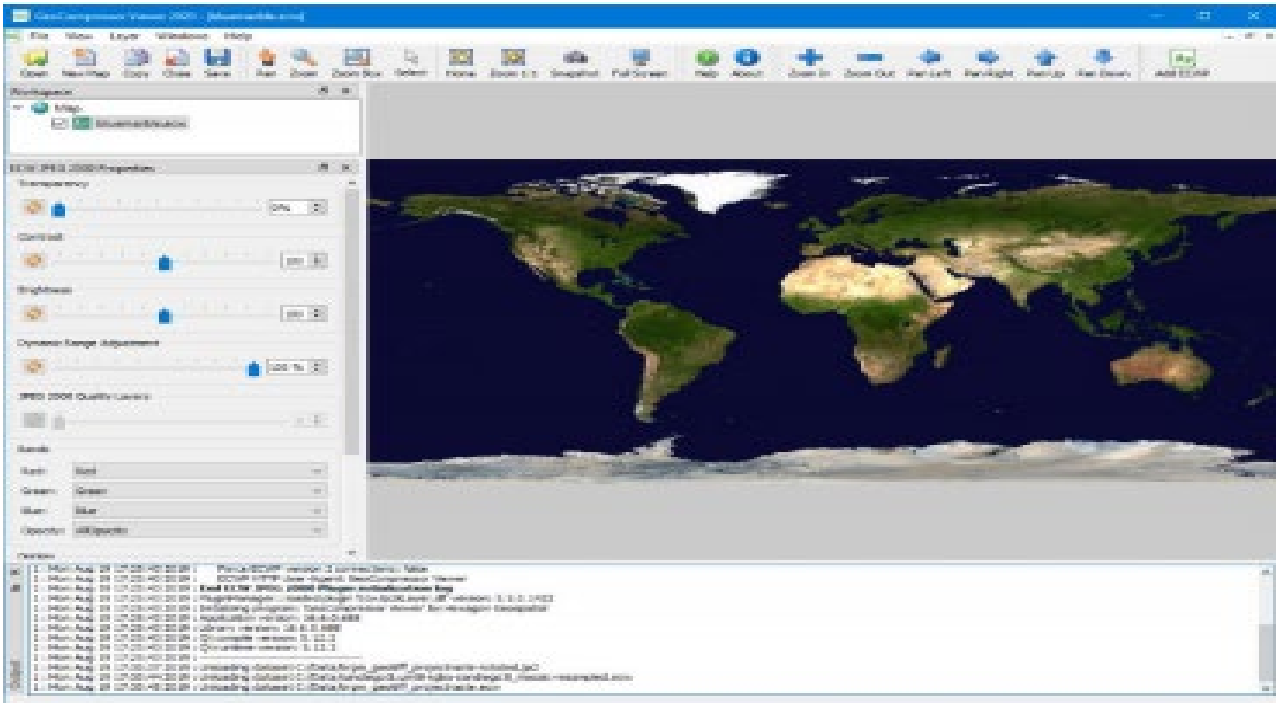
1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
i.	In a raster overlay, a point is represented by: (a)String of cell (b) group of cell (c) single cell (d) all of these	
ii.	Fields can be: (a) Discrete only (b) Continuous only (c) Discrete or continuous (d) None of the above	
iii.	Sensitivity of the remote sensing detector to differentiate in signal strength as it record the radiant flux reflected or emitted from the terrain: (a) Point resolution (b) Linear resolution (c) Radiometric resolution (d)None of above	
iv.	Remote sensing system which measure energy that is naturally available is called: (a) SAR (b) Passive Sensors (c) Active Sensors (d) None of these	
v.	Pick up the correct statement from the following: (a) In remote sensing technique, the observation place, is called a platform	
vi	The value of energy quantum for radiation of any frequency is proportional to : (a) the frequency (b) the reciprocal of the energy (c) the square of the frequency (d) the square root of the frequency	
vii.	Ground control points are established in aerial photogrammetry to control (a) Height distortion (b) tilt distortion (c) Relief displacement (d) scale	
viii.	In aerial photogrammetry, map details are plotted by (a) Graphical method (b) mechanical method (c) Steroplotters (d) all the above	
ix.	In a tilted photograph (a) The scale is uniform (b) The downward half has smaller scale (C) The downward half has larger scale (d) Either of the two halves can have a larger scale	
x.	Line in polygon method is characteristics of: (a) Raster overlay (b) vector overlay (c) Buffer operation (d) intersecting operation	

Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
	Write short note on the following: i. Map Overlay ii. Buffering in GIS	
	Explain briefly: i. Major atmospheric window used in Remote Sensing System ii.Representation of Digital Image	
Q.3A	Explain in details the primary components of GIS in increasing order of importance.	05
Q.3B	With a flow diagram, describe the role of GIS in planning purpose.	05
Q.4A	With examples, explain the difference between discreet and continuous type of geographic data.	05
Q.4B	Enlist the different advantages and disadvantages of Raster data model.	05







Use of different Remote Sensing and GIS Softwares

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CE409	Concrete Technology	3	0	2	4

Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks**
20	20	50	10	100	20	50	30	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Course Syllabi (Theory):

Review of constituent materials – Cement, Aggregates and mix design, admixtures,

Properties of concrete in fresh and hardened state, special concretes, durability of concrete subjected to extreme environment,

Deterioration mechanisms, assessment and control of corrosion in concrete structures,

In-situ assessment of concrete structures,

Various NDT techniques and their applications, Repair of concrete structures

Syllabus (Practical)

1. Tests on cement – specific gravity, fineness, soundness, normal consistency, setting time, compressive strength on cement mortar cubes
2. Tests on fine aggregate – specific gravity, bulking, sieve analysis, fineness modules, moisture content, bulk density and deleterious materials.
3. Tests on coarse aggregate - specific gravity, sieve analysis, fineness modulus, bulk density.
4. Tests on Fresh Concrete: Workability: Slump, Compaction factor tests, Flow table test.
5. Indian standard method of test for permeability of cement mortar and concrete.
6. Hardened Concrete: Compressive strength on Cubes, Static modulus of elasticity, Flexure tests , Nondestructive testing
7. Mix Design of Concrete.

Text Book(s)/ Reference Book(s)

1. Neville, A.M. and Brooks, J.J.," CONCRETE TECHNOLOGY", ELBS .1990.
2. Mehta, P.K., "CONCRETE Structure, Material and Properties" Prantice Hall Inc.1986.
3. Newman, K., "CONCRETE SYSTEMS in COMPOSITE MATERIALS".EDT BY L.Holliday. Elsevier Publishing Company. 1966.
4. Powers, T.C., "THE PROPERTIES OF FRESH CONCRETE".JOHN WILEY & SONS, INC. 1968.

Employability skill activities

Creative Projects & Contracts Pvt Ltd.

(Trainee as a site engineer)

PREPARED BY-

Abhishek Kumar Joya (2015BTechCE001)

FACULTY GUIDE

Prof. Vinod Kumar Vishwakarma

- Concrete pouring by pumping method:

This process is done when a very large area of slabs and beams are being casted & hence this continuous pouring is done with the help of pumping mechanism.

Fig 4: Concrete pumping in block 5

Students under training at Site

Table 3.4 BBS Of Intermediate Wall

Location	Dia	Spacing	No. of bars	Cut length	Total length	Unit weight	Qty
Inner vertical bar for pier	12	200	362	6.7	2425.4	0.89	2.156
Shear link pier wall	10	200	6064	0.55	3335.2	0.62	2.059

Figure 3.4 Intermediate Wall Casting

Fig: Students doing project in industries

CHAPTER 6 : Conclusion & Refrences

6.1 Conclusion

This internship has been an excellent and rewarding experience. I have been able to meet and build network with so many people who will surely help me with opportunities in the future. One main thing that I have learned through this internship is time management skill as well as self-motivation. I conclude that there is a difference between the theoretical and practical work. As we will do more practical work, the scope of understanding would be high. This practical knowledge would surely contribute in our overall learning experience.

Fig: Students doing project in industries

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CSE703	Artificial Intelligence	3	0	2	4

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test – I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation *	Total Marks**
20	20	40	10	10	100	20	40	15	25	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Syllabus (Theory)

What is Artificial Intelligence?, The AI Problems, The Underlying Assumption, What is an AI Technique, The Level of the Model, Criteria for Success

Problems, Problem spaces and Search

Heuristic Search Techniques

Knowledge representation issues

Using Predicate knowledge
Rule based representation of knowledge

Syllabus (Practical)

Implementation of different problems using programming languages such as PROLOG & LISP.

Text Books:

1. Russell and Norvig. Artificial Intelligence: A Modern Approach, 3rd. edition.

Reference Books:

1. David Poole, Alan Mackworth, Randy Goebel, "Computational Intelligence : a logical approach", Oxford University Press, 2004.

2. G. Luger, "Artificial Intelligence: Structures and Strategies for complex problem solving", FourthEdition, Pearson Education, 2002.

3. J. Nilsson, "Artificial Intelligence: A new Synthesis", Elsevier Publishers, 1998.

Assignments

Find out about two applications of AI (not classes of applications, but specific programs). For each application, write, at most, one typed page describing it. You should try to cover the following questions:

a. What does the application actually do (e.g., control a spacecraft, diagnose a photocopier, provide intelligent help for computer users)?
b. What AI technologies does it use (e.g., model-based diagnosis, belief networks, semantic networks, heuristic search, constraint satisfaction)?
c. How well does it perform? (According to the authors or to an independent review? How does it compare to humans? How do the authors know how well it works?)
d. Is it an experimental system or a fielded system? (How many users does it have? What expertise do these users require?)
e. Why is it intelligent? What aspects of it make it an intelligent system?
f. [optional] What programming language and environment was it written in? What sort of user interface does it have?
g. References: Where did you get the information about the application? To what books, articles, or web pages should others who want to know about the application refer?

2016-17_EE701_ Electrical Drive & Control

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
EE 701	Electric Drives and Control	3	1	0	4

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation *	Total Marks	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks
20	20	40	10	10	100	-	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

AIM: The course file is prepared to help students in designing & planning of outcome based teaching-learning in a given course. File contents lecture schedule, learning objectives, course outcome, reading material & references, projects to be carried-out, industrial visits & expert lectures to be organized, evaluation scheme and performance records of students.

Course Objectives:

1. To provide students with a strong back ground in different types of electrical drives.
2. Equipped students with knowledge of variable-speed drives and motion control systems.
3. The course stresses the basic understanding of characteristic of machines driven from appropriate power electronic converters and controllers.
4. Representation of drive dynamics, and design drive control systems will be covered.
5. To provide a foundation in the theory and applications of electrical machinery and their different types with respect to their control.

Course outcomes (*after completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes)*

(A) The students will demonstrate:

1. To provide solid foundation in controlling method of different electrical appliances.
2. Articulate power electronics applications in control of speed, torque and other components.
3. Understand the performance of these drives supplied from appropriate converters.
4. Be able to select and design important elements of a drive system.
5. Understand the quadrant operation of various types of drives and their control requirements, selection of converters, components, etc.
6. Be able to apply the theories of electrical machines, power electronic converters and control system design to implement drive systems which are appropriate for certain specific applications requiring adequate performance.

(B) After successful completion, the students will be able to answer following questions:

1. Understand fundamental elements of drive systems, analyse the steady-state characteristics of a few commonly used types of drives used in the industry.
2. Understand how to design the hierarchical control structures for drive systems.
3. Able to control Dc motor by Single phase converters.
4. Able to control DC Motor by Three Phase Converters.
5. Able to discuss four quadrant operation of DC drives.
6. Able to control DC motors by Choppers.
7. Able to control of Induction motor through station voltage

Syllabus (Theory)

UNIT I

INTRODUCTION: - Definition & classification of different type of drives, Review of characteristics and components of electric drives, Speed control methods of various a.c.

and d.c. drives, its advantages and applications, acceleration and retardation time, energy consideration.

UNIT II

BRAKING OF DRIVES:- Various methods of braking of a.c. and d.c drives, Automatic control arrangement, characteristics and application, acceleration and Retardation time ,Energy consideration.

UNIT III

INDUCTION MOTOR (A.C) DRIVES:- Basic principle of induction motor drives, 3 ∅ a.c voltage controller fed I.M drive, variable frequency control, voltage source inverter (VSI) and current source inverter (CSI), cycloconverter fed IM drive, Slip Power control, static rotor resistance control, chopper control of 3 -∅ slip ring induction motor.

UNIT IV

DRIVES: - Rectifier controlled circuits, Single phase fully controlled and half controlled rectifier fed separately excited d.c motor, 3∅ fully and half controlled fed separately excited d.c. Motor, performance and characteristics of single phase and 3∅ rectifier controlled d.c drives. Control techniques of d.c. Drives using chopper, multi quadrant control of chopper fed motors.

UNIT V

DYNAMICS OF ELECTRIC DRIVES:- Fundamental load torque equation, permissible frequency of starting and stopping, definite time, speed and current limit control, Automatic starting and pulling operation of synch.

Text Book(s)

1. G.K.Dubey," Fundamentals of Electric Drive". Narosa Publishing House. Bimbhra.P.S. "Power Electronics" Khanna Publisher.
2. Singh M.D. & Khanchandani K.B. "Power Electronics" Tata McGraw Hill
3. Sen P.C. "Power Electronics", Tata McGraw Hill
4. Chau K.T. "Electrical Vehicle Machines and Drives Design, Analysis and Application", Willey, IEEE Press.

Reference Book(s)

1. M. Ramamurthy: An Introduction to Thyristors and their Applications, East West Press Pvt Ltd.

2. Mohammad H. Rashid : Power Electronics Circuits, Devices and Applications, Prentice Hall of India Pvt Ltd.
3. Seth Leitman Bob Brant: Build Your Own Electrical Vehicle, Tata McGraw Hill.

Activities Related to Skill Development and Employability

Student has developed projects, related to Industrial Drives. Students has also participated in Workshop, Expert talk, Mock interview and power point presentation.

1. Sample List of Projects.

S.N.	Title of Projects
1	Design Chopper circuit using MOSFET
2	Design AC Voltage Controller to control speed of 1-phase induction motor.
3	Modeled MPPT controller based P&O Technique

2. Workshop and Expert talk

- Two day workshop on 'MATLAB/Simulink' during 29-30 September 2016 by Dr. Rajesh Kumar, Associate Professor, Malviya National Institute of Technology, Jaipur.
- An Expert Talk on "Element of Circuit and Their Characteristic" by Dr. K. G. Sharma, Associate Professor, Govt. Engineering College, Ajmer dated 25th July 2016.

3. Mock Interview and Presentation by department faculty.

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
EE 702	High Voltage Engineering	3	1	0	4

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks
20	20	40	10	10	100	-	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Syllabus (Theory)

UNIT I

BREAK DOWN IN GASES: Ionization processes, Townsend's criterion, breakdown in electro negative gases, time lags for breakdown, streamer theory, Paschen's law, breakdown in non-uniform field, breakdown in vacuum.

BREAKDOWN IN LIQUID DIELECTRICS: Classification of liquid dielectric, characteristic of liquid dielectric, breakdown in pure liquid and commercial liquid.

BREAKDOWN IN SOLID DIELECTRICS: Intrinsic breakdown, electromechanical breakdown, breakdown of solid, dielectric in practice, breakdown in composite dielectrics.

UNIT II

GENERATION OF HIGH VOLTAGES AND CURRENTS: Generation of high direct current voltages, generation of high alternating voltages, generation of impulse voltages, generation of impulse currents, tripping and control of impulse generators.

UNIT III

MEASUREMENT OF HIGH VOLTAGES AND CURRENTS: Measurement of high direct current voltages, measurement of high alternating and impulse voltages, measurement of high direct, alternating and impulse currents, Cathode Ray Oscillograph for impulse voltage and current measurements.

UNIT IV

NON-DESTRUCTIVE TESTING: Measurement of direct current resistivity, measurement of dielectric constant and loss factor, partial discharge measurements.

HIGH VOLTAGE TESTING: Testing of Insulators and Bushings, testing of Isolators and Circuit Breakers, testing of Cables, testing of Transformers, testing of Surge Arresters, leakage current monitoring test of Surge Arrester, Testing of CVT and VT, radio interference measurement.

UNIT V

OVERVOLTAGE AND TRAVELLING WAVES: Causes of over voltages, introduction to lightning phenomena, over voltages due to lighting, Travelling waves on transmission lines-open end line, short circuited line, line terminated through a resistance, line connected to a cable, reflection and refraction at a T-junction and line terminated through a capacitance, Attenuation of travelling waves.

Over Voltage Protection & Insulation Coordination: Basic construction and operation of ground wires- protection angle and protective zone, ground rods, counterpoise, surge absorber, rod gap and arcing horn, lighting arresters - expulsion type, non -linear gap type and metal oxide gapless type, **v**olt - time curves, basic impulse insulation levels, coordination of insulation levels

Text Book(s)

1. M.S.Naidu and V.Kamraju – High Voltage Engineering, Tata McGraw Hill Publishing,Company, New Delhi
2. C.L. wadhawa -High Voltage Engineering-New Age international (P) Ltd. Publications.
3. Subir Ray, "An Introduction to High Voltage Engineering", Prentice Hall of India.

Reference Book(s)

1. Rokosh Das Begamudre- EHV AC. Transmission Engineering, Wiley Easter Ltd. New Delhi.
2. E. Kuffel and W. S. Zacngai, "High Voltage Engineering", Pergamon Press.

3. M. P. Chaurasia, “High Voltage Engineering”, Khanna Publishers.
4. R. S. Jha, “High Voltage Engineering”, Dhanpat Rai and Sons.

Activities Related to Skill Development and Employability

Student has developed projects, related to power system Industrial Drives. Students has also participated in workshop, expert talk, Mock interview and power point presentation.

1. **Sample List of Projects.**

S.N.	Title of Projects
1	Design Electrical Welding Machine
2	Footstep Power Generation using Piezoelectric Sensors
3	Simulation of High Voltage Test Set-up

2. **Workshop and Expert talk**
   - Two day workshop on ‘MATLAB/Simulink’ during 29-30 September 2016 by Dr. Rajesh Kumar, Associate Professor, Malviya National Institute of Technology, Jaipur.
   - An Expert Talk on “Element of Circuit and Their Characteristic” by Dr. K. G. Sharma, Associate Professor, Govt. Engineering College, Ajmer dated 25th July 2016.
3. **Mock Interview and Presentation by department faculty.**

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
EE 703	TESTING and COMMISSIONING OF ELECTRICAL MACHINES	3	0	2	5.5

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks**
20	20	40	10	10	100	20	40	15	25	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Syllabus (Theory)

UNIT I

TRANSFORMERS: Testing procedure for HV testing, Phase shifting/ phase group, Radio interference, Ratio Test , Load loss , Separate source voltage testing, Induced voltage testing, Impulse and Surge testing, Noise level and vibration testing, Short circuit withstand test, Tan Delta test , Core insulation voltage test, Measurement of impedance, Testing of auxiliaries and safety device, Oil testing, Classification of testing methods, Testing of bushing. DC and AC Resistance measurement, Temp. Rise test, Short circuit test, Dielectric test, Partial discharge, Insulation resistance testing. Polarity testing, Short time current rating, Impulse and surge testing, Determination of error and accuracy class, Power frequency voltage withstand test, over voltage inter-turn test. Determination of polarization index for transformer. Drying out procedure for transformer. Commissioning steps for transformer, Purification and Filtration Procedure.

UNIT II

INDUCTION MOTOR: TESTING (3-PHASE and 1-PHASE): Hammer test, Testing against variation of voltage/current/frequency, Load test, NL and BR test, DC and AC, Resistance measurement, Insulation measurement, Starting test, Temp. Rise test, Slip measurement, HV test, testing on auxiliaries, Vibration Test, Noise level test. Drying out methods / Polarization Index / Hot Temperature measurement Degreeof protection (IP Grade) Commissioning steps for Induction motor, Heat Run Test. Commissioning of Induction Generator. Troubleshooting and maintenance of induction motor.

UNIT III

SUBSTATION EQUIPMENTS: Bus bar Temp. Rise test, Rated short time current test, HV test, Power frequency voltage withstand test, Impulse / surge testing, Vibration.

EARTHING: Earthing resistance measurement, Substation grid Earthing, Soil resistivity measurement.

ISOLATOR TESTING: Temp. Resistance test, Short circuit test, charging current making and breaking test, Inductive current making and breaking test.

UNIT IV

CIRCUIT BREAKER: TESTING OF HV/LV CIRCUIT BREAKER : No load Mechanical Operation, Mechanical endurance test, Temp. Rise test, Impulse and surge testing, short time current test. Short circuit making and breaking test, Line Charging current making and breaking test, Cable charging and capacitor bank making and breaking test, Out of phase switching, Short line fault test, and Electrical and Mechanical endurance test for LT switch gear like MCB / MCCB / ELCB etc. C.T. and P.T. Testing, Relay testing, Coupling capacitors, Station Batteries for DC Supply, Fire Shifting Equipment's. Testing and Commissioning of Lightning Arrestor, Substation Commissioning by Thermograph. Troubleshooting and maintenance of circuit breakers.

UNIT V

COMMISSIONING OF TRANSMISSION LINE and CABLE: De-rating of cable capacity, HV test, AC and DCResistance check, Insulation resistance, Impedance measurement, Location finding technique for fault in underground cables (Murray loop test and Warley loop test), Testing of open circuit faults in cables. Line charging, loading and Dropping.

Syllabus (Practical)

1. Measurement of IR Value for Three Phase and Single Phase Transformer.
2. Measurement of IR Value for Three Phase IM.
3. Measurement of IR Value for Synchronous Machine.
4. Measurement of X0 and X2 for synchronous Machines.
5. Measurement of Poles for IM.
6. Tan (δ) Measurement Test for Transformer.
7. Measurement of Direct axis Sub-transient and Transient Reactance for synchronous Machines.
8. To study various Testing of Induction Motor.

Text Book(s)

1. S. Rao, "Testing, Commissioning, Maintenance and Operation of Electrical Equipments", Khanna Tech. Publications.

Reference Book(s)

1. R C H Richardson, "The Commissioning of Electrical Plant", Chapman and Hall

Activities/Content with direct bearing on Employability/ Entrepreneurship/ Skill development

- **Content with direct bearing on Employability:** Installs and repairs electrical systems, diagnoses malfunctioning apparatus, such as transformers, motors, and lighting fixtures and preventive Maintenance with updated Check sheet.
- **Activities:** How to make preventative maintenance chart for substation, an industrial visit at 220 KV grid substations, MAHINDRA SEZ-I, Jaipur

Session 2016-17

Department of Mechanical Engineering

Course: Industrial Engineering and Operation Research
Code: ME506

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
ME 506	Industrial Engineering and Operation Research	3	1	0	4

Evaluation Scheme (Theory)					Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation *	Total Marks
20	20	50	10	100	-	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Course Syllabi (Theory):

UNIT I

Introduction: Definition and scope of industrial engineering, Role of an industrial engineering

Plant Layout and Material handling: Necessity, plant Location Analysis, site selection process, cost economics, Plant Layout, classification of production, types of layout, design & development of a process layout, development a layout, Group Technology. Material handling: principles of material handling and material handling equipment.

UNIT II

Method Study and Work Simplification: basic concepts, productivity, Method Study: Objectives and procedure for methods analysis: Select, Record, Examine, Develop, Define, Install and Maintain. Recording techniques.

UNIT III

Work Measurement: Objectives, Work measurement techniques - time study, work sampling, pre-determined motion time standards (PMTS) Determination of time standards. Observed time, basic time, normal time, rating factors, allowances and standard time.

Job Evaluation: introduction, job rating, merit rating, financial benefits.

Value Engineering: introduction, concept of value engineering, phases/functions of value engineering studies, application of value engineering.

UNIT IV

Project management through PERT/CPM: introduction, work breakdown structure, network construction. Problem solution.

UNIT V

Linear Programming: Introduction & Scope, Problem formulation, Simplex methods, primal & dual problem dual Simplex, sensitivity analysis

Assignments:

- *What is plant organization?*
- *What points should be kept in mind to build an effective organization?*
- *Which two groups of management manages the control organization and what are their responsibilities?*
- *What is process analysis?*
- *What are the requirements of a good organization?*
- *What is process planning? Mention different type of processes.*

1. A company is involved in the production of two items (X and Y). The resources need to produce X and Y are twofold, namely machine time for automatic processing and craftsman time for hand finishing. The table below gives the number of minutes required for each item:

	Machine time	Craftsman time
Item X	13	20
Item Y	19	29

The company has 40 hours of machine time available in the next working week but only 35 hours of craftsman time. Machine time is costed at £10 per hour worked and craftsman time is costed at £2 per hour worked. Both machine and craftsman idle times incur no costs. The revenue received for each item produced (all production is sold) is £20 for X and £30 for Y. The company has a specific contract to produce 10 items of X per week for a particular customer.
Formulate the problem of deciding how much to produce per week as a linear program.

2. Answer the questions related to the model below:

$$\begin{aligned} \max. \quad & 3x_1 + 2x_2 \\ \text{st} \quad & 2x_1 + 2x_2 \le 5 \\ & 2x_1 + x_2 \le 4 \\ & x_1 + 2x_2 \le 4 \\ & x_1, x_2 \ge 0 \end{aligned}$$

   a. Use the graphical solution technique to find the optimal solution to the model.
   b. Use the simplex algorithm to find the optimal solution to the model.
   c. For which objective function coefficient value ranges of x_1 and x_2 does the solution remain optimal?
   d. Find the dual of the model.

3. Consider the following problem.

$$\begin{aligned} \max \; & 3x_1 + 2x_2 \\ \text{s.t.} \; & 3x_1 + x_2 \le 12 \\ & x_1 + x_2 \le 6 \\ & 5x_1 + 3x_2 \le 27 \\ & x_1, x_2 \ge 0. \end{aligned}$$

   a) Solve the problem by the *original simplex method* (in tabular form). Identify the *complementary* basic solution for the dual problem obtained at each iteration.
   b) Solve the *dual* of this problem manually by the *dual simplex method*. Compare the resulting sequence of basic solutions with the complementary basic solutions obtained in part (*a*).

4. Use the *revised simplex algorithm* manually to solve the following problem.

$$\begin{aligned} \min \; & 5x_1 + 2x_2 + 4x_3 \\ \text{s.t.} \; & 3x_1 + x_2 + 2x_3 \le 4 \\ & 6x_1 + 3x_2 + 5x_3 \le 10 \\ & x_1, x_2, x_3 \le 0 \end{aligned}$$

Quiz's:
Quizzes are arranged after the completion of each unit.

List of students session 2014-2018

Sr. No	Roll No	Name
1	2014BTechME001	Abhishek Jain
2	2014BTechME002	Arihant Jain
3	2014BTechME003	Chetan Dhyani
4	2014BTechME004	Divyanshu Suthar
5	2014BTechME005	Gaurav Mishra
6	2014BTechME006	Harshit Gaur
7	2014BTechME007	Hitesh Bhati
8	2014BTechME008	Karan Gupta
9	2014BTechME009	Kshitij Singh
10	2014BTechME010	Kumar Aditya
11	2014BTechME013	Robin Singh
12	2014BTechME014	Sameer Gupta
13	2014BTechME015	Saumyarup Roy
14	2014BTechME016	Sushant Sharma
15	2014BTechME018	Vikram Singh Shekhawat
16	2014BTechME019	Shivam Sharma
17	2014BTechME020	Kapil Yadav
18	2014BTechME021	Rishabh Mishra
19	2013BTechME001	Abhishek Sharma

Session 2016-17

Department of Mechanical Engineering

Course : Industrial Pollution and Control
Code: ME725

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
ME 725 (Elective-III)	Industrial Pollution and Control	3	0	0	3

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks**
20	20	40	10	10	100	-	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Syllabus (Theory)

- Types of emissions from chemical industries and effects of environment, environment legislation, Type of pollution, sources of wastewater, Effluent guidelines and standards,
- Characterization of effluent streams, oxygen demands and their determination (BOD, COD, and TOC), Oxygen sag curve, BOD curve mathematical, controlling of BOD curve, self purification of running streams, sources and characteristics of pollutants in fertilizer, paper and pulp industry, petroleum and petroleum industry.
- General methods of control and removal of sulfur dioxide, oxides of nitrogen and organic vapors from gaseous effluent, treatment of liquid and gaseous effluent in fertilizer industry.

- Air pollution sampling and measurement: Types of pollutant and sampling and measurement, ambient air sampling: collection of gaseous air pollutants, collection of particulate air pollutants. Stack sampling: sampling system, particulate sampling, and gaseous sampling. Analysis of air pollutants: Sulphur dioxide, nitrogen oxides, carbon monoxide, oxidants and Ozones, hydrocarbons, particulate matter.
- Air pollution control methods and equipments: Source collection methods: raw material changes, process changes, and equipment modification. Cleaning of gaseous equipments particulate emission control: collection efficiency, control equipment like gravitational settling chambers, Cyclone separators, fabric filters, ESP and their constructional details and design aspects. Scrubbers: wet scrubbers, spray towers, centrifugal scrubbers, packed beds and plate columns, venturi scrubbers, their design aspects. Control of gaseous emissions: absorption by liquids, absorption equipments, adsorption by solids, equipment and the design aspects.
- Introduction to waste water treatment, biological treatment of wastewater, bacterial and bacterial growth curve, aerobic processes, suspended growth processes, activated aerated lagoons and stabilization ponds, Attached growth processes, trickling filters, rotary drum filters, anaerobic processes.

- Methods of primary treatments: screening, sedimentation, flotation, neutralization, and methods of tertiary treatment. A brief study of carbon absorption, ion exchange, reverse osmosis, ultra filtration, chlorination, ozonation, treatment and disposal.
- Hazardous waste management: Nuclear wastes: health and environment effects, sources and disposal methods. chemical wastes: health and environmental effects, treatment and disposal: treatment and disposal by industry, off site treatment and disposal, treatment practices in various countries. Biomedical wastes: types of wastes and their control.

Assignments:

- *How to build a more climate-friendly chemical industry?*
- *How can we separate nitrobenzene and water without steam distillation?*
- *What is the difference between suspended-growth and attached growth processes? With examples.*
- *Describe in detail what is biological wastewater treatment, also mention its uses, advantages and disadvantages over the period of use.*

Quiz's:

Quizzes are arranged after the completion of each unit to make student aware with resent pollution problems of the environment and how to control while controlling the Industrial pollution.

List of students session 2013-2017		
Sr. No	**Roll No**	**Name**
1	2012BTechME037	Yugesh Sah
2	2013BTechME002	Ajay Singh
3	2013BTechME004	Ashwani Kumar
4	2013BTechME005	Chitransh Mewara
5	2013BTechME006	Devansh Lalwani
6	2013BTechME007	Dharmendra Kumar Chawda
7	2013BTechME008	Diptanshu Keshote
8	2013BTechME009	Gaurav Champawat
9	2013BTechME010	Hardik Gehlot
10	2013BTechME011	Hardik Sharma
11	2013BTechME012	Harsh Vardhan Singh
12	2013BTechME013	Harshal Taneja
13	2013BTechME015	Kartike Sharma
14	2013BTechME016	Kshitiz Sharma
15	2013BTechME017	Maaz Ali Khan
16	2013BTechME018	Maheshwar Singh Solanki
17	2013BTechME019	Manish Lour
18	2013BTechME021	Naorem Devendrajit Singh
19	2013BTechME022	Nihal Gupta
20	2013BTechME023	Nikhil Maharshi
21	2013BTechME025	Parth Vijay
22	2013BTechME026	Peeyush Kumawat
23	2013BTechME027	Pramit Kumar Munshi
24	2013BTechME028	Pranjal Gupta
25	2013BTechME029	Prasant
26	2013BTechME030	Prashant Dixit
27	2013BTechME033	Rajesh Kumar Sah
28	2013BTechME035	Sandeep Kumar Khatik
29	2013BTechME036	Sanyam Kumar Jain
30	2013BTechME038	Shilp Kakra
31	2013BTechME039	Shubham Gupta
32	2013BTechME041	Sourabh Tailor
33	2013BTechME042	Swapnil Badgaiyan
34	2013BTechME045	Vaibhav Vinod Karwa
35	2013BTechME046	Vikram Choudhary
36	2013BTechME050	Brajesh Rohilla
37	2013BTechME051	Akshay Lath
38	2014BTechME151	Abhijeet Singh Shekhawat
39	2012BTechME028	Sandeep Chawara

Session 2016-17

Department of Mechanical Engineering

Course : Kinematics of Machine Elements

Code: ME 407

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
ME 407	Kinematics of machines	3	0	0	3

Evaluation Scheme (Theory)					Evaluation Scheme (Practical)			
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks**
20	20	50	10	100	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Course Syllabi (Theory):

- Kinematics, Kinematic pairs, Kinematic chain, Mechanism, Machine, Structure, Types of links,Types of consrained Motions,Types of joints in a chain, Inversions of: Four-bar chain, Single and double slider crank chain, Quick return mechanisms.
- Velocity determination; Relative velocity methods, Instantaneous center method, Kennedy's Theorem, Space centroid and body centroid.
- Centripetal and tangential accelerations, Acceleration determination by graphical method using velocity polygons, Coriolis component of acceleration, Klein's construction Introduction to analysis and synthesis of mechanisms, Introduction to function generation, Path generation and rigid bodied guidance.Analytical methods to find velocity and acceleration of four –link mechanism (Freudenstein's equation), slider crank mechanism, To Coordinate angular displacements of input and output links, least square technique.

List of Experiments:

Expt. No.	Name of the Experiment	Area of Application
1.	Spring Mass System	• *It is used as vibration absorber*
2.	Spring Mass Damper System	• *This application calculates the optimum spring and damping constant of a tuned-mass damper that minimizes the vibration of the system.*
3.	Critical Speed of Shaft or Whirling of Shaft	• *The Whirling vibration application is able to check the shaft line for vibrations due to the rotation of the shaft line and the hydrodynamic effects of the propeller*
4.	Spring Controlled Governor	• *It is a device used to measure and regulate the speed of a machine, such as an engine*
5.	Balancing Of Rotating Masses	• *It is important to avoid vibration in heavy industrial machines such as gas turbines and electric generators*
6.	Journal Bearing Test Rig	• *Used where the bearing speed is tending to 3000rpm and above* • *Internal Combustion Engines, centrifugal pumps, Turbine shafts of most jet engines*
7.	Gyroscope	• *Used in in the Hubble Telescope* • *inside the steel hull of a submerged submarine*
8.	(i) To study the various types of link, and pair mechanism. (ii) To study the inversions of four bar mechanism.	• *Coupling rod of a locomotive* • *Crank and slotted lever quick return motion mechanism* • *Whitworth quick return motion mechanism, etc..*
9.	To study various types of cam and follower arrangements	• *used for operating inlet and exhaust valve of I C engine* • *used in feed mechanism of automatic lathe Machine*

List of students (session 2015-2019)		
Sr. No	**Roll No**	**Name**
1	2015BTechME001	Abhishek Sankhla
2	2015BTechME002	Aman Medatwal
3	2015BTechME003	Amar Singh Rathore
4	2015BTechME005	Anurag Mishra
5	2015BTechME006	Bijay Yadav
6	2015BTechME007	Chetan Pratap Singh Rathore
7	2015BTechME009	Krishna Verma
8	2015BTechME010	Kunal Sharma
9	2015BTechME011	Mohammed Talib Khan
10	2015BTechME012	Nadeem Khan
11	2015BTechME013	Naman Tyagi
12	2015BTechME014	Nikhil Shah
13	2015BTechME015	Rachit Singodia
14	2015BTechME016	Rohan Singh
15	2015BTechME017	Roopam Verma
16	2015BTechME018	Urvija Tiwari
17	2015BTechME019	Vishnu Kant
18	2015BTechME020	Devanshu Singh
19	2015BTechME021	Vivek Vishwakarma
20	2015BTechME022	Rahul Agnihotri
21	2015BTechME024	Prakhar Prakash
22	2015BTechME025	Nirmal Yadav
23	**2014BTechME011**	**Mehul Jalan**

MASTER of BUSINESS ADMINISTRATION
MBAHR403
ORGANIZATION DEVELOPMENT
COURSE OUTLINE
SEMESTER IV: 2016-17

INSTRUCTOR'S DETAILS
NAME: DR. RICHA MISHRA
E-MAIL: richamishra@jklu.edu.in
OFFICE: ROOM# 228(IM BLOCK, 2ND FLOOR)
OFFICE TEL: 0141- 7107553

L-T-P: 3-0-0
COURSE CREDIT: 3
SESSION DURATION : 60 MINUTES

COURSE DESCRIPTION:

Organizational Development (OD) is a conscious, planned process of developing an organization's capabilities so that it can attain and sustain an optimum level of performance as measured by efficiency, effectiveness, and health. Through the process of OD, we attempt to bring about successful change efforts in individual employees, groups and teams, inter-groups, and organizations as well. To achieve a competitive advantage in a global marketplace, contemporary organizations are in a continuous state of change. Within such a complex system as an organization, change has a rippling effect. Given the magnitude of change taking place at the beginning of the 21st century, it is important for HR, OB, and Evaluation professionals to examine the theories and models, and methods and processes related to organizational change. In this course, we will focus on those methods, models, and processes specifically related to diagnosing and planning for organizational change/develoment.

COURSE OBJECTIVES:

By the end of this course, students shall have been able:

- To articulate and discuss the history, main concepts, and theories of the field of Organization Development
- To experience the emotions and dynamics of change, resistance to change and articulate the reasons behind such dynamics
- To articulate and discuss the process of Change Management with particular attention to the logic behind the stages of the process

LEARNING OUTCOMES:

Upon successful completion of this course, the student should have the ability to:

1. Examine systematically the dynamics of entry, diagnosis, planning, intervention, and sustainability that occur during organization change efforts
2. Recognize and understand the intricate relationship between the strategic business plan of the organization and the role of organization development.
3. Understanding of critical processes and dynamics associated with organizational change and development.

COURSE OUTLINE (TENTATIVE SESSION PLAN)

Session No.	Topics to be covered in the course	READINGS
Week 1 (S1-3)	GENERAL INTRODUCTION TO ORGANIZATION DEVELOPMENT • Organization Development Defined • Growth and Relevance of Organization Development • Short History of Organization Development • Evolution in Organization Development	Chapter 1 of textbook
Week 2 (S4-6)	THE NATURE OF PLANNED CHANGE • Theories of Planned Change • General Model of Planned Change • Different Types of Planned Change • Critique of Planned Change	Chapter 2&3 of textbook
Week-3 (S7-9)	THE OD PRACTIONER • Who is the OD practitioner? • Competencies of an Effective OD Practitioner • The Professional OD Practitioner • Professional Values • Professional Ethic	Chapter 3 of Cummings, T. G. & Worley, C. G. (2009).Organization development and change.
Week-4 (S10-12)	ENTERING AND CONTRACTING • Entering into an OD Relationship • Developing a Contract • Interpersonal Process Issues in Entering and Contracting	Chapter 2 of textbook
Week-5 (S13-15)	DIAGNOSING ORGANIZATIONS • What is Diagnosis? • The Need for Diagnostic Models DIAGNOSING GROUPS AND JOBS • Group-Level Diagnosis • Individual-Level Diagnosis	Chapter 4&5 of textbook
Week-6 (S16)	**QUIZ-1**	

Week-6 (S17-18)	**REVIEW AND RECAP**	
	MID TERM EXAM	
Week- 7 (S19-21)	DESIGNING INTERVENTIONS • What are Effective Interventions? • How to Design Effective Interventions • Types of Interventions	Chapter 6 of textbook
Week-8 (S22-24)	INTERPERSONAL AND GROUP PROCESS APPROACHES • Process Consultation • Third-Party Interventions • Team Building ORGANIZATION PROCESS APPROACHES • Organization Confrontation Meeting • Intergroup Relations Interventions • Large-Group Intervention	Chapter 7&8of textbook
Week -9 (S25-27)	TECHOSTRUCTURAL INTERVENTIONS RESTRUCTURING ORGANIZATIONS • Structural Design • Downsizing • Reengineering EMPLOYEE INVOLVEMENT • What is It? • Types of Employee Involvement Interventions WORK DESIGN • The Engineering Approach • The Motivational Approach The Sociotechnical Systems Approach	Chapter 14,15 & 16 of Cummings, T. G. & Worley, C. G. (2009).Organization development and change (9th edition). Canada: South-Western Cengage Learning
Week-10 (S28-30)	HUMAN RESOURCE MANAGEMENT INTERVENTIONS – • Goal Setting • Performance Appraisal • Rewards Systems • Coaching and Mentoring • Career Planning and Development Interventions • Management and Leadership Development Interventions MANAGING WORKFORCE DIVERSITY AND WELLNESS • Workforce Diversity Interventions • Employee Stress and Wellness Interventions	Chapter 17,18 & 19 of Cummings, T. G. & Worley, C. G. (2009).Organization development and change (9th edition). Canada: South-Western Cengage Learning
Week-11 (S31-33)	STRATEGIC CHANGE INTERVENTIONS • Characteristics of Transformational Change • Integrated Strategic Change	Chapter 10 of textbook

	• Organization Design • Culture Change • Self-designing Organizations • Learning Organizations • Built-to-Change Organizations	
Week-12 (S34-36)	EVALUATING AND INSTITUTIONALIZING OD INTERVENTIONS • Evaluating Organization Development Interventions • Institutionalizing Organizational Changes • Review ,Recap and Discussion	Chapter11 of Cummings, T. G. & Worley, C. G. (2009).Organization development and change (9th edition). Canada: South-Western Cengage Learning
Week-13 (S37)	**QUIZ-II**	
Week13-4 (38-40)	Presentation, Discussion and Q&A	

TEXT BOOK & ADDITIONAL READING MATERIALS:

- French, W. L., & Bell, C. H. (2005). Organization Development: Behavioral Science Interventions for Organization Improvement. 6/e. New Delhi: Pearson.

ADDITIONAL READING MATERIAL:

1. Cummings, T. G. & Worley, C. G. (2009).Organization development and change (9th edition).Canada: South-Western Cengage Learning
2. Hackman, J.R. and Senttle, J.L., Improving life at work: Behavioural science approach to organizational change, Goodyear, California.
3. Harvey, D.F. and Brown, D.R., An experimental approach to organization development, Prentice-Hall, Englewood Cliffs, N.J.
4. Hersey P., and Blanchard, H.B., Management of Organisational behaviour: Utilising human resources, Prentice Hall, New Delhi.
5. Pareek U., Rao, T.V. and Pestonjee, D.M., Behavioural processes in Organisations, Oxford and IBH., New Delhi.
6. Cummings, T. G., Theory of organization development and change, South Western.

COURSE PEDAGOGY:

The method of teaching and training would be through

- Lectures/Videos
- In-class experiential exercises
- Assignments
- Case discussion & analysis

CLASS CONDICTING POLICY, ACADEMIC INTEGRITY AND REGULATIONS:

Students are expected to read each chapter prior to the weekly class sessions. Be prepared to ask and answer questions about the text on the scheduled date. It is important for students to attend every class and keep up with the reading and assignments. Students are encouraged to read extra articles from publications and journals and share with your instructor and class mates.

Class Attendance

- Attendance will be taken at the beginning of each class.
- Students must show up at their group(s) presentation(s)
- Note: Regardless of attendance, projects and homework assignments must be turned in no later than the due date

Academic Honesty

Cheating on assignments, participation exercises, papers, examinations and other academic works including sharing information on participation exercises between sections is a clear violation of the code. All written requirements should reflect your own effort. Revealing the contents of a participation exercise to students that are enrolled in a subsequent course/section that is held on the same day or a latter term is prohibited.

Details of Team Paper/ Presentations:

Student need to select a real world organization that is undergoing organizational change. Student need to gather data on what the

(1) changes the company is going through (scope and context for change),
(2) what challenges they faced as they are undergoing change (describe those challenges),
(3) present three or more relevant, integrated OD interventions that the organization can use to successfully adapt to these challenges,
(4) provide measures of success for the OD interventions suggested,
(5) recommend the best intervention that the company should first undertake,
(6) present your results to the company's "top management".

OUTCOME ASSESMENT AND GRADING:

Component	Weightage
Presentations- Concept paper/Quiz	20%
Case analysis /Paper Presentation	10%
Midterm examination	20%
End term examination	50 %

Grading system will be followed as per university norms.

ACTIVITIES RELATED TO EMPLOYABILITY:

1. **Case on Team building Approaches to OD**

The middle managers of a large firm were told by the corporate human resources office that a group of consultants would be calling on them later in the week. The purpose of the consultants' visit would be to analyze inter functional relations throughout the firm. The consultants had been very effective in using an OD intervention called team building. Their particular approach used six steps. When their approach was explained to the managers, a great deal of tension was relieved. They had initially thought that team building was a lot of hocus-pocus, like sensitivity training, where people attack each other and let out their aggressions by heaping abuse on those they dislike. By the same token, these managers generally felt that perhaps the consultants were not needed. One of them put it this way : "Now that we understand what is involved in team building, we can go ahead and conduct the sessions ourselves. All we have to do is to choose a manager who is liked by everyone and put him or her in the role of the change agent/consultant. After all, you really don't need a high priced consultant to do this team-building stuff. You just have to have a good feel for human nature." The other managers generally agreed. However, the corporate human resources director turned down their suggestion. He hired the OD consultants to do the team building.

2. **Change and Learning at General Electric (Case Study)**

General Electric (GE) uses a change acceleration process (CAP) training program taught at its Crotonville (Ossining, NY) facility (www.ge.com). The facility was founded in 1956 by Ralph Cordiner, the CEO, to develop a group of general managers. Initially, a single comprehensive advanced management program was offered. In 1981 when Jack Welch became CEO, crotonville was designated as one of his major change levers. He believed that GE was slow and steady and plagued by bad habits: turf wars, bureaucracy, egos and keeping everything peaceful. Welch wanted Crotonville to be used to instill values and to stimulate change. Welch wanted managers to undergo a major change in their behaviours. The Crotonville training course fell into three categories: manager development programs, business unit leadership programs, and global business skills programs. CAP programs were special and were based on Lewin's force field theory. 3 After years of presenting CAP, a GE seven step model of change was launched in the early 1990s. All participants come to CAP in teams, and each team brings a problem of its own to solve. As a check on learning Welch receives list of all current projects. Welch believes that sending teams to a development program that emphasizes change is the only way for behavior to be modified. A changed team will return to the work setting and make changes. A changed person returning to a work setting with a team that has not been trained has little chance of introducing any change. Typically, the eight to twelve persons team study, debate, and learn from other teams. The GE seven step change model used in CAP trains and teaches: 1. Leading change 2. Creating a Shared

Need 3. Shaping a Vision 4. Mobilizing Commitment 5. Making Change Last 6. Monitoring progress 7. Changing Systems and Structures The model is simple and easy for the trainees to grasp and find uses for back in the work setting. In learning the process and undergoing the CAP program, team members also learn specific tools for presentations, time management, quality audits, customer relations techniques, vision preparation, and conflict resolution. When a GE manager leaves Crotonville, he or she knows the CAP model, can apply specific tools, and is more closely bonded to the team. The teams also prepare action steps and schedules for use back in the work setting

COMPUTATIONAL FLUID DYNAMICS

Course Code : **ME625 (Elective-I)**
Course Title : **Computational Fluid Dynamics**
Course Credits : **4**
Total Hours per Week (L+T+P) : **3+0+0**

Course Syllabi (Theory):

Mathematical modeling: Governing equations of fluid flow and heat transfer; Introduction to discretization methods: Finite difference and finite volume methods for heat transfer problems; Time stepping methods for unsteady problems; Solution techniques for system of algebraic equations; Grid generation techniques; Solution techniques for Navier-Stokes equation; Finite element method for heat transfer and fluid flow problems; Turbulence modeling.

Introduction: Conservation equation; mass; momentum and energy equations; convective forms of the equations and general description.

Classification and Overview of Numerical Methods: Classification into various types of equation; parabolic elliptic and hyperbolic; boundary and initial conditions; over view of numerical methods.

Finite Difference Technique: Finite difference methods; different means for formulating finite difference equation; Taylor series expansion, integration over element, local function method; treatment of boundary conditions; boundary layer treatment; variable property; interface and free surface treatment; accuracy of f.d. method.

Finite Volume Technique: Finite volume methods; different types of finite volume grids; approximation of surface and volume integrals; interpolation methods; central, upwind and hybrid formulations and comparison for convection-diffusion problem.

Finite Element Methods: Finite element methods; Rayleigh-Ritz, Galerkin and Least square methods; interpolation functions; one and two dimensional elements; applications.

Methods of Solution: Solution of finite difference equations; iterative methods; matrix inversion methods; ADI method; operator splitting; fast Fourier transform.

Time integration Methods: Single and multilevel methods; predictorcorrector methods; stability analysis; Applications to transient conduction and advection-diffusion problems.

Numerical Grid Generation: Numerical grid generation; basic ideas; transformation and mapping.

Navier-Stokes Equations: Explicit and implicit methods; SIMPLE type methods; fractional step methods.

Turbulence modeling: Reynolds averaged Navier-Stokes equations, RANS modeling, DNS and LES.

List of students

S.No	Registration No	Name
1	2014BTechME001	Abhishek Jain
2	2014BTechME002	Arihant Jain
3	2014BTechME003	Chetan Dhyani
4	2014BTechME004	Divyanshu Suthar
5	2014BTechME005	Gaurav Mishra
6	2014BTechME006	Harshit Gaur
7	2014BTechME007	Hitesh Bhati
8	2014BTechME008	Karan Gupta
9	2014BTechME009	Kshitij Singh
10	2014BTechME010	Kumar Aditya
11	2014BTechME013	Robin Singh
12	2014BTechME014	Sameer Gupta
13	2014BTechME015	Saumyarup Roy
14	2014BTechME016	Sushant Sharma
15	2014BTechME018	Vikram Singh Shekhawat
16	2014BTechME019	Shivam Sharma
17	2014BTechME020	Kapil Yadav
18	2014BTechME021	Rishabh Mishra
19	2013BTechME001	Abhishek Sharma

Assignment 1, December, 2017

Computational Fluid Dynamics
B. Tech. in Mechanical Engineering
JK Lakshmipat University Jaipur
Institute Of Engineering and Technology

1. Develop the mass balance equation at a point for fluid flow in cylindrical geometry.
2. The velocity field in a particular problem is
   $\vec{V} = (5x^2+3t)i - 4xyj - (6xz+y)k$
   Does the $\vec{V}$ correspond to compressible or incompressible flow? Is the flow steady or unsteady?
3. $\vec{V} = (3x^2+2t)i - 2xyj - (4xz+y)k$; Calculate the local and convective and material acceleration at (1,0,1) and t=1 sec
4. Consider a steady laminar flow between two infinite plates. The plates are horizontal and the top plate moves at a uniform velocity of U_0 while the bottom plate is stationary. The pressure gradient in the flow direction id

dp/dx, and the flow field may be assumed to be completely developed. Find the velocity profile and the shear force exerted by the fluid on top and bottom walls.

5. Two infinite parallel plates are placed on a slope which makes an angle θ with horizontal. The gap between two plates is 2H. A steady incompressible flow fills the entire gap between the plates. The pressure at inlet and exit section of the flow is equal to atmospheric value. Assuming fully developed flow, determine the velocity field between the plates and shear stress value at top and bottom walls.

WASTE HEAT RECOVERY & MANAGEMENT

Course Code : **ME623 (Elective-II)**
Course Title : **Waste Heat Recovery & Management**
Course Credits : **04**
Total Hours per Week (L+T+P) : **3+0+0**

Course Syllabi (Theory):

Patterns of energy use, potential for energy conservation, optimum use of energy resources, total energy approach. Coupled cycles, combined plants and cogeneration systems.

Need for energy storage, thermal electrical, magnetic and chemical energy storage systems.

Utlization of industrial waste heat; gas-to-gas, gas-to-liquid and liquid-to-liquid heat recovery systems; Recuperators and regenerators

heat pipes; waste heat boilers; fluidized bed heat recovery; shell and tube heat exchangers.

Prime mover exhausts; incineration plants; heat pump systems; thermoelectric devices. Utilization of low grade reject heat from power plants.

S.No	Registration No	Name
1	2012BTechME037	Yugesh Sah
2	2013BTechME002	Ajay Singh
3	2013BTechME004	Ashwani Kumar
4	2013BTechME005	Chitransh Mewara
5	2013BTechME006	Devansh Lalwani
6	2013BTechME007	Dharmendra Kumar Chawda
7	2013BTechME008	Diptanshu Keshote
8	2013BTechME009	Gaurav Champawat
9	2013BTechME010	Hardik Gehlot
10	2013BTechME011	Hardik Sharma
11	2013BTechME012	Harsh Vardhan Singh
12	2013BTechME013	Harshal Taneja
13	2013BTechME015	Kartike Sharma
14	2013BTechME016	Kshitiz Sharma
15	2013BTechME017	Maaz Ali Khan
16	2013BTechME018	Maheshwar Singh Solanki
17	2013BTechME019	Manish Lour

18	2013BTechME021	Naorem Devendrajit Singh
19	2013BTechME022	Nihal Gupta
20	2013BTechME023	Nikhil Maharshi
21	2013BTechME025	Parth Vijay
22	2013BTechME026	Peeyush Kumawat
23	2013BTechME027	Pramit Kumar Munshi
24	2013BTechME028	Pranjal Gupta
25	2013BTechME029	Prasant
26	2013BTechME030	Prashant Dixit
27	2013BTechME033	Rajesh Kumar Sah
28	2013BTechME035	Sandeep Kumar Khatik
29	2013BTechME036	Sanyam Kumar Jain
30	2013BTechME038	Shilp Kakra
31	2013BTechME039	Shubham Gupta
32	2013BTechME041	Sourabh Tailor
33	2013BTechME042	Swapnil Badgaiyan
34	2013BTechME045	Vaibhav Vinod Karwa
35	2013BTechME046	Vikram Choudhary
36	2013BTechME050	Brajesh Rohilla
37	2013BTechME051	Akshay Lath
38	2014BTechME151	Abhijeet Singh Shekhawat
39	2012BTechME028	Sandeep Chawara

Quiz 1, August, 2017

Waste heat recovery & management ME737

1. What is the Source of Waste Heat that you are using for Desalination ?
2. Which type of converters will best suit the thermoelectric generators for vehicles?
3. Explain Waste Heat Recovery and Energy Efficiency for Industrial Fired-Heaters?
4. What is the acceptable range of temp. to run an Organic Rankine Cycle, and what are the most used refrigerants ?
5. Explain the need of energy storage.
6. What are the major advantage of waste heat recovery in industry?
7. Where recuperator and regenerator are used mainly as a waste heat recovery system ?

Course and Code: Mechanical Vibrations & Control (ME605)
Academic year: 2014-18

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
ME 605	Mechanical Vibrations and Control	3	0	2	4

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation *	Total Marks**
20	20	40	10	10	100	20	40	15	25	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others
**The ratio of weightage between Theory and Practical content will be 60%: 40%

Syllabus (Theory)

UNIT I

Fundamentals: Importance of Study of Vibrations, Classifications of Vibrations, Free and Forced, Undamped and Damped, Linear and Non-linear, Deterministic and Random, Harmonic Motion, Vector and Complex Number Representations, Definitions and Terminology, Periodic Functions, Harmonic Analysis, Fourier Series Expansion.

UNIT II

Free and Damped Vibrations: Single Degree of Freedom system, D'Alemberts Principal, Energy Methods, Rayleighs Method, Application of these Methods, Damped Free Vibrations, Logarithmic Decrement, Under Damping, Critical and Over Damping, Coulomb Damping.

UNIT III

Harmonically Excited Vibrations: Forced Damped Harmonic Vibration of Single Degree of Freedom Systems, Rotating Unbalance, Rotor Unbalance, Critical Speeds and Whirling of Rotating Shafts, Support Motion, Vibration Isolation, Energy Dissipated by Damping, Equivalent, Viscous Camping, Structural Damping Sharpness of Resonance, Vibration Measuring Instruments.

Transient Vibrations: Impulse Excitation, Arbitrary Excitation, Response to Step Excitions, Base Excitation Solution by Laplace Transforms, Response Spectrum, Runge-Kutta Method.

UNIT IV

Two Degrees of Freedom Systems: Introduction to Multi-Degree of Freedom Systems, Normal Mode Vibrations, Coordinate Coupling, Principal Coordinates, Free Vibrations in Terms of Initial Conditions, Forced Harmonic Vibrations, Vibration Absorber, Centrifugal Vibration Absorber, Vibration Damper.

Multi degrees of Freedom Systems and Numerical Methods: Introduction, Influence Coefficients, Stiffness Matrix, Flexibility Matrix, Natural Frequencies and Normal Modes, Orthogonality of Normal

Syllabus (Practical)

1. To study undamped free vibrations of equivalent spring mass system and determine the natural frequency of vibrations.
2. To study the free vibration of system for different damper settings. Draw decay curve and determine the log decrement and damping factor. Find also the natural frequency.
3. To study the torsional vibration of a single rotor shaft system and to determine the natural frequency.
4. To determine the radius of gyration of given bar using bifilar suspension.
5. To verify the dunker ley's rule.
6. To study the forced vibration of system with damping. Load magnification factor vs. Frequency and phase angle vs frequency curves. Also determine the damping factor.
7. To study the pressure distribution of a journal bearing using a journal bearing apparatus.
8. To determine the rate of wear of a metallic pin from the plot of displacement vs time curves by using friction and wear monitor apparatus.
9. To determine abrasion index of a material with the help of dry abrasion test rig.
10. To evaluate the load wear index and the weld point of a lubricant with the help of a four ball stream pressure tester.
11. To determine the two frequencies of torsional spring type double pendulum & compare them with theoretical values.
12. To determine the radius of gyration of a compound pendulum.
13. To determine the radius of gyration of disc using trifilar suspension.

List of students:

S.No	Registration No	Name
1	2014BTechME001	Abhishek Jain
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3	2014BTechME003	Chetan Dhyani
4	2014BTechME004	Divyanshu Suthar
5	2014BTechME005	Gaurav Mishra
6	2014BTechME006	Harshit Gaur
7	2014BTechME007	Hitesh Bhati
8	2014BTechME008	Karan Gupta
9	2014BTechME009	Kshitij Singh

10	2014BTechME010	Kumar Aditya
11	2014BTechME013	Robin Singh
12	2014BTechME014	Sameer Gupta
13	2014BTechME015	Saumyarup Roy
14	2014BTechME016	Sushant Sharma
15	2014BTechME018	Vikram Singh Shekhawat
16	2014BTechME019	Shivam Sharma
17	2014BTechME020	Kapil Yadav
18	2014BTechME021	Rishabh Mishra
19	2013BTechME001	Abhishek Sharma

ADVANCED DBMS

Course Code	**:**	**MTCS103**
Course Title	**:**	**Advanced DBMS**
Course Credits	**:**	**5**
Total Hours Per Week (L+T+P)	**:**	**3 + 0 + 0**

Course Syllabi

- OODBMBS & ORDBMS: Overview of Object-Oriented concepts & characteristics, Objects, OIDs and reference types, Database design for ORDBMS, Comparing RDBMS, OODBMS & ORDBMS
- Advance Database Management System –Concepts & Architecture, Spatial data management
- Web based systems: Overview of client server architecture,Databases and web architecture, N-tier, Architecture, Business logic – SOAP, Multimedia databases, Mobile database
- Parallel databases: Introduction, Parallel database architecture, I/O parallelism, Inter-query and Intra-query parallelism, Interoperational and Intra-operational parallelism, Design of parallel systems
- Distributed Databases:Introduction, DDBMS architectures,Homogeneous and Heterogeneous Databases,Distributed data storage,Distributed transactions, Commit protocols, Availability, Concurrency control & recovery in distributed databases, Directory systems
- Knowledge base Systems: Integration of expert in database, application & object database overview
- Data Warehousing: Introduction to Data warehousing, Architecture, Dimensional data modeling- star, snowflake schemas, fact constellation, OLAP and data cubes Operations on cubes
- Data preprocessing -need for preprocessing,data cleaning, data integration and transformation, data reduction
- Data Mining: Introduction to data mining, Introduction to machine learning, Descriptive and predictive data mining, outlier analysis, clustering, k means algorithm, Classification - decision tree, association rules - apriori algorithm,

- Information Retrieval & XML data: Introduction to information retrival, Indexing for Text search, Web search engines, Managing text in DBMS, Data model for XML, XML DTD's,Domain specific DTD's, Querying XML data

Evaluation Scheme (Theory):

EC No.	Evaluation Component	Duration	Marks (100) (Weightage %)*
1.	Mid Term Test-I	1 hour	20
2.	Mid Term Test-II	1 hour	20
3.	End Term Test	3 hour	40
4.	Class Participation	Day to day	10
5.	Additional continuous Evaluation (Quizzes, Assignments, Presentations, and others)	30 min.	10

Text Books:

1. RamezElmsari, ShamkantNavathe , *Fundamentals of Database Systems*, , Fifth edition, Pearson Education
2. Ivan Bayross , *SQL, PL/SQL the Programming Language of Oracle*, 3rd edition

Reference Books:

1. Date C. J., *An Introduction to Database Systems*, Addison-Wesley Longman (8th Ed)
2. Database system concepts, 5th Edition –by Abraham Silberschatz, Henry Korth, S,Sudarshan, (McGraw Hill International)
3. Data Mining: Concepts and systems, by Jiawei nan, MichelineKamber, (Morgan Kaufmann publishers)
4. Database systems: Design implementation and management, by Rob Coronel, 4th Edition, (Thomson Learning Press)
5. Database Management Systems by Raghu Ramkrishnan, Johannes Gehrke Second Edition, (McGraw Hill International)

6. Database Management System by Alexis Leaon, Mathews Leon, (leon press)

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
MTCS 326(Elective III)	Artificial Intelligence Techniques	3	0	0	3

Evaluation Scheme (Theory)					Evaluation Scheme (Practical)			
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks
20	20	50	10	100	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Syllabus (Theory)

- **Intelligent Agents**: Agents and environments - Good behavior – The nature of environments –structure of agents - Problem Solving - problem solving agents – example problems – searching for solutions – uniformed search strategies - avoiding repeated states – searching with partial information.
- **Searching Techniques:** Informed search and exploration – Informed search strategies – heuristic function – local search, algorithms and optimistic problems – local search in continuous spaces – online search agents and unknown environments - Constraint satisfaction problems (CSP) – Backtracking search and Local search for CSP – Structure of problems - Adversarial Search – Games – Optimal decisions in games – Alpha – Beta Pruning – imperfect real-time decision – games that include an element of chance.
- **Knowledge Representation:** First order logic – representation revisited – Syntax and semantics for first order logic – Using first order logic – Knowledge engineering in first order logic - Inference in First order logic – prepositional versus first order logic – unification and lifting – forward chaining – backward chaining - Resolution - Knowledge representation - Ontological Engineering - Categories and objects – Actions - Simulation and events - Mental events and mental objects.
- **Learning:** Learning from observations - forms of learning - Inductive learning - Learning decision trees - Ensemble learning - Knowledge in learning – Logical formulation of learning – Explanation based learning – Learning using relevant information – Inductive logic programming - Statistical learning methods - Learning with complete data - Learning with hidden variable - EM algorithm - Instance based learning - Neural networks - Reinforcement learning – Passive reinforcement learning - Active reinforcement learning - Generalization in reinforcement learning.
- **Applications** Communication – Communication as action – Formal grammar for a fragment of English – Syntactic analysis – Augmented grammars – Semantic interpretation – Ambiguity and disambiguation – Discourse understanding – Grammar induction - Probabilistic language processing - Probabilistic language models – Information retrieval – Information Extraction – Machine translation.

Text Book:

T1. Elaine Rich and Kevin Knight, *Artificial Intelligence*, 2nd Edition, Tata McGraw-Hill, 2009.

Reference Book:

R1. George Lugar, *Artificial Intelligence,* Pearson Publication, Fifth edition.

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
MTCS 427 (Elective IV)	Data Warehousing & Mining	3	0	0	3

Evaluation Scheme (Theory)					Evaluation Scheme (Practical)			
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks**	Mid Term Test - I	End Term Test	Class Participation / Additional Continuous Evaluation*	Total Marks
20	20	50	10	100	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Syllabus (Theory):

- Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining, Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining,
- Data Preprocessing: Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation, Online Data Storage.
- Data Mining Primitives, Languages, and System Architectures: Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems,
- Concepts Description: Characterization and Comparison: Data Generalization and Summarization- Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.
- Mining Association Rules in Large Databases: Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.
- Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.
- Cluster Analysis Introduction: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

- Mining Complex Types of Data: Multidimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

Text Books:

T1. Data Mining – Concepts and Techniques Han & Kumber
T2. Data Mining Techniques – Arun Pujari, University Press
T3. Building the Data Warehouse- W. H. Inmon, Wiley Dreamtech India Pvt. Ltd.

Reference Books:

R1. Data warehousing in the real world – Sam Anahory, Dennis Murray. Pearson ednasia.
R2. Data warehousing fundamentals – Paulrajponnaiahwiley student, edition
R3. The data warehouse life cycle tool kit – Ralph kimballwiley student, edition
R4. Data mining introductory and advanced topics –Margaret h dunham, Pearson education

Institute of Management
Indirect Tax Laws
Academic Year 2016-2017

Course Code : BCH601
Course Credits : 4
Total Hours per Week: 3

COURSE SYLLABI:

Basic Concept: Concepts of Indirect Tax, Difference between Direct and Indirect Tax, Indirect tax structure in India.

Over View of Central Excise Act 1944: Laws relating to Central Excise, Duties Leviable, Goods and Excisable Goods, Valuation of Goods, Assessment , Appeals, Demands and Penalties. Cenvat Credit.

Over view of Customs Law : Basic Concepts, Types of Custom duties, Anti-Dumping duty, Safeguard duty, Valuation, Custom procedures, Import and Export procedures, Baggage, penalties and offences.

Service Tax: Introduction, Nature of Service tax, Service provider and service receivers,, registration procedure, records to be maintained, classification of taxable services, payment of service tax, return, cenvat credit rules.

Central Sales Tax and State VAT Act.

Introduction to Goods and Service Tax

TEXT BOOK:

- Datey, V.S., ***Indirect Taxes Law and Practice***, Taxmann: New Delhi.

REFERENCE BOOKS:

1. Singhania, V. & Singhania, M., ***Students Guide to Indirect Tax Laws***, Taxmann: New Delhi.
2. Kumar, Sanjeev, ***Systematic Approach to Indirect Taxes***, Bharat Law House Pvt. Ltd.: New Delhi.
3. Bangar, V. & Bangar, Y. ***Students' Guide to Indirect Taxes***, Aadhya Prakashan : Jaipur.

**** In Taxation, the laws are revised every year. Hence, the year of Book is not mentioned. It is understood that the latest edition would be procured for teaching purpose.***

ACTIVITIES RELATED TO EMPLOYABILITY ENHANCEMENT SKILLS

CASE STUDIES / WORKSHOPS ON –

1. CALCULATION OF VAT AND SALES TAX
2. RETURN FILING OF VAT AND SALES TAX
3. Case Laws on Central Excise Law
4. Case Laws on Cenvat Credit
5. Case Laws on Service Taxes
6. Case laws on Custome Law
7. Custome duty and custom and Appeals
8. Introduction to GST
9. Understanding GST modules in India

JK Lakshmipat University, Jaipur
Institute of Management
B.Com(H)

Academic Year- 2016-17

Computerized Accounting

Course Code	**:**	**BCH602**
Course Credits	**:**	**4**
Total Hours per Week	**:**	**3**

COURSE SYLLABI:

Course Description:

The subject computerized Accounting is specifically designed to expose students to various applications of excel and use of Tally software for processing of business transactions and acquaint them with modern age digital platforms used in the field of Accounting practices. Students will also be exposed in the process of return file of income tax and VAT. The subject will provide a scope for employability enhancement of students after the completion of their undergraduate degree.

Course Contents

MS Excel- Accounting Applications

Introduction to MsExcel , Calculations , Formula , Functions , Insert Row/Columns , Create Chart , Format SheetTools Menu :-- Goal Seek , Scenario , AuditingData Menu :-- Sort , Filter , Advance Filter , Sub total , Forms , Validations , Table , Consolidate , Pivot table , Window , Help

Computerized Accounting with Tally

Tally Fundamentals , Basic & Advanced Accounting , Accounting fundamentals , Types of Accounts and their rules , Company Create Alter and Delete , Types of Accounting Vouchers , Cost Centers , Inventory features , Types of Inventory Vouchers , Statutory Accounting , Price Levels , Voucher classes , Multi Currency , TDS , VAT , Payroll system , Job Costing , ODBC , Import and Export Tally Data, ERP, Tableau.

Practical Aspects of Filing of Income tax return and VAT.

LEARNING OUTCOMES:

1. The student will be able to do the mathematical and accounting functions through the use of Ms. Excel

2. He/She will be able to enter and prepare financial statements through Tally package.

TEXT BOOK:

- Behera R. Soumya.(2014).***Learn Tally.ERP in 30 Days***. B K Publiations.

REFERENCE BOOKS:

1. Nadhani K.Asok.(2008).***Tally.9 Traning Guide***. BPB Publication. New Delhi.
2. NAdhani A.K. & Nadhani K.K.(2007).***Implementing Tally 9.***BPB Publications. New Delhi.
3. Singh Shradha & Mehra Navneet(2014).***Tally ERP.9***:Power of Simplicity.V&S Books. New Delhi.

ACTIVITEIS RELATED TO EMPLOYABILITY ENHANCEMENT SKILLS

Case studies:

1. Indrolok company- Processing of business transactions through tally
2. Mr. Sudipt Banerjee- Filing of Income tax return
3. Ajay Law firm- Computerization of business records

Assignment on:

1. Application of Ms-Exceel for financial calculation
2. Use of Pivot table
3. Preparation of Vouchers, bill book of a firm
4. Filing of tax return and vat return

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE501	Chemical Reaction Engineering - II	3	1	0	4

Evaluation Scheme (Theory)					Evaluation Scheme (Practical)			
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks **
20	20	50	10	100	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

**The ratio of weightage between Theory and Practical content will be 60%: 40%

Syllabus (Theory)

Catalysts: Description, method of preparation and manufacture; catalyst characterization – BET surface area, pore volume, pore size distribution.

Catalyst Reaction Kinetic Models: Physical and chemical absorption; determination of rate expressions using absorption, surface reaction and desorption as rate-controlling steps.

Determination of Global Rate of Reaction: Heterogeneous laboratory reactors; Determination of rate expressions from experimental data.

Effect of Intrapellet Diffusion on Reaction Rates in Isothermal Pellets: Concept of effectiveness factor, Thiele modulus, experimental determination of effectiveness factor-wesiz-Prater criteria, Non-Isothermal effectiveness factor; Prater number, maximum temperature rise in a pellet, multiple steady states in heterogeneous reactors.

Non-catalytic Gas-Solid Reactions: Progressive conversion model, Shrinking core model; various controlling regimes, design of gas-solid reactors.

Gas-Liquid Reactions: Effect of diffusion on rate of reaction, enhancement factor.

Introduction to Design of Heterogeneous Reactors: One dimensional model for fixed-bed reactors, parametric sensitivity; design of fluidized bed reactors

Text/Reference Books:

1. Levenspiel, O., "Chemical Reaction Engineering"3rdEd., John Wiley, 1999.
2. Smith, J.M., "Chemical Engineering Kinetics"3rdEd., Mc Graw-Hill, 1981.
3. Fogler, H.S., "Elements of Chemical Reaction Engineering"3rdEd., Prentice-Hall of India, Delhi, 2003.
4. Carberry, J.J., "Catalytic Reaction Engineering"Mc Graw-Hill, 1976.
5. Dawande, S.D., "Principles of Reaction Engineering"Central Techno Pub.,Nagpur, 2001.
6. Levenspiel, O., "The Chemical Reactor Omnibook"OSU Bookstores, Corvallis Oregon, 1996.

Activity for Skill Development and Employability

QUIZ-1

Q1. Sulfonation of naphthalene gives β-sulfonate and synthesis of cypermathrin are the industrial example of……reactors.

Q2. Some process steps like upstream and downstream processing of the reaction can also be performed in the ……..

Q3.Volume required by …… reactor is very much less than the same by …….. reactor, particularly for a higher order reaction with higher desired conversion.

Q4. Conversion of ammonia from the mixture of nitrogen and hydrogen, hydrolysis of ethylene oxide to ethylene glycol, and olefin production by steam cracking are the industrial examples of……reactors.

Q5. For highly viscous fluid or slurry solution, ……..reactor provides higher heat transfer coefficient and mass transfer coefficient, compared to ……..reactor.

Expert Lecture by Mr. Shashwat Kulshrestha, head, corporate affairs – Rajasthan, Cairn India Ltd.

Seminar on Heterogeneous Catalyst

Industrial Visit at RCF Mumbai

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE503	Process Modelling and Simulation	3	1	2	5

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks
20	20	40	10	10	100	20	40	15	25	100

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Syllabus (Theory)

Introduction: Use and scope of mathematical modeling, Principles of model formulation, Role and importance of steady-state and dynamic simulation, Classification of models, Model building, Modeling difficulties, Degree-of-freedom analysis, Selection of design variables, Types of equations.

Fundamental Laws: Equations of continuity, energy, momentum, transport, and state, Transport properties, Equilibrium and chemical kinetics, Review of thermodynamic correlations for the estimation of physical properties like phase equilibria, bubble and dew points etc, Prediction of enthalpy departure and VLE characteristics from equation of state by the application of numerical methods.

Modeling of Specific Systems: Constant and variable holdup CSTRs under isothermal and non-isothermal conditions, Stability analysis, Gas phase pressurized CSTR, Two phase CSTR, Non-isothermal PFR, Batch and semi-batch reactors, Heat conduction in a bar, Laminar flow of Newtonian liquid in a pipe, Gravity flow tank, Single component vaporizer, Multi-component flash drum, Absorption column, Ideal binary distillation column and non-ideal multi-component distillation column, Batch distillation with holdup etc.

Simulation: Simulation of the models, Sequential modular approach, Equation oriented approach, Partitioning and tearing, Introduction and use of process simulation software (ASPEN/Hysis) for flow sheet simulation.

Text Books:

1. Luyben W.L., Process Modeling, Simulation, and Control for Chemical Engineering, McGraw-Hill (1998).

Reference Books:

1. Denn, M. M., Process Modeling, Longman Sc & Tech. (1987).
2. Himmelblau, D.M and Bischoff, K.B., Process Analysis and Simulation: Deterministic Systems, John Wiley (1968).
3. Holland, C. D., Fundamentals and Modeling of Separation Processes: Absorption, Distillation, Evaporation and Extraction, Englewood Cliffs, Prentice-Hall (1974).
4. Babu, B.V., Process Plant Simulation, Oxford University Press (2004).

Activity for Skill Development and employability

QUIZ-1

Q1. Phase equilibrium between two phases occurs when:

a) Phase composition are same b) Chemical potentials are equal

c) Diffusion coefficients are same d) both b and c

Q2. The relative volatility of α_{ij} of component i to j is defined as:

a) y_i/x_i b) y_j/x_j c) $[y_i/x_i]/[y_j/x_j]$ d) $[y_i . x_i]/[y_j . x_j]$

Q3. System with C components are having potential equal to:

a) C+2 b) C+3 c) 0 d) None

Q4. In transport equations the physical properties are

a) Thermal conductivity b) Diffusivity

c) Viscosity d) All of the above

Q5. C_p is the function of:

a)Pressure b) Density

c) Temperature d) Entropy

QUIZ-2

Q1. Which of the following is dependent variable in a batch reactor:

a) Pressure b) Temperature

c) Concentration of product d) Feed flow rate

Q2. System with C components are having potential equal to:

a) C+2 b) C+3

c) 0 d) None

Q3. Reynold's number is the function of:

a) Temperature b) Density

c) Velocity d) None

Q4. In a gravity flow tank, the differential form of height "h" represents:

a) State function b) Dynamic function

c) Input value d) Dynamic variable

Q5. Combined momentum flux tensor is the sum of

a) Convective and molecular flux tensor b) Natural and forced flux tensor

c) Both a) and b) d) None of them

QUIZ-3

Q1. In a dynamic simulation, time depended behavior of process with no control is known as:

a) Closed loop response b) Open loop response

c) Steady state response d) none of the above

Q2. In an heat exchanger steam flow rate is a:

a) Controlled variable b) Uncontrolled variable

c) Manipulated variable d) Load disturbance

Q3. Degree of freedom can be defined as:

a) Total number of variables minus number of equations

b) Total number of independent variables minus no. of dependent variables

c) Total number of equations in a process

d) All the above

Q4. Unit of heat transfer coefficient is:

a) $W/m^2.K$ b) W.m/K

c) W.K/m d)$W/m^2.K$

Q5. The relative volatility of α_{ij} of component i to j is defined as:

a) y_i/x_i b) y_j/x_j

c) $[y_i/x_i]/[y_j/x_j]$ d) $[y_i. x_i]/[y_j. x_j]$

ASSIGNMENT-1

Q1. Explain the condition of equilibrium in a binary system.

Q2. What are transport equations? Please explain

Q3. Explain equation of state using suitable example.

Q4. Write the mathematical model for heat conduction in Bar.

Q5. What do you mean by dew points and bubble points in VLE characteristics? Explain its significance.

ASSIGNMENT-2

Q1. Write down continuity equations for mass and energy balance in case of a batch reactor

Q2. Write the component equation for both A and B components in a CSTR using equation:

A ----------> B; k = rate constant

Q3. Derive and explain Clausius-Clapryron equation.

Q4. Write and explain the mathematical model for non- isothermal PFR.

Q5. Write and explain the mathematical model for laminar flow in a pipe.

ASSIGNMENT-3

Q1. State continuity equation for mass, momentum and energy.

Q2. Outline the various transport equations for a microscopic system.

Q3. Explain the condition of equilibrium in a binary system.

Q4. Explain the concept of eddy diffusivity.

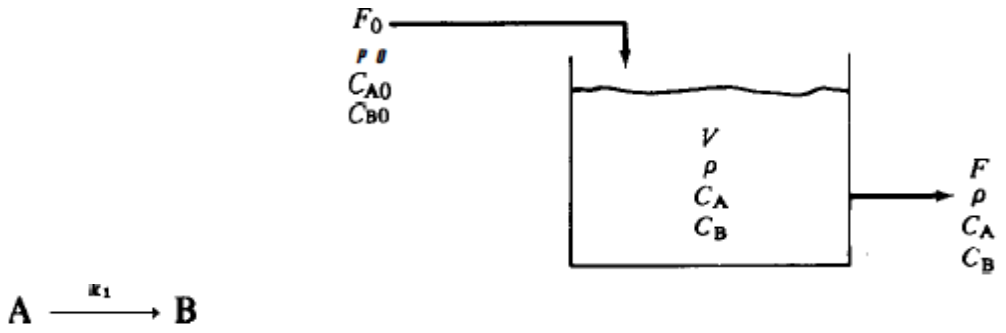
Q5. Explain simulation. Mention its various steps with the help of chart.

ASSIGNMENT-4

Q1. Discuss process flow diagram and information flow diagram using suitable example.

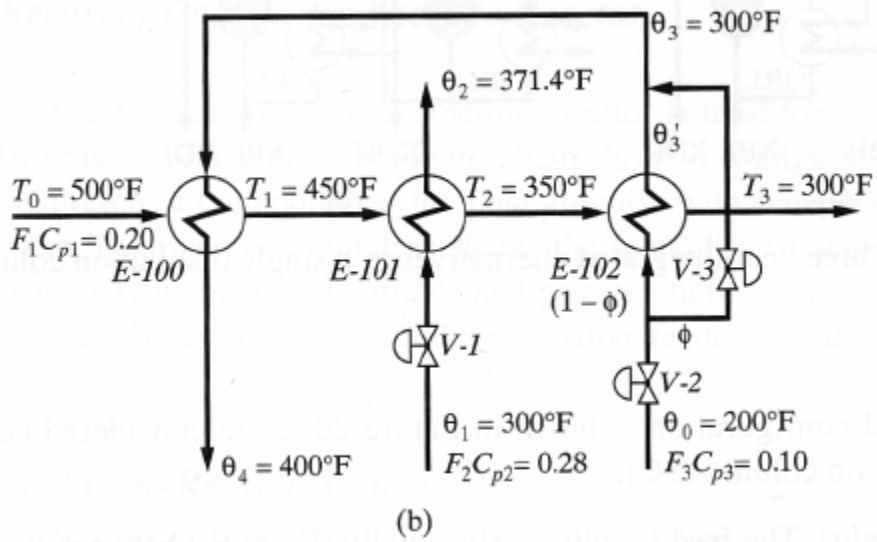
Q2. Discuss the mathematical model for unsteady state-heat conduction in Bar.

Q3. Write the component continuity equation for a given CSTR with the reaction:



Q4. Discuss the types of absorbers, their functions and model a continuity equation for a simple counter current absorber.

Q5. Observe the given heat exchanger network and write down the heat transfer equations at each step and also find out the degree of freedom in this network.

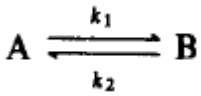


ASSIGNMENT-5

Q1. Frame and discuss the mass and energy equation for single component vaporizer.

Q2. Write and explain the mathematical model for laminar flow in a pipe.

Q3. Write the component equation for the same CSTR using equation:



Q4. Discuss the component balance in plug flow reactor for he reaction A->B .

Q5. Model and discuss

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE506	Process Instrumentation	3	0	0	3

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks
20	20	40	10	10	100	-	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Syllabus (Theory)

Introduction, general principles of measurement, its classification by physical characteristics, direct and inferential measurement.

Static and dynamic characteristics of instruments. Measurement of temperature, pH, pressure, vacuum, flow rate, liquid level, differential pressure

Viscosity, conductivity, nuclear radiation, humidity and gas composition, spectroscopy.

Classification of sensors and transducers. Building blocks of an instrument, transducer, and amplifier signal conditioner, signal isolation, transmission, display, data acquisition modules, interfaces, recording.

Control Centre, instrumentation diagram, on line instrumentation in modern plants.

Text/Reference Books:

1. Nakra, "Instrumentation, Measurement and Analysis"; Tata McGraw Hill, New Delhi.
2. Patranabis, D., "Principles of Industrial Instrumentation"2nded. Tata McGraw Hill, New Delhi.
3. Eckman, D.P., "Industrial Instrumentation", Wiley Eastern, 1978.
4. Liptak, B.G., "Industrial Engineers'Handbook"Vol.1 and 2, CRC Press, 1994.
5. Andrew, W.G., et al., "Applied Instrumentation in the Process Industries, "Gulf Pub.1993.
6. Wightman, E.J., "Instrumentation in Process Control, "Butterworth, 1972.
7. Doebelin, E., "Measurement Systems: Applications and Design,"4thed., McGraw Hill, 1990

Activity for Skill Development and Employability

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE615(Elective-1)	Biochemical Engineering	3	0	0	3

Evaluation Scheme (Theory)						Evaluation Scheme (Practical)				
Mid Term Test - I	Mid Term Test - II	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks	Mid Term Test - I	End Term Test	Class Participation	Additional Continuous Evaluation*	Total Marks
20	20	40	10	10	100	-	-	-	-	-

*Additional Continuous Evaluation: Quizzes/Assignments/Presentations/Practical Records/Mock Interviews/others

Syllabus (Theory):

Various aspects of Biochemical Engineering, The structure of cells and important cell types, Lipids, Polysaccharides, Nucleotides, Proteins etc.

Reaction mechanisms, Comparison with chemical catalysis, Michaelies-Menten and Briggs-Haldane kinetic models. Various methods for kinetic parameter evaluation, Enzyme inhibition, Inhibition kinetic models, Application to drug industries, Physico-chemical factors influencing enzyme activity. Enzyme deactivation and kinetic models.

Immobilized enzyme technology: Methods of immobilization; Immobilized enzyme kinetics; Analysis of external and intraparticle mass transfer, Terminology; Metabolic reaction coupling: ATP & NAD; Carbon catabolism and various pathways; Aerobic and anaerobic respiration.

Stoichiometry of growth and product formation, Isolation of pure culture, Strain improvement by mutation, protoplast fusion and recombination DNA technique, Introduction, Ideal Reactors for Kinetics measurements, Biomass growth, Substrate uptake and product formation Kinetics measurements: Steady state and transient growth, Structured and unstructured kinetic models.

Death kinetics, Mass and heat transfer in bioreactors, gassed reactors, immobilized and cell reactor systems, Ideal & non-ideal bioreactors, Modes of reactor operations: Batch, Fed-batch & continuous, Design of bioreactor, fermenter, Sterilization: Batch & Continuous, instrumentation, control, optimization, process scale-up, criteria and correlations

Filtration, Centrifugation, Sedimentation, Emerging technologies for cell recovery, Extraction, Sorption, Cell disruption method, Precipitation, Coagulation, Flocculation, Dialysis, Electrodialysis, Reverse osmosis, Ion exchange, HPLC, Chromatography and fixed-bed adsorption, Membrane separations, and Electrophoresis, Complete commercial bioprocess: Commercial enzymes, antibiotics and Organic acids, Bioprocess economics and feasibility studies

Text Books:

1. ‘Biochemical Engineering Fundamentals’ by J. E. Bailey & D. F. Ollis (1987) 2nd Ed., McGraw Hill International Edition

References Books:

1. ‘Bioprocess Engineering: Basic Concepts’ by Michael L. Shuler & F. Kargi (2003) Prentice-Hall.
2. ‘Principles of fermentation technology’ P. F. Stanbury& A. Whitaker (1984), Pergamon Press.
3. Chemical Engineering, Vol. 3 by Coulson & Richardson (1998), Asian **Books**.

Activity for Skill Development and Employability