BBA603
ORGANIZATIONAL CHANGE
COURSE OUTLINE
SEMESTER VI, 2017-18

INSTRUCTOR DETAILS
NAME: Dr. UPASANA SINGH
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L-T-P: 3-0-0
COURSE CREDITS: 4
SESSION DURATION: 60 MINUTES

COURSE DESCRIPTION:

Organizations are continuously changing – those that do not plan for change and do not manage it strategically fall behind. It is almost certain that every business will be affected by a change initiative and almost certain that every. Change is everybody's responsibility and knowing how to plan for and implement change is a critical skill for every modern manager. This course is about identifying the need for change, assessing change options, planning for change and then implementing and managing change process through to successful outcomes. Important sub-topics we cover include: overcoming resistance to change; diagnosing organizational problems; being a change leader and equipping employees to work in changed environments. The course includes some important theoretical frameworks about change and will include case studies on organizations to help students identify 'real-life' applications of the theory.

COURSE OBJECTIVES

To enable Students to

1. Gain knowledge in the field of organizational change.
2. Understand the internal and external triggers in organizational change.
3. Gain overall understanding about change process and its implementation.

LEARNING OUTCOMES

After the successful completion of this course, the students will able to

1. Describe in general terms a number of change management theories and how they might apply in practice.
2. Articulate what change management is and why it is important in the contemporary business environment.
3. Discriminate between different types of change process for different purposes and outcomes.
4. Highlight particular external issues impacting on a businesses' need to change.
5. Identify the steps in putting together an effective change management plan.

6. Apply critical thinking and problem solving skills to the analysis and resolution of change problems as presented in case studies.

SESSION PLAN:

Session No.	Topic	Readings	
1-2	Introduction to organizational change: Content and process theories of organizational change**,** Concept, Need for change.	Text Book	Ch-2
3-5	Change triggers and types of organizational change, Systems thinking and Change, Resistance to change	Text book	Ch-2
6	Case Analysis		
7-8	Organizational change process: Features of Change, Stages in change process	Text Book	Ch-3
9-11	Change process related to Business environment, strategic plan, customer & market, Org. culture, Org. structure, Leadership, SWOT Analysis	Text Book	Ch-3
12	Case Analysis		
13-14	Organizational effectiveness and Excellence: Effectiveness inventory,	Text Book	Ch-4
15-16	MBO for organizational effectiveness and excellence	Text Book	Ch-4
17-18	Managerial Competencies and Skills for change	Text Book	Ch-4
19	Case Analysis		
20	Quiz & Assignement		
	MID-TERM		
21-23	Managing Change: Nature of Change, Principle of change, Effective Change management, Approaches to change	Text Book	CH-5
24-26	Power leadership and organizational	Text Book	Ch-6

	change		
27	Case Analysis		
28-29	Technology and culture in organization, Proactive and reactive technology culture	Text Book	Ch-8
30-31	Attitude and its measurement for organizational change: Approaches and strategies	Text Book	Ch-9
31-32	Organization culture and organizational culture change process.	Text Book	Ch-10
33	Case Analysis		
34	Change interventions: Models and intervention tools of organization development,	Text Book	Ch-15
35	Globalisation and Organizational change & development: Concept, factors and process.	Text Book	Ch-16
36-37	Knowledge Management and Learning Organization Issues change Management strategies	Text Book	CH-17 &18
38	Case Analysis		
39	Presentations		
40	Presentation		
END TERM			

TEXT BOOK:

- Bhattacharyya, D.K. (2011). ***Organizational Change and Development, 2e.*** Oxford University Press, New Delhi.

ADDITIONAL READING MATERIAL:

1. Singh, K. (2009). ***Organizational Change and Development*****,** 2nd ed. Excel Books, New Delhi.
2. Grieves, Jim. (2010). ***Organizational Change-Themes & Issues*****,** Oxford, New York.
3. Ghanekar, A**.** ***Essentials of Organizational Development***, Everest Publishing House.
4. Joan V. Gallos, Jossey Bass. ***Organizational Development,*** Wiley Imprint.
5. Huse, F E. and Cummings, T G (1985) ***Organizations, Development and Change.*** 3rd ed. New York, West, 1985.

TEACHING METHODOLOGY:

To enhance the understanding and application of organizational change the course will be a mix of lecture, case study discussion and role play. Practical assignment on companies will be the essential parts of this course. It will require students to identify organizational change related issues with an organization and give a first-hand understanding about how the organizations managed the transition and succeeded or failed in implementing change.

CLASS CONDUCT POLICY AND ACADEMIC INTEGRETY:

Classroom attendance and participation are course necessities. The learning in the class greatly depends upon the discussion which revolve round the course. The students will be required to indulge more in discussion and debate to get into the depth of the topic. The role of the teacher in the classroom will be to facilitate and encourage students and hone their capabilities to be the future manager. Students' ability to think critically, and analyze the business problem with 360 degree approach is what the course indents to develop therefore students are required to attempt the class assignments with utmost honesty. Plagiarized or copied assignment and default in submissions on due dates will lead to loss of internal assessment grade. Students must come prepared with the cases, reading materials given. Use of mobiles and laptops during class hours are strictly not allowed. Students found using any such gadgets will be expelled from the class.

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 Attendance	10%
Assignment Report and Presentation	10%
Quiz and Subject Awareness	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 Skill Development and Employability

1. Organization Change : Spooked by Computers
2. Visit some corporate Web sites that describe various structural design components and corporate values. To get an idea of corporate culture preferences, go to choose a specific firm such as Toyota or Google or search under “organization design” and/or “organization culture” to see where it leads you. Try to determine what the company’s structure and culture may be.
   1. Compare structure and culture of two or more firms in the same industry. Which would you prefer to work for?
   2. What other issues do the structure and culture have for other topics of organizational behavior (motivation, reward systems, etc.)?

BCH 507|B.COM
ETHICS AND HUMAN VALUES
COURSE OUTLINE
SEMESTER V, 2017-18

INSTRUCTOR DETAILS
Name: Dr. Richa Mishra
E-Mail: richamishra@jklu.edu.in
Office: Room# 228

L-T-P: 3-0-0
Course Credit: 4
Session Duration : 60 Minutes

COURSE DESCRIPTION:

This course aims at making students understand the culture, beliefs, values and ethics at the individual and societal levels, which is critical when working across disciplines and contexts to achieve goals.

COURSE OBJECTIVES:

- To understand, analyze, appreciate and respect social, religious and historical diversity between individuals, within societies, and across cultures.
- To acquaint the students with Indian Ethos and its relevance to managerial decision making.
- To define personal values, code of conduct and response to ethical situations.
- To examining the impact of cultural beliefs and the impact of those beliefs on the managerial decisions.

COURSE LEARNING OUTCOMES:

Upon completion of the course, students are expected to be able to:

1. The student should be able to understand the importance of culture, ethics and values. in determining the personal effectiveness.
2. He/She should be able to draw ethical indicators.
3. He/She should be able to classify the ethical and unethical practices in business at the individual, group and organizational level.
4. He/She should be able to comprehend how ethics can help in solving moral dilemmas

TENTATIVE SESSION PLAN

Session No.	Topics to be covered in the course	READINGS
Week 1 (S1-3)	• Concept of Ethics, Evolution of Ethics, Nature	Website: mrunal.org/ethics

	of Ethics- Personal, Professional, Managerial • 3 Types of Judgments • 3 Areas in Study of Ethics i) Meta-Ethics/ Critical Ethics ii) Applied Ethics iii) Normative vs. Descriptive Ethics • Ethics vs. Morality? • Legality vs. Morality	
Week 2 (S4-6)	• Preconditions for Ethical Scrutiny i) Free Will ii) Knowledge iii) Voluntary Action	Website: mrunal.org/ethics
Week-3 (S7-9)	• Theories of Ethics- Teleological, Deontological, Virtue Ethics, Conduct Ethics, Rights based, Utilitarianism, Hedonism, Egoism	Website: mrunal.org/ethics
Week-4 (S10-12)	• Values, Role of family-society-educational institutions in inculcating values, ethics and private and public relationships.	Handout
Week-5 (S13-14)	• Summary of Conduct Ethics Rights Based Ethics 3 Generation of rights • John Rawls	Website: mrunal.org/ethics
Week-5 (S15)	**QUIZ I**	
Week-6 (S16-18)	• Development of Moral Reasoning: Lawrence Kohlberg • Koleberg's Levels and Stages of Morality • Social Perspective of Three Levels of Morality	Website: mrunal.org/ethics
Week- 7 (S19-21)	• Concept of decision-making, moral decision-making, importance of a model specific to ethics	Handout
Week-8 (S22-24)	• Gandhiji's doctrine of Satya & Ahinsa, Concept, importance & relevance of Trusteeship principle in modern business.	Venkatrao,V.(2014). Ethics and Values -A Text-book for Under Graduate Students. E -Book
Week -9 (S25-27)	• Features of Indian Ethics • Concept of Dharma with reference to Rta, Rna & Purusharth • The idea of nishkama karma in the Bhagwad gita	Textbook Chapter1
Week-10 (S28-30)	• Buddhist Ethics- Four Noble Truths • Jaina Ethics - Vrata - The principles of morality.	Textbook Chapter1
Week-11	• Western Ethics	Venkatrao,V.(2014). Ethics and

(S31-33)	i) Happiness and Prosperity ii) Four Cardinal Virtues iii) Aristotle and Immanuel Kant theories of ethics	Values -A Text-book for Under Graduate Students. E -Book
Week-12 (S34-36)	• Significance of Professional code of conduct i) Business Ethics ii) CorporateSocial Responsibility iii) What is a Corporation? iv) Who is a Corporation? v) What is Corporate Social Responsibility? vi) Arguments for Corporate Social Responsibility vii) Arguments against Corporate Social Responsibility	Venkatrao,V.(2014). Ethics and Values -A Text-book for Under Graduate Students. E -Book
Week-13 (S37)	**QUIZ-II**	
Week 13-14 (38-40)	Presentation	

READING MATERIAL:

1. Venkatrao, V.(2014). ***Ethics and Values -A Text-book for Under Graduate Students***. E -Book
2. Biswanth, G. (2010). ***Ethics in Management and Indian Ethos.*** Noida: Vikas Publishing House.
3. Nandagopal, R., & Sankar, A. (2011). ***Indian Ethos and Values in Management***. New Delhi: Tata McGraw Hill
4. Fernando, A. C. (2009). ***Business Ethics: An Indian Perspective***. New Delhi: Pearson
5. Nandagopal, R., & Sankar, A. (2011). ***Indian Ethos and Values in Management.*** New Delhi: Tata McGraw Hill
6. Gaur, R. R. , Sangal, R., Bagaria, G. P. (2009). ***A Foundation Course in Human Values and Professional Ethics.*** Excel Books

COURSE PEDAGOGY:

- Lectures
- In-class experiential exercises
- Assignments
- Live Projects

CLASS CONDICTING POLICY, ACADEMIC INTEGRITY AND REGULATIONS

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

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 is prohibited.

Details of Assignment:

Students need to submit a Research Proposal of 5-7 page document where they need spell out topic, provide a brief description of the literature review and theoretical framework, and explain your methodology. This will be completed in three parts. During the last week students will provide a PowerPoint presentation.

EVALUATION COMPONENTS & WEIGHTAGE:
The criteria that will be applied to assess the learning outcomes of this course:

Assessment Criteria	**Percentage**
Continuous Assessment	**30%**
Class Participation and Attendance	*10%*
Assignment Report and Presentation	*10%*
Quiz and Subject Awareness	*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 Skill Development and Employability

1. Ethics or Profiot ? Debate
2. Discussion on Ban of Movie Padmavat in Rajasthan.
3. Discussion on filming the Delhi Zoo incident
4. Case Study on Human Organ -Doctors Role

CSE725 Wireless Networks

Syllabus (Theory)

UNIT I MULTIPLE RADIO ACCESS Medium Access Alternatives: Fixed-Assignment for Voice Oriented Networks Random Access for Data Oriented Networks , Handoff and Roaming Support, Security and Privacy.

UNIT II WIRELESS WANS First Generation Analog, Second Generation TDMA – GSM, Short Messaging Service in GSM, Second Generation CDMA – IS-95, GPRS - Third Generation Systems (WCDMA/CDMA 2000)

UNIT III WIRELESS LANS Introduction to wireless LANs - IEEE 802.11 WLAN – Architecture and Services, physical Layer- MAC sublayer- MAC Management Sublayer, Other IEEE 802.11 standards, HIPERLAN, WiMax standard.

UNIT IV ADHOC AND SENSOR NETWORKS Characteristics of MANETs, Table-driven and Source-initiated On Demand routing protocols, Hybrid protocols, Wireless Sensor networks- Classification, MAC and Routing protocols.

UNIT V WIRELESS MANS AND PANS Wireless MANs – Physical and MAC layer details, Wireless PANs – Architecture of Bluetooth Systems, Physical and MAC layer details, Standards.

Text Books & Reference:

1. William Stallings, "Wireless Communications and networks" Pearson / Prentice Hall
of India, 2nd Ed., 2007.
2. Dharma Prakash Agrawal & Qing-An Zeng, “Introduction to Wireless and Mobile
Systems”, Thomson India Edition, 2nd Ed., 2007.

Institute of Management
Bachelor of Commerce Hons
AC 11- Strategic Accounting
Academic Year 2017-18

Course Code : AC11
Course Credits : 4
Total Hours per Week: 3

Course Description: The specialized accounting course is designed for commerce students exclusively to deal with the different forms of business entities and recording of their business transactions. The subject deals with the accounting practices of Non-trading concerns, Royalty accounts, lease, hire purchase transactions, Branch and Departmental accounting, Voyage Accounting, etc.

COURSE SYLLABI:

Accounts for Non Trading Concerns

Royalty Accounts

Accounts for Leasing, Hire purchase and Instalment Purchase System

Branch Accounting and Departmental Accounting

Accounting for Goods Sent on Sale or Return Basis

Average due Date and Current Accounts

Accounting for Voyage

Accounting for Package and Containers

Accounting for Agriculture firms and hotels.

LEARNING OUTCOMES:

1. Students will be able to understand the accounting practices in various forms of service and manufacturing organizations, includes Non- profit institutions, branch business system, Accounting related to mines, quarries, publication, package and containers etc.

2. Students will get specialized knowledge of accounting in different business perspectives.

TEXT BOOKS:

- Shukla, M.C., Grewal, T.S. & Gupta, S.C. (2013). ***Advanced Accounts Vol.2,*** S.Chand and company: New Delhi.

REFERENCE BOOKS:

1. S.P Jain & K.L.Narang,(2014) ***Advanced Accountancy***, Kalian Publishers, New Delhi.
2. Ambrish Gupta (2009). ***Financial Accounting for Management – An Analytical Perspective.*** Pearson.
3. Anthony N. Robert, David F. Hawkins, Kenneth A. Merchant (2010). ***Accounting Text and Cases, 12e***. Tata McGraw Hill.
4. S.K. Bhattacharyya and John Dearden (2009). ***Accounting for Management – Text & Cases***. New Delhi: Vikas Publishing.
5. Tulsian P.C. (2006). ***Financial Accounting.*** Pearson.
6. R. Narayanaswamy (2009). ***Financial Accounting – A Managerial Perspective.*** PHI.

Activities Related to Employability Enhancement Skills

Assignment on:

1. Preparation of Income and Expenditure and Receipt and Payment Accounts
2. Accounts of Non trading organizations
3. Accounts in the books of lessor and lessee in case of Royalty Transactions
4. Leasing, Hire Purchase and Installment purchase
5. Branch Accounting and Departmental Accounting
6. Accounting for package and container business
7. Accounting of shipping companies for each Voyage
8. Accounts of Agricultural farms and Hotels

JK Lakshmipat University, Jaipur
Institute of Management
Bachelor of Business Administration
Academic Year- 2017-18

Direct Tax Laws and Practice

Course Code: BBA 509
Credit: 4
Semester: V

Activities Related to Skill Development and Employability

In lass discussion on direct tax and indirect tax
Assignment on determination of Assessment Year & Previous Year
Case-let 1 on computation of gross total income of an assessee with varied residential status for the A.Y. 2017-18.
Case-let 3 on determination of Advance Payment of Tax amount
Assignment on computation of Taxable income under the head Salary for the A.Y. 2017-18
Assignment on computation of Taxable income under the head House property for the A.Y. 2017-18.
Assignment on computation of Taxable income under the head Business & Profession for the A.Y. 2017-18.
Assignment on computation of Taxable income under the head Capital Gains for the A.Y. 2017-18.
Case Study on Determining GTI and TI of an individual with varied source of income for the A.Y. 2017-18.
In class room discussion on filing of return, TDS and PAN using Income Tax website.
In class room discussion on GST and its impact on replacing other indirect taxes.

JK Lakshmipat University, Jaipur
Institute of Management
BBA
Academic Year- 2017-18
Brand Management

Course Code: BBA608
Credits: 4
Semester: VI

Course Description:
The course builds on existing communications and consumer behaviour models in order to explore many of the issues facing a modern day brand manager. Various topics covered are evaluation of brands, brands and their relationships with consumers, how to create brand equity and the tools required to manage equity over time. This course is divided into four parts: Identifying and Establishing Brand Positioning, Planning and Implementing Brand Marketing Programs, Measuring and Interpreting Brand Performance and Growing and Sustaining Brand Equity.

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

- Understand the important issues in planning and evaluating branding strategies.
- Understand appropriate theories, models, and other tools to make better branding decisions.
- Explain branding concepts and ideas in their own words
- Practically develop a brand, including positioning and communication

Course Syllabi:

- **Identifying and Establishing Brand Positioning:** Brands and Brand Management, Branding Challenges and Opportunities, Brand Equity Brand Management Process, Brand Positioning.
- **Planning and Implementing Brand Marketing Programs**: Choosing Brand Elements to Build Brand Equity, Designing Marketing Program to Build Brand Equity, Integrated Marketing Communication to Build Brand Equity.
- **Measuring and Interpreting Brand Performance**: Developing a Brand Equity Measurement and Management System, Measuring Sources of Brand Equity- Capturing Customer Mind-Set, Measuring outcomes of Brand Equity- Capturing Market Performance.
- **Growing and Sustaining Brand Equity**: Designing and Implementing Branding Strategies, Introducing and Naming New Products and Brand Extensions, Managing Brands over Geographic Boundaries and Market Segments.

Activities Related to Skill Development and Employability

Case 1: The devil in Detail: Noodles Market in India
Case 2: Breaking Free – Saffola
Case 3: Evaluating a Campaign for Glucose Biscuit
Case 4: Aashirvaad- To Extend or Not?

JK Lakshmipat University, Jaipur
Institute of Management
Bachelor of Commerce (H)
Academic Year- 2017-18

Fundamentals of Investment

Course Code: BCH511
Credit: 4
Semester: V

Activities Related to Skill Development and Employability

Case 1: EIC framework: Economic Analysis of Developed, Underdeveloped and Developing economies
Case 2: A portfolio Restructuring Dilemma
Case 3: Debacle of Reliance Power IPO
Case 4: EIC Framework: Company Analysis of Bajaj Automobile
Case 5: EIC froamework: Industry Analysis of Telecom Industry
Assignment 1 on Calculation of risk & return of investment in single security
Assignment 2 on Calculation of risk & return of investment in a portfolio
Project presentation 1 on IPO of ICICI bank, Ujjivan Bank, Bandhan Bank, D-Mart.
In class room discussion on Investor Trust and SEBI Regulations using Satyam computers Case
Class room discussion on Cross Sectional Newspaper data of Stock Indices.
Class Room discussion on impact of GST and Demonetization on Investment environment

JK Lakshmipat University, Jaipur
Institute of Management
BBA
Academic Year- 2017-18
Excel for Business Decisions

Course Code: IT13
Credits: 3
Semester: III

Course Description:
Spreadsheet skills are an integral part of a business manager's toolkit in present times. Irrespective of the area of specialization, a manager is expected to have basic numeracy skills and be proficient in using spreadsheet software, such as Excel, to analyze business data/ solve business problems. The present course is aimed at developing Excel skills of participants so that they can create and share some useful workbooks in different domains. It will also help them in developing their analytical and problem solving skills thereby enhancing their employability. The course begins with a refresher module on key numeracy skills and the Excel environment. Ability to create and format worksheets, use simple formulas and visualize data with the help of charting capabilities available in Excel will be the pre-requisites for taking this course. The course then builds upon these skills to develop worksheets which are actually used in business organizations, in various functional areas, such as Accounting and Finance, Sales and Marketing, etc. Besides this, the course is also going to help the participants in developing their domain-independent data analysis skills. Participants will also be exposed to some of the Excel Add-ins/tool packs that will take their spreadsheet skills to the next level. The course flow will be guided by a tentative session plan which will always remain open to modifications as the class proceeds.

Course Learning Outcomes:
Upon successful completion, the student should be able to:

- Create professional-looking worksheets using Excel.
- Summarize data spread across several worksheets/workbooks.
- Create pivot tables and pivot charts for analyzing data.
- Develop proficiency in intermediate and advanced features of Excel, such as Customization, Goal Seek Analysis, What-if scenarios, Formula Auditing, Multi-level and Custom Sorting/Filtering of data, Lookup Procedures, Range-Names etc.
- Using built-in function libraries and creating user defined functions.
- Understand the use of Excel Add-ins like Analysis ToolPak and Solver Add-in.

Course Syllabi:

- Familiarizing with Excel Environment (Ribbon Layout and Changed Excel Environment (Excel 2007 onwards). Hands-on skills for basic Excel Skills (Data Entry, Basic Formatting, Row/Col insert/delete, Formulas and Expressions, Absolute and Relative Cell Referencing)
- Working with Different types of Data, Charting in Excel
- Working with Pivot Tables, Pivot Charts, Lookup Functions, Conditional Formatting, Goal-seek Analysis, What-if Scenarios, Formula Auditing, Custom Sorting, Auto Outline
- Using Excel for Statistical Decision Making
- Using Excel for Prediction and Forecasting Problems
- Simple and Compound Interest Calculations, Annuity, Calculations involving Time Value of Money, Cost of Mortgage, Amortization Charts

Activities Related to Skill Development and Employability

- Creating Excel workbooks to store, analyze and report business data.
- Embed intelligence into spreadsheets using advanced features of Excel.

JK Lakshmipat University, Jaipur
Institute of Management
B. Com (H)
Academic Year- 2017-18
Marketing Process and Elements

Course Code: MKo8
Credits: 3
Semester: III

Course Description:
Marketing is a value-enhancing function that identifies opportunities, develops markets, and builds brands. Consequently, good marketing enables companies to charge price premiums, sustain competitive advantage and maintain long-run profitability. The course is designed to provide an understanding of modern marketing concepts, tools, and techniques, and help students to develop abilities and skills required for the performance of marketing functions. This course focuses on the major decisions faced by marketing managers in their efforts to harmonize the organization's objectives, capabilities, and resources with marketplace needs and opportunities.

Course Learning Outcomes:

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

1. Define, explain, and describe the common terminology, theories, and concepts associated with marketing management.
2. Critically analyze marketing management issues and develop practical solutions to problems.
3. Identify and explain the various forces in the macro-environment and how these affect marketing management.
4. Describe the marketing research process.
5. Compare and contrast the various brand positioning strategies.

Course Syllabi:

- Defining Marketing, Understanding the Marketplace and Customer Needs, Creating and Capturing Customer Value, Designing a Customer-Driven Marketing Strategy
- Company and Marketing Strategy, Partnering to Build Customer Relationship, Managing the Marketing Effort
- Analyzing the Marketing Environment: Company's Microenvironment and Macro environment, Responding to the Marketing Environment
- Managing Marketing Information to Gain Customer Insights, Marketing Research, Analyzing and Using Marketing Information
- Consumer Markets and Consumer Buyer Behavior, Factors Affecting Consumer Behavior, Types of Buying Decision Behavior, The Buying Decision Process
- Business Markets and Business Buying Behavior
- Market Segmentation, Targeting, and Positioning
- Defining Product, Services, and Brands: Building Customer Value, Branding Strategy: Building Strong Brands
- New- Product Development Strategy and The New-Product Development Process
- Product- Life Cycle Strategies
- Pricing: Understanding and Capturing Customer Value
- Pricing Strategies: New- Product Pricing Strategies, Product-Mix Pricing Strategies, Price- Adjustment Strategies

Activities Related to Skill Development and Employability

Case 1: Maruti Suzuki
Case 2: Tata Nano
Case 3: Starbucks: Selling Coffee in the Land of Tea
Case 4: Videocon Industries
Case 5: Zee Telefilms Ltd.
Case 6: Garnier Fructis Fortifying Shampoo and Oil
Case 7: Kellogg's Special K
Case 8: IPhone
Case 9: Akash Tablet
Group Project: Students will undertake a project on Marketing Plan. This will be a group project allocated and group is expected to complete the same as per guidelines.

JK Lakshmipat University, Jaipur
Institute of Management
BBA
Academic Year- 2017-18
Advertising and Sales Management

Course Code: MK09
Credits: 3
Semester: IV

Course Description:
Promotion and Sales are most often intended to be supporting components in a marketing mix. Promotion and Sales decisions must be integrated and coordinated with the rest of the marketing mix, particularly product/brand decisions, so that they may effectively support an entire marketing mix strategy. The course is designed to provide an understanding of various promotional tools used in the communication mix and modern sales management concepts, tools, and techniques. The course focuses on developing advertisement and sales management skills as required in the today's competitive industry.

Course Learning Outcomes:

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

- Understand fundamental and advanced concepts of marketing, including Knowledge of various functions like Channel Management, Marketing Communication etc. that a Marketing Manager performs.
- Develop analytical and conceptual abilities pertaining to marketing decisions;
- Understand strategic and tactical issues related to marketing and solve complex managerial problems.

Course Syllabi:

- Marketing Channels: Supply Chains and the Value Delivery Network, the Nature and Importance of Marketing Channels, Channel Design Decisions, Channel Management Decisions
- Retailing: Types of Retailers, Retailer Marketing Decisions, Future of Retailing
- Wholesaling: Types of Wholesalers, Wholesaler Marketing Decisions, Trends in Wholesaling
- Communication Customer Value: The Promotion Mix, Integrated Marketing Communications, Steps in Developing Effective marketing Communication, Setting the Total promotional Budget and Mix
- Advertising and Public Relations: Adverting Objectives, Setting the Advertising Budget, Developing Advertising Strategy, Evaluating Advertising Effectiveness and Return on Advertising Investment, The Role and Impact of Public Relations, Major Public Relations Tools
- Personal Selling: Managing Sales Force, The Personal Selling Process and Sales Promotion
- Direct and Online Marketing: Building Direct Customer Relationships
- Creating Competitive Advantage: Analysis and Strategies
- Global Marketing Environment, Deciding on the Global Marketing Program
- Sustainable Marketing: Social Responsibility and Ethics, Business Actions towards Sustainable Marketing
- Rural Marketing- Decision to Enter Rural Markets, Approaches to Rural Marketing, Tools for Understanding Rural Markets

Activities Related to Skill Development and Employability

Case 1: Go Indigo
Case 2: Tanishq

Case 3: Hero Motocorp
Case 4: Idea Cellular
Case 5: Avon
Case 6: Facebook
Case 7: Blackberry: lessons in Strategic Positioning
Case 8: Amazon.com
Case 9: Amul
Assignment 1: on Advertising Media and Agency
Assignment 2: on Personal Selling Process
Assignment 3: on Rural Marketing

Course Title and Code: Earthquake engineering. **CE 627**	
Hours per week	**L-T-P: 3-0-0**
Credits	**3**
Students who can take	**B.Tech Semester-VI (Batch: 2015-19 civil Engg)**

Course Objective: The course on earthquake engineering provides the fundamental concepts, principles and application of earthquake engineering in seismic analysis and design of structures. The course begins with the seismology explaining the causes of occurrence of earthquake and its characterization.

On successful completion of this course students will be able to:

1. Find the response of SDOF & MDOF structural system subjected to vibration including earthquake.
2. Apply the concept of Earthquake Resistant Design & concept of lateral load distribution for design a building.
3. Estimate the lateral forces generated in the structure due to earthquake.
4. Apply the concept of ductile detailing for RC design structures.
5. Apply the basics of structural dynamics in analysis of structures subjected to earthquakes.
6. Compute ground motion intensity measures and attenuation relationships.
7. Compute earthquake hazard and design response spectra.
8. Apply Indian standard building code (IS 1893, part 1:2002) earthquake requirements in design of structural systems.

Syllabus (Theory)

Introduction to FEM and its applicability, Review of mathematics: Matrix algebra, Gauss elimination method, Uniqueness of solution, Banded symmetric matrix and bandwidth. Structure analysis: Two-force member element, Local stiffness matrix, coordinate transformation, Assembly, Global stiffness matrix, imposition of Boundary conditions, Properties of stiffness matrix.

One-dimensional Finite Element Analysis: Basics of structural mechanics, stress and strain tensor, constitutive relation, Principle of minimum Potential, General steps of FEM, Finite element model concept /Discretization, Derivation of finite elements, equations using potential energy approach for linear and quadratic 1-D bar element, shape functions and their properties, Assembly, Boundary conditions, Computation of stress and strain.51

Two Dimensional Finite Element Analysis: Finite element formulation using three nodded triangular (CST)

element and four nodded rectangular element, Plane stress and Plain strain problems, Shape functions, node numbering and connectivity, Assembly, Boundary conditions, Isoparametric formulation of 1-D bar elements, Numerical integration using gauss quadrature formula, computation of stress and strain.

Finite Element Formulation from Governing Differential Equation: Method of Weighted Residuals, Collocation, Sub domain method, Least Square method and Galerkin's method, Application to one dimensional problems, one-dimensional heat transfer, etc. introduction to variational formulation (Ritz Method.)

Higher Order Elements: Lagrange's interpolation formula for one and two independent variable, Convergence of solution, compatibility, element continuity, static condensation, p and h methods of mesh refinement, Aspect ratio and element shape, Application of FEM, Advantages of FEM, Introduction to concept of element mass matrix in dynamic analysis.

Text books:

1. Text Book of Finite Element Analysis, Seshu P., Prentice Hall India.
2. Finite Element Procedure in Engineering Analysis, Bathe K.J., Prentice Hall India.

References:

1. An Introduction to the Finite Element Method, Reddy J.N., Tata McGraw-Hill, New Delhi.
2. Concepts & Applications of Finite Element Analysis, Cook and Plesha, Willey India New Delhi.
3. Introduction to Finite Elements in Engineering, Chandupatla and Belegundu, Prentice Hall India.

Activities Related to Skill Development and Employability

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mid Term Examination-II, October, 2019

B. Tech. in Civil Engineering, Semester VII

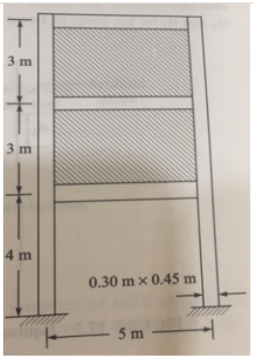
Roll No……..

CE1111: **Earthquake Engineering** Time: 1.5 hours Max. Marks: 30

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.
4. IS 1893 -2002 part –I & IS 13920 (1993), SP-16 are permitted.

Q.1	A three storeyed hospital building located in Jaipur resting on medium soil is analyzed for free vibration and the results are as mentioned. W_1= 1100kN, W_2= 1300kN and W_3=1000kN. ω_1= 8.3407 rad/sec. ω_2= 23.2831 rad/sec and ω_3= 31.5954 rad/sec. The three corresponding mode shapes are {0.2980, 0.5977, 0.7443}, {0.6623, 0.3535,-0.6607} and {0.7031, -0.6237, 0.3415}. Calculate the storey shears by the dynamic analysis.	15
Q.2	A SDOF vibrating system is having following parameters. m = 200 kg, k = 160 N/m, c = 40 N – sec / m. Determine (i) the damping factor (ii) the natural frequency of damped vibration	05
	OR	
Q.2	A displacement-time plot for a free vibration analysis of a Single degree of freedom system give a displacement of 7.5 mm at time t_1 and 1 mm after 7 cycle. Determine the logarithmatic decrement and damping ratio.	05
Q.3	Calculate A_h value for a structure having natural period 0.08 s corresponding to fundamental mode. The structure is to be constructed in zone IV. Soil strata is medium. Importance factor is 1.5 and response reduction factor is 3.	05



Frame properties :
$E_f = 5000\sqrt{f_{ck}}$
f_{ck} = 20Mpa
Width of beam and column (b)= 0.30 m
Depth of beam and column (d) = 0.45 m
I_c = moment of inertia of column and = I_b = 0.002278125 m^4
Infill properties :
E_m = elastic modulus of masonry wall =13800 Mpa
t = thickness of the infill wall = 0.23 m
h= height of the infill wall = 2.55 m
L = length of the infill wall = 4.55 m

Assignment -1

1) State the geographical definition of an earthquake?
2) Define seismology .How is an earthquake recorded?
3) State the causes of Earthquakes?
4) Where do faults occur? State any one example.
5) Explain how plate tectonics is a cause for an occurrence of an earthquake?
6) Name the kind of shockwaves sent out from the focus of an earthquake.
7) What are the different type of vibration? Explain the concept of logarithmatic decrement.
8) Derive the equation of motion of for a damped but free vibration Single degree of freedom system.
9) Write types and effects of soil liquefactions.
10) A spring mass model consists of 10kg mass and spring with stiffness 7N/mm, was tested for viscous damped vibration. Test recorded two successive amplitudes 2 and 1.5 .Determine the natural frequency of undamped system, the logarithmic decrement, damping ratio, damping coefficient, damped natural period.
11) Set up the equation of motion for the following damped SDOF system without external force and solve for the response under given condition. K=320N/m, m= 5kg, c= 4 N-s/m, x(0)=1 and $\dot{x}(0)$=7.6.
12) A water tank is idealized as a single degree of freedom system having equivalent weight of 15000 kN, damping ratio as 5% and stiffness factor as 25000 kN/m. Calculate (1) the natural time period (2) the damped time period (3) damping constant and (4) the maximum horizontal displacement at the top of the water tank if it is excited by a seismic force equivalent to 25,000 sin (5t) N.
13) A spring mass model consists of 10 kg mass and spring stiffness 8 N/mm and it was tested for viscous damped vibration. Test recorded two successive amplitudes 2.0 and 1.75. Determine (1) the natural frequency of undamped system (2) the logarithmic decrement (3) damping ratio (4) damping coefficient (5) damped natural period

Practice problem

JK Lakshmipat University
Institute of Management
MBA- 2017-18
Course Title: Managerial Accounting
Course Code: AC20
Credits: 3
Semester: II

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:

This Course would help student to

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

COURSE LEARNING OUTCOMES:

Upon completion of the course, students are expected to be able to:

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

TENTATIVE SESSION PLAN:

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

S9	Practical Assignment check & Discussion
S10	Scope of material control, 5R's of material purchase, procedure of material purchase
S11	Pricing of material receipts &Issues
S12	Methods of material issues- practical problems
S13	Inventory control techniques- ABC analysis, VED analysis, Perpetual inventory system, JIT
S14	Case study discussion and case Assignment
S15	Class Test/ Quiz/ Presentation- 2
S16	**Review and Recap**
S17	**Mid Term Examination**
S18	**Mid Term Examination**
S19	Labour cost: Classification of labour cost/ Time Rate / piece rate
S20	Incentive wage plans- Halsey, Rowan
S21	Taylor's Differential piece wage plan, Merricks differential piece rate system, Emerson's efficiency plan
S22	Marginal costing Vs. Absorption costing
S23	CVP analysis, Relationship of costs and profits with volume
S24	Calculation of Break-even point and Margin of Safety
S25	Practical Exercises
S26	Case study analysis
S27	Practical application of Marginal Costing- Evaluation of performance, profit planning
S28	Fixation of selling price, make or buy decision, decision to accept a special order
S29	Case study Analysis
S30	Standard Cost, Objective of standard costing, Fixation of standards, Variance Analysis and classification of variances
S31	Material cost variances- practical exercises
S32	Labour cost variances- practical exercises
S33	Overhead variances- practical exercises
S34	Case analysis-
S35	Class Test/ Quiz/ Presentation- 3
S36	Budget and Budgeting, features, procedure for preparation of budget, budget center and budget manual
S37	Classification of budget- based on time period, condition, capacity and coverage. Preparation of various functional budget
S38	Zero Based Budgeting, Target costing, Activity based costing and its adv. Over traditional costing Techniques for profit improvement, cost reduction, value analysis Throughput accounting, Life cycle costing, Backflush costing
S39	Discussing the Learning Outcomes and value addition from the Course
S40	**REVIEW AND RECAP**

***READING MATERIALS*:**

- Shah, Paresh (2015). **Management Accounting**, 3/e. New Delhi: Oxford University Press.
- Horngreen, C.T., Sundem, G.L. and Stratton, W.O. (2014). **Introduction to management accounting**, 14/e. New Delhi: Pearson Prentice Hall.
- Banerjee, Bhabtosh.(2014). **Cost Accounting Theory and Practice,** 13/e. New Delhi: PHI Learning Pvt. Ltd.
- Khan, M .Y and Jain, P.K. (2013). **Management Accounting: Text Problems and cases**, 6/e. New Delhi: Tata McGraw Hill
- Kishore, M. Ravi.(2011). **Cost and Management Accounting,5/e.New Delhi:** Tax Mann Publication.

Note: Latest edition of the readings will be used.

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

JK Lakshmipat University
Institute of Management
BBA2017-18
Cost Accounting Principles and Practice

Course Code: AC17
Credit: 3
L-T-P: 3-0-0
Course instructor: Prof. Lokanath Mishra

Course Description:
Cost Accounting is a mandatory course for the student of BBA , aimed to equip students on various aspects of cost ascertainment and cost control techniques. The subject explains the concept and role of cost accounting in the business management of manufacturing and service sector companies. The subject helps the students in defining cost and their impact on the value creation in the firm.

Course Objectives:
This Course would help student to

- State and evaluate choices between alternative product costing systems and methods in a cost-benefit context.
- To develop an understanding of students to utilize cost data in planning and control.

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

- Calculate cost unit/batch/ process/ product/ segment wise.
- Select the cost according to their impact on business.
- Use various cost control techniques to minimize the material, labor and overhead costs.

Tentative Session Plan:

Chapter/Session/ Theory or Practical			**TOPIC**
C1	S1	T	Introduction to costing, Definition, Meaning, Scope and Objective of Cost Accounting, Costing as an Aid to Management
C1	S2	T	Importance, advantages, limitation of cost accounting, Comparing Financial Accounting, Cost Accounting and Management Accounting.

C2	S3	T	Introduction to cost centre, cost unit, type of costs, cost and expenses, Element of cost, classification of cost, Need for Classification
C2	S4	T	Introduction to Method of costing, Batch costing, process costing, contract costing Job Costing, Various techniques of recording costing data
C3	S5	T	Preparation of Cost Sheet, format and practical exercise to calculate the cost per unit and total cost
C4	S6	P	Discussion of Practical Assignment
C3	S7	P	Material Accounting, Purchase Function, Centralized and Decentralized Purchase System, Purchase Procedure,
	S8	P	Storing of materials; ABC Analysis, VED Analysis, EOQ, Perpetual Inventory System, JIT Inventory
	S9		**Class Test/Quiz/presentation-1**
C3	S10	T	Practical on fixation of various levels of material, calculation of EOQ,
C3	S11	T	Valuation of Issue of material , LIFO, FIFO, Average Method
C6	S12	P	Review of Practical Assignment
C6	S12	P	Labor Cost Management: Types labor, accounting treatment of labor cost, Ideal time, overtime, adjustment,
	S13		**Class Test/Quiz/presentation-2**
C5	S14	P	Labor turnover, cause of labor turnover, Time study, motion study, fixation of standard time
C5	S15	P	Remuneration and incentive plans, labour bonus system
C5	S16	T	Practical on calculation of labour cost, under time rate, piece rate, and other bonus plan system
	S17	T	Review of Practical Assignment
	S18		**REVIEW and RECAP Before MID TERM EXAM**
	S19-S20		**MID TERM EXAMINATION**
	S21		Discussing the Mid- term Paper and student performance
C5	S22	T	Field Study/ Project on contemporary labor payment practice (Group wise projects)

C5	S23	P	Project Report Presentation- Group wise
	S24	P	Overhead cost Management: Introduction to overhead components in cost structure, types of overheads,
	S25	**P**	Overhead cost allocation, apportionment and absorption of factory overheads. Accounting treatment of under and over absorption of overheads
C7	S26	T	Primary and Secondary Distribution summary of overhead costs
C7	S27	P	Machine hour rate method of calculating overhead cost
C7	S28	P	Review of Practical assignment on overhead
	S29	P	Review of Practical assignment on overhead
C8	S30	P	Case Study
C8	S31	P	Case Study
	S32		**Class Test/Quiz/presentation-3**
C8	S33	P	**Reconciliation and Integration**: Introduction, Reconciliation of Financial and Cost Accounts, Integrated Accounts.
C8	S34	P	practical's and case study on reconciliation of accounts
C8	S35	P	Activity Based Costing and Cost Control and Tool and Techniques of Cost Reduction.
C8	S36	P	Practical on Activity Based Costing
C8	S37	P	Uniform Costing and Inter-firm Comparison: Introduction, Uniform Costing, Inter-firm Comparison
C8	S38	P	Problems and Practice of Uniform Costing
	S39	P	Discussion on Learning Outcomes from the Course
	S40	P	**FINAL REVIEW AND RECAP**

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.

References for Readings:

- Bhattacharya, Ashish K. (2016). *Principles and practice of cost accounting, 3/e.* New Delhi: PHI Learning Pvt. Ltd.

- Khan, M Y & Jain, P.K.(2015). Cost Accounting. New Delhi: Tata McGraw Hill Publication.
- Arora, M.N. (2014). *A text book of cost and management accounting, 8/e.* New Delhi: Vikas Publication.
- Jain, S.P., & Narang, K.L. (2014). *Cost accounting*. New Delhi: Kalyani Publishers.
- Pillai, R.S.N., & Bagavathi, V. (2009). *Cost accounting*. New Delhi: S. Chand and Company Ltd.
- Banerjee, Bhabtosh (2013). *Cost accounting: Theory and practice, 12/e.*. New Delhi, PHI Learning Pvt. Ltd.

Note: Latest edition of the readings will be used.

Assessment Scheme:

Assessment Component	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%**

ACTIVITIES RELATD TO EMPLOYABILITY ENHANCEMENT SKILLS

Case Studies

1. Apollo Community Hospital (Management of Direct expenses and overheads)
2. Dr. Raman and his Practice (Labor and Material management)
3. Keshkala Beauty Parlour (Manterial Costing)
4. Rajesh Xerox and Print(overhead Costing)
5. Denims tailoring (Process Costing)
6. Tribhuban Society (Cost Control)
7. Barbie Company (Job Costing)
8. Iscon Construction Company (Batch Costing)
9. Tasty Bread Manufacturing (Operation Costing)
10. Dental Practice (Operation Costing)

Assignments

1. On Classification of cost and cost behavior

2. On preparation of cost sheet
3. On material control and pricing
4. On labour costing
5. On overhead costing
6. On batch and operating costing
7. On Process costing
8. On cost management and decision making

BACHELOR OF COMMERCE (HONOURS)
BCH509
AUDITING & CORPORATE GOVERNANCE
COURSE OUTLINE-2017-18
SEMESTER V

INSTRUCTOR DETAILS
NAME: DR. LOKANATH MISHRA
EMAIL: Lokanathmishra@jklu.edu.in
OFFICE: ROOM NO. 206 (IM BLOCK, 2nd FLOOR)
OFFICE TEL: 0141- 7107535
MOB: 9999558286

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

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 OBJECTIVES:

This Course would help student to

1. Discuss the nature of auditing and assurance services including the impact of various statutes and regulations.
2. Measurement of financial statements as per the principles of auditing.
3. Apply standard audit procedures such as analytical procedures, detail tests, and tests of controls.
4. Identify the stages of an audit from planning to conclusion.
5. understanding the role of corporate governance in business sustainability.

LEARNING OUTCOMES:

Upon completion of the course, students are expected to be able to:

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.
4. Acquaintance and understanding of codes of corporate governance.

COURSE CONTENTS:

Introduction to Auditing: Definition of Audit, Characteristics, Objective, Advantages, Limitation of Audit, Qualification and Qualities of an Auditor, Classification of Audit based on organization structure, Timing, scope and specific objectives.

Internal Control System & Internal Audit: Internal Control,, Definition, objective, advantages, forms, Requisites, and techniques. Internal Check and procedure, distinction between Internal Audit, Internal Check and Internal Control, Scope, objective and Significance of Internal Audit, Types, procedure of Internal Audit.

Vouching: Concepts and Importance: Definition, Vouching and Routine Checking, objectives, Extent and procedure of Vouching, Vouching of Cash Receipt and Cash payment transactions. Verification and Valuation of Assets and Liabilities

Company Audit: Statutory Requirements Governing Company Auditors, Audit of Financial Statements and Audit Report and Audit Liabilities.

Corporate Governance: Overview Issues and Concept, Legal Framework of Corporate Governance, Clause 49 of Corporate Governance code of conduct, OECD principles of Corporate Governance, The companies Act, 2013 key initiatives on corporate governance.

EVALUATION MATRIX:

Component	**Weightage**
Mid Term I	20%
Mid Term II	20%
End Term	40%
Continuous Evaluation (Internal Marks) Assignment, Case Study, Project Work	20%

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)
Academic Year- 2017-18
Principle and Practices of Banking and Insurance

Course Code: BCH510
Credits: 4
Semester: V

COURSE DESCRIPTION:
This course discusses the organization, operation and growth of the insurance and banking system in India. This course familiarizes the students with the dynamic changes taking place in the banking and insurance sector not only in India but also across the world in recent years. The changes in the financial product mix to meet with the competition of foreign insurance companies and banks working in India. This course will increase the conceptual thinking ability of the students.

COURSE OBJECTIVES:
This Course would help student to

1. Understand the nature and role of Indian financial system
2. Learn about the different products and product mix of Banks and Insurance.
3. To know about the working structure of RBI and other regulatory bodies.
4. Know the measures taken by the RBI to curve the dimensions of the banks.
5. Understand the major differences between Indian and Foreign players working in the financial system.

LEARNING OUTCOMES:
Upon completion of the course, students are expected to be able to:

1. The student should be able to understand the organization structure, function and working of commercial banks.
2. To acquire basic knowledge and understanding of the Banking and Insurance how they operate.
3. Describe the operating environment and functioning of banking and insurance institutions.
4. Specify the key issues in Banking and Insurance institutions and services.
5. To understand Insurance Market and various products offered by insurance firms.
6. Students should be able to understand the anatomy of different banking institutions and their purpose of establishments.

COURSE OUTLINE (TENTATIVE SESSION PLAN):

Chapter/Session/ Theory or Practical			TOPIC	SESSION DETAILS		
				Text	Case	Practical
C	S1	T	Indian banking System: Structure and Organization of banks	TB		

C	S2	T	Reserve Bank of India- Introduction and Objectives	TB		
C	S3	T	Apex banking institutions: Commercial Banks and Regional Rural Banks	TB		Assignment-1
C	S4	T	Basel Norms	TB		
C	S5	T	Functions of commercial Banks	TB		
	S6		Review of Assignment			
C	S7	T	SARFAESI Act	TB		
C	S8	T	Contemporary issues in banking Industry: NPA management, E-Banking	TB		
C	S9	T	E-Banking	TB		
C	S10	T	Securitization and Recent trends in Banking Industry	TB		
	S11		**Re-cap**			
	S12		**Mid-Term Examination**			
C	S13	T	RBI- Introduction and Objectives of RBI	TB		A-2
C	S14	T	Organizational Structure and Functions of RBI	TB	Case Study of RBI	
	S15		Case Study Presentation and Discussion			
C	S16	T	Reserve Bank of India Monetary Policy: Credit control Measures	TB		
C	S17	T	Qualitative Measures	TB		
	S18	T	Quantitative Measures	TB		
C	S19		Review of Assignment	TB		
	S20		Class Test/Quiz/presentation			
C	S21	T	Securitization	TB		
C	S22	T	Regional Rural Banks- Introduction and Objectives	TB		

C	S23	T	Functions and Role of Regional Rural Banks	TB		
C	S24	T	Co-operative Banks- Objectives and Introduction	TB		
C	S25	T	Cooperative banks in rural India: Progress and Performance	TB		
C	S26	T	Insurance- Definition, Origin and Nature	TB		
C	S27	T	Development of Insurance	TB		A-3
C	S28	T	Insurance: History of Insurance in India, kinds of insurance	TB		
C	S29	T	Principles of insurance	TB		
C	S30	T	Life Insurance: Definition of life insurance, features, benefits of life insurance	TB		
C	S31	T	Procedure for taking life insurance policy, kinds of life insurance policy	TB	Case Study	
	S32		Assignment Review			
C	S33	T	Nomination, Assignment and surrender value of LI	TB		
C	S34	T	Revival of lapsed policy, settlement of claims at death and maturity	TB		A4
C	S35	T	General Insurance: Development of general insurance in India	TB		
C	S36	T	GI: Types of General Insurance	TB		
C	S37	T	Insurance Intermediaries: Insurance Agent; meaning, procedure for becoming and insurance agent	TB		
C	S38	T	Insurance Intermediaries: Termination of insurance agent, essentials for successful insurance salesman.	TB		
	S39		**Review of Assignment/**			

			Class Test			
	S40		**Full Revision**			

TEXT BOOK AND ADDITIONAL READING MATERIAL:

- Sethi Jyotsna and Bhatia Nishwan (2012). ***Elements of Banking and Insurance***. New Delhi, PHI publication

ADDITIONAL READING MATERIAL:

1. Mishra, M.N. and Mishra, S.B. (2010). ***Insurance Principles and Practice*** 5/e, S. Chand, New Delhi.
2. S.Dortman (2010). ***Introduction to Risk Management and Insurance Market,*** New Delhi, Pearson Education.
3. Tennan M.L.(2013***). Banking and Practice in India,*** New Delhi, India Law house.
4. Trivedi IV and Jatana Renu.(2011).***Indian Banking System,*** New Delhi: RBSA Publishers
5. Uppal R.K. (2008).***Indian Banking in the Globalized World***, New Delhi, Neha Publishers and Distributors.
6. Motihar M.(2009)***.Principles and practice of Insurance***, Allahabad, Sharda Pustak Bhawan.
7. Tripathy, N.P. and Pal, P. (2008). ***Insurance – Theory and Practice*** 1/e, Prentice Hall of India, New Delhi.
8. Srivastava, R.M. and Nigam, D. (2014). ***Management of Indian Financial Institutions*** *9e,* Himalaya Publishing House, New Delhi.
9. Gulati C. Neelam (2014).***Banking and Insurance: Principles and Practices,*** New Delhi, Excel Books.

ASSESSMENT SCHEME:

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%**

Institute of Management
Indirect Tax Laws and Practice
Academic Year 2017-2018

Course Code : BCH608
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

Course code	Course Title	Teaching Scheme				
		L	T	P	S	Credits
CE408	Building Planning and Drawing	3	0	2	0	4

Syllabus (Theory)

Unit 1: Definition and concept of plan of a simple residential building.

Unit 2: Elementary principles and basic requirements for building planning, elevation and section of a residential building.

Unit 3: Elementary principles and basic requirements for building planning, elevation and section of a Commercial Building.

Unit 4: Elementary principles and basic requirements for building planning, elevation and section of a Public Building.

Unit 5: Standard drawing discussion.

Manual Drafting and Digital Drafting of following Using AutoCAD:-

1. Symbols used in Civil Engineering drawing, Masonry Bonds

2. Doors, Windows and staircases.

3. Plumbing & Electrical fitting drawing.

4. Comprehensive Drawing of Residential building (Layout, plan, elevation & sectional elevation, plumbing & electrical fillings in out)

5. Preparation of Layout planning of different civil engineering Projects.

7. Preparation of lay out plan/Maps and building drawing using computer.

Skill Development and Employability Activities:

- **Building Planning Using AutoCAD by Students**

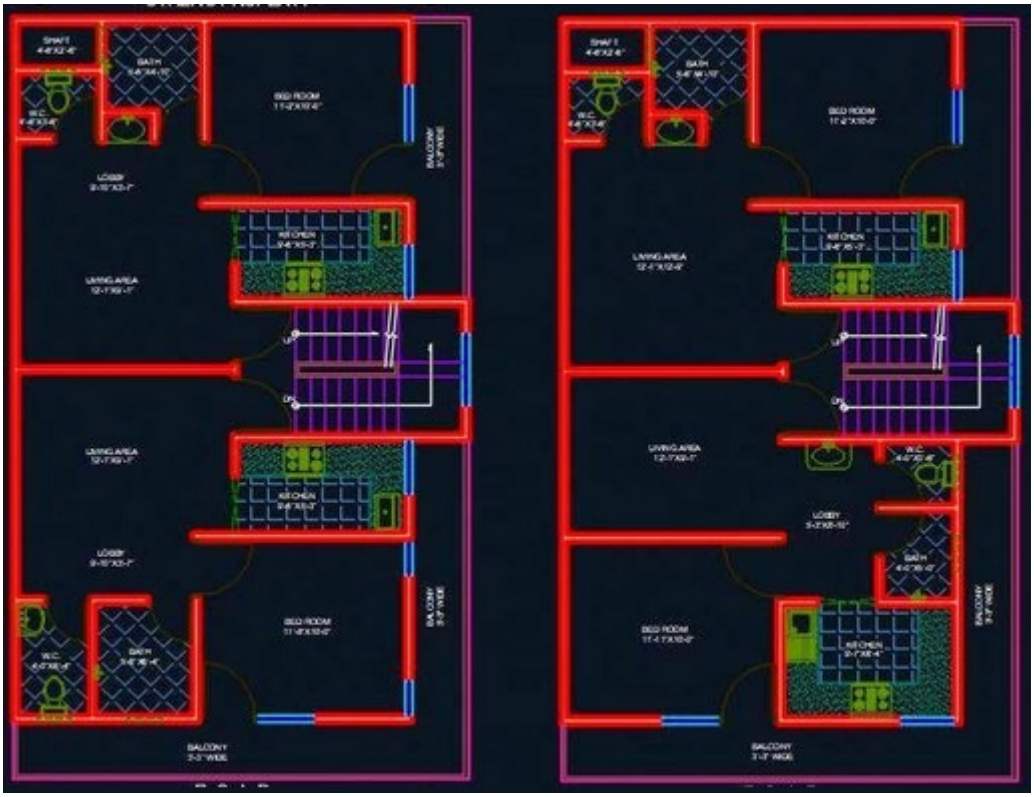


Figure 1. Ground floor and first floor plan of a residential building

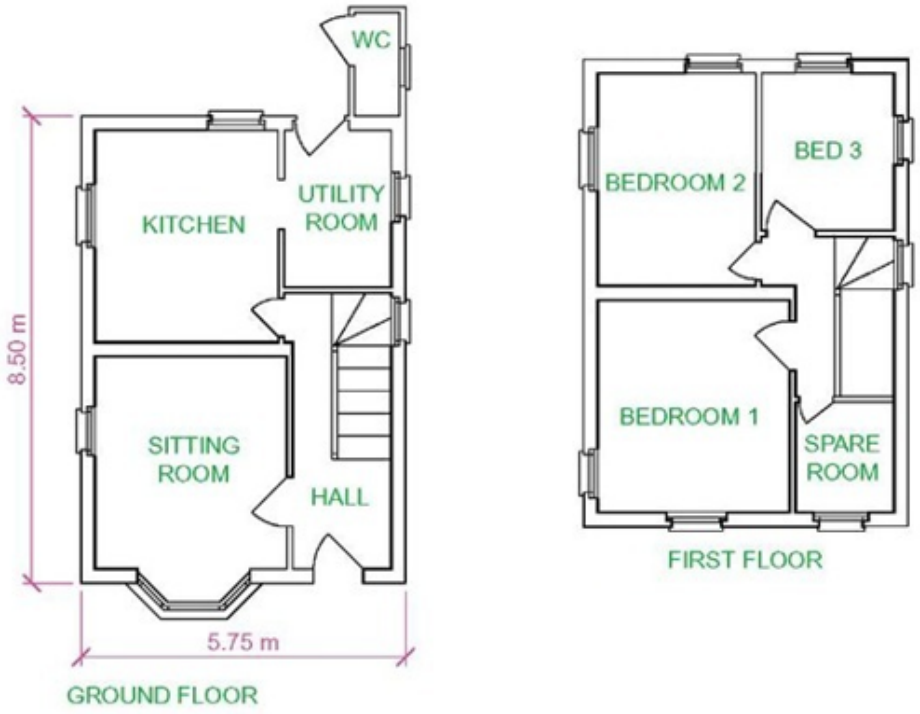


Figure 2. Ground floor and first floor plan of a residential building

- **Mid-Term Theory Exams**

JK LAKSHMIPAT UNIVERSITY, JAIPUR
INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mid-Term Practical Examination
B. Tech. in Civil Engineering

CE408: Building Planning and Drawing **Max. Marks: 20**

Duration: 2 hours

1. Draw the plan and elevation of a residential building considering the aspects of sun diagram and building bye laws. The total area of the plot is 150 m^2. **(10 marks)**

Figure 3. Mid-Term Practical examination to access the building drawing skills of students

CSE304: Application Development

Course code	Course Title	Teaching Scheme				
		L	T	P	S	Credits
CSE304	Application Development	3	1	2	0	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	50	10	100	20	40	40	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: Basic principles involved in developing a web site, Planning process, Five Golden rules of web designing, Designing navigation bar, Page design, Home Page Layout, Design Concept. Basics in Web Design, Brief History of Internet, World Wide Web, creation of web site, Web Standards, Audience requirement.

UNIT II: Introduction to HTML, HTML Documents, Basic structure of an HTML document, Creating an HTML document, Mark up Tags, Heading-Paragraphs, Line Breaks, HTML Tags Introduction to elements of HTML - Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls.

UNIT III: Introduction to Cascading Style Sheets, Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling (Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS Id and Class, Box Model(Introduction, Border properties, Padding Properties, Margin properties), CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align,Pseudo class, Navigation Bar, Image Sprites, Attribute sector), CSS Color, Creating page Layout and Site Designs.

UNIT IV: Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in Java. Objects and Classes : Basics of objects and classes in Java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, StringBuffer, File this reference.

UNIT V: Inheritance in Java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic Programming, Casting objects, Instance of operator, Abstract class, Interface in Java, Package in Java, UTIL package.Text and Binary I/O, Binary I/O classes, Object I/O, Random access files.

Syllabus (Practical)

Experiment 1 (HTML Page)

I. (a) Create a webpage with HTML describing your department. Use paragraph and list tags.
(b) Apply various colors to suitably distinguish key words. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.
(c) Create links on the words e.g. "Wi-Fi" and "LAN" to link them to Wikipedia pages.
(d) Insert an image and create a link such that clicking on image takes user to other page.
(e) Change the background color of the page. At the bottom create a link to take user to the top of the page.

Experiment 2 (Tables)

I. (a) Create a table to show your class time-table.
(b) Use tables to provide layout to your HTML page describing your university infrastructure.
(c) Use and tags to provide a layout to the above page instead of a table layout.
(d) Use frames such that page is divided into 3 frames 20% on left to show contents of pages, 60% in center to show body of page, remaining on right to show remarks.
(e) Embed Audio and Video into your HTML web page.

Experiment 3 (CSS)

I. (a) Apply in-line CSS to change colors of certain text portion, bold, underline and italics certain words in your HTML web page. Also change background color of each paragraph using in-line CSS.
(b) Write all the above styling in CSS in different file (.css) and link it to your webpage such that changes made in CSS file are immediately reflected on the page. Group paragraphs into single class and add styling information to the class in CSS.
(c) Create a simple form to submit user input like his name, age, address and favorite subject, movie and singer.
(d) Add few form elements such as radio buttons, check boxes and password field. Add a submit button at last.

Experiment 4 (JavaScript)

I. (a) Create a form similar to the one in previous experiment. Put validation checks on values entered by the user using JavaScript (such as age should be a value between 1 and 150).

(b) Write a JavaScript program to display information box as soon as page loads.
(c) Write a JavaScript program to change background color after 5 seconds of page load.
(d) Write a JavaScript program to dynamically bold, italic and underline words and phrases based on user actions.
(e) Write a JavaScript program to display a hidden div (e.g. showing stats of a player when user clicks on his name).

Experiment 5 (CGI)

I. (a) Create a form using CGI-PERL paradigm, preferably as close to the one in experiment 3 as possible.
(b) Write CGI program to encode form and submit it.
(c) Write CGI program to decode the form you encoded previously and fetch the details submitted by user.
(d) Write CGI program to process the form details and show them back to the user.
(e) Using the concepts from above 4 steps, create a simple calculator.

Experiment 6 (Validator)

I. (a) Write a simple HTML code incorporating simple tags, list and div. Try validating it on validator.w3.org
(b) Add suitable header tags and format according to the validator. Validate it successfully.
(c) Add CSS file to style your document. Revalidate it using validator.
(d) Add links, images and tables. Revalidate it using validator.
(e) Add your own XML tags. Revalidate it using validator.

Text Book(s)

1. Introduction to Java Programming (Comprehensive Version), Daniel Liang, Pearson, Ninth Edition, 2016.
2. Core Java Volume-I Fundamentals, Horstmann& Cornell, Pearson Education, Eight Edition, 2008
3. Beginning HTML, XHTML, CSS, and JavaScript,JohnDuckett, Wiley India, 2010

Reference Book(s)

1. The Complete Reference, Java 2, Herbert Schild, TMH, (Ninth Edition), 2014
2. Head First Java, Katy Sierra & Bert Bates, SPD (O'Reilly), Second Edition, 2005

Web Resource(s)

http://nptel.ac.in/courses/106106156/

Activities Related to Skill Development and Employability

Course Name: Application Development
Course Code: CSE304

Project

Objective/ Vision

A library management software where admin can add/view/delete librarian and librarian can add/view books, issue, view issued books and return books.

Users of the System

1. Admin
2. Libraian

Functional Requirements

1. Admin

1. Can add/view/delete librarian
2. Can logout

2. Librarian

1. Can add/view books
2. Can issue books
3. View issued books
4. Return Books
5. Can logout

Tools to be used

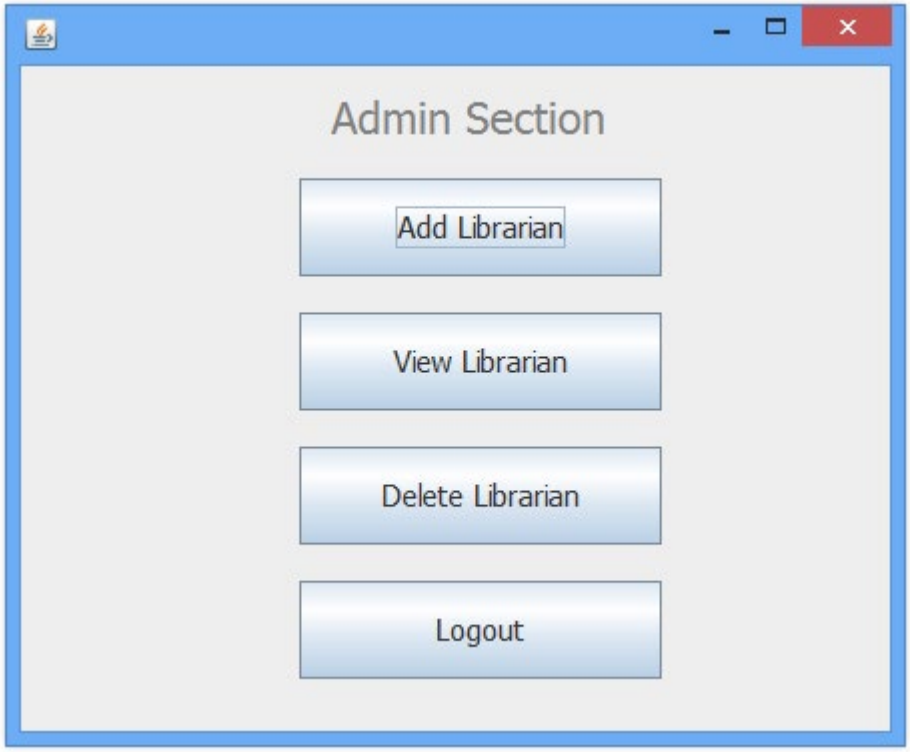
1. Use any IDE to develop the project. It may be Eclipse /Myeclipse / Netbeans etc.
2. MySQL for the database.

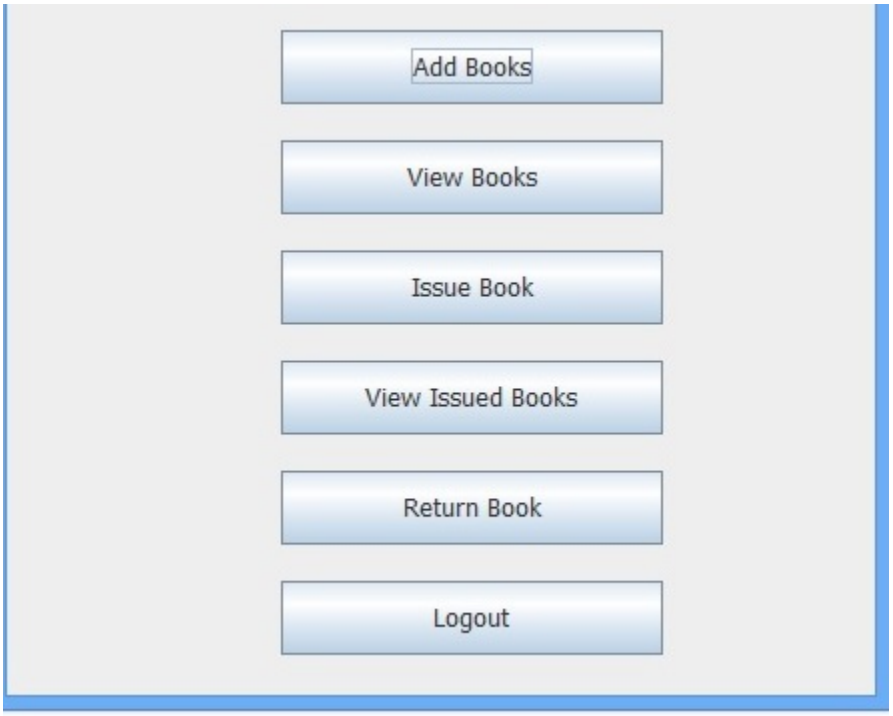
Front End and Back End

1. **Front End:** Java Forms

2. **Back End:** MySQL

How project works?





CSE611 Minor Project

Course Title and Code: Minor Project CSE611	
Hours per Week	**L-T-P:**
Credits	**4**
Students who can take	B.Tech. Sem VII (2017-18)

Activities Related to Skill Development and Employability

Each student has to participate in presentation of the project at different stage of completion of it.

Report writing skills are also developed as each student has to submit the synopsis, mid-term progress report, and end-term progress report.

Students communication and technical in-depth knowledge is also assessed in one-to-one fashion through the viva on topic by a team of faculty experts.

Students are also required to upload their working source code and report on their GIT Hub account on public forum.

Course Name - Object Oriented Programming Using JAVA
Course Code – CSESP301
Credits -- 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	50	10	100	20	50	30	100

Syllabus (Theory)

Introduction to object-oriented programming , Object concepts , Key principles of object-oriented programming , Development project life cycle ,Introduction to UML: Static UML Diagrams – Class, Object, Component, Deployment, Dynamic UML Diagrams – Use Case, Sequence, Activity, State Chart, Introduction to the Java programming language , Introduction to the Java development and Productivity tools, Object-oriented programming ,Java syntax basics - Java syntax basics, Writing simple Java code using the IDE , Building classes, Debug applications, Inheritance , Design patterns and refactoring , Interfaces , Collections, Generics, Threads and synchronization , Utility classes , Exceptions and exception handling , I/O and serialization , JavaBeans , Introduction to Java EE Web Component , Overview of Servlets , Java EE Container Services Overview , Servlet API, Overview of JavaServer Pages, JavaServer Pages Specification and Syntax , Create and Edit HTML and JSPs , Debugging Web Applications , Web Archive Deployment Descriptor , Session State Storage Issues , Cookie API , HttpSession: Management of Application Data, URL Rewriting , Best Practices for Session Management , JSP Expression Language , JSP Custom Tags , JSP Tag Files , Create and Edit Servlets, Filters, and Listeners , XDoclet and Annotations , Connecting to a database , Web Application Security, Java EE Packaging and Deployment, Best Practices for Server-Side Application Development

Activities Related to Skill Development and Employability

Project

Online Banking System

Non-Functional Requirements

1. Secure access of confidential data (user?s details). SSL can be used.
2. 24 X 7 availability
3. Browser testing and support for IE, NN, Mozila, and Firefox
4. Reports exportable in .XLS, .PDF
5. Create a detailed UML diagram (Component, Sequence, Class) for the system and its sub-components

User Interface Priorities

1. Professional look and feel
2. Use of AJAX atleast with all registration forms and with every search option and at the id of each searched result with onmouseover event.

-->

Tools to be used

1. Use any IDE to develop the project. It may be Myeclipse / Eclipse / Netbeanse.
2. Oracle 10g for the database.
3. Server: Apache Tomcat/JBoss/Glassfish/Weblogic/Websphere.

Front End and Back End

1. **Front End:** JSP, JDBC
2. **Back End:** Oracle

How project works?

To get detail explanation about project download the document file. It includes snapshots with explanation.

Software Requirement to run this project

1. You need to install an IDE Eclipse / Myeclipse / Netbeans.
2. Oracle 10g database. Here, we are using **system** for the username and **oracle** for the password.

Hot to run this project

Import the project on the IDE and run it. All the tables will be created automatically.

Welcome Page

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2017-18
Simulation Exercise

Course Code : GN21
Course Credits : 1

Course Description:
This single credit course has been introduced with the objective to make students undergo a Business Simulation training exercise and get evaluated on their performance during the process.

Activities Related to Skill Development and Employability

Case Analysis on '**Siemens-** *Which strategy to implement in launching the Xpress offer to SMEs?'*

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2017-18
Major Research Project

Course Code : GN25
Course Credits : 2

Course Description:
As part of the MBA Programme, the final year students may take up a Research Project under the faculty mentor / guide. They would need to submit the MRP Report and make presentation on the same in the third 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
Institute of Management
MBA
Academic Year- 2017-18
Business Round Table

Course Code : GN38
Credit : 1

Course Description:
This is a discussion-based course that provides an opportunity to students to participate in small and closed group discussions on contemporary management themes. Involving instructors with a mix of academic and corporate background acting as moderators, students shall be exposed to deliberative techniques where they equally exchange ideas on chosen topics. The key principle underpinning all roundtables is that all participants are on equal footing and they collectively explore a specific topic. It aims to confront issues rather than people. The end goal of these roundtables is to produce a final set of recommendations, which are then assessed by course instructors in terms of their applicability in the real business scenarios.

Learning Outcomes

- Gain insights into issues facing the business world.
- Learn deliberative techniques to identify and resolve business issues.
- Equip students with data, knowledge and resources to lead change and innovation in the business world.

Activities Related to Skill Development and Employability

Discussion on Lean supply chain in E-commerce

The Supply Chain Management is the backbone of E-commerce, a very critical component of E-commerce. A significant number of companies in India have implemented their Internet platform for Supply Chain Efficiency in the past 2 to 3 years, and the large of them will follow in the next few years. Briefly review how the SCM can bring the benefits to the Indian corporations/ MNCs functioning in India. Also illustrate the benefits and bottleneck of E-commerce implementation in India.

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2017-18
Capstone Project

Course Code : GN39
Course Credits : 4

Course Description:
Capstones are multifaceted and comprehensive assignments intended to serve as capping academic and intellectual experience for students. These are academically and intellectually challenging assignments filled with demanding but stimulating learning experiences. Generally conducted at the end of the term/programme, these are based on the learnings integrated during the preceding term/s.

The design of capstone projects is such that it encourages students to think critically, solve challenging problems, and develop skills such as oral communication, research, media literacy, teamwork, planning etc. In other words, it will help prepare them for higher studies, careers and life-long learning. In majority of cases, these capstone projects are also multidisciplinary in the sense that they require students to apply skills or research issues across many different domains of knowledge. The educational goals of capstone projects are as under:

- Increasing student's motivation and engagement through increased academic rigor.
- Enhancing a student's educational and career aspirations.
- Boosting student's confidence, self-perception and self-esteem.
- Providing a platform for demonstrating learning and proficiency in the acquisition of knowledge and skills.

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

Institute of Management

Masters of Business Administration

Academic Year- 2017-18

HR Analytics

Course Code: HR09

Credit: 3

Semester: VI

COURSE DESCRIPTION:

This course focuses on the statistical techniques and data analysis methods appropriate for quantitative human resource management research projects. Students learn the importance of reliability, validity, and accurate measurement, and how to conduct reliable and valid research projects vis-à-vis calculating the costs of various HR processes which will enable the organizations to factor in the tangible benefits derived from HR activities. This will help in cost planning for HR activities. This is a useful tool for human due diligence exercise in mergers & acquisitions.

COURSE OBJECTIVES:

The course intends to:

1. Familiarize the students with the methods used to investigate HR Issues.
2. Appropriate methods of data collection and drawing correct inferences.
3. Learn about methods as applied to problems that HR managers and researchers confront in organization.
4. Discuss methods to measures individual, group and organizational effectiveness.

LEARNING OUTCOMES:

On completion of course students will able to

- Apply appropriate statistical analysis to HR questions and problems to improve decision-making with understanding of limitation;
- Think critically about data and metrics for HR problem-solving and decision-making;
- Understand the logic underlying statistical significance;
- Use statistical software to manipulate and organize data for analysis;
- Effectively interpret and communicate results from statistical analysis into actionable decisions.

COURSE OUTLINE (TENTATIVE SESSION PLAN):

Session No.	**Topic/Sub Topic**	**Session details**	
1	Defining HR research and Quantitative HRM significance and relevance. Types of HR research.	**Text Book**	**Ch-1**
2	Discussion & Debate		
3-4	Advantages of measuring HRM. Consequences of not measuring HRM, Common problems with metrics,	**Text Book**	**CH-2**
5-6	Using statistical tests in HR Research, Sampling tools and techniques	**Text Book**	**Ch-3**
7	Exercises		
8-9	Nonparametric Tests in HR Research: Types of quantitative research, data types and preparation for analysis hypotheses formulation	**Text Book**	**Ch-4**
10	Exercise		
11-12	Common and uncommon data collection methods, non-parametric tests for related and independent samples.	**Text**	Ch-4

		Book	
13-14	Staffing Metrics: Why managers need to pay attention to recruitment? What are the expectations from recruitment from organizational/managerial perspective?	**Text Book**	**Ch-5**
15	Case Analysis		
16	Debate and Discussion		
17-18	Recruiting tools and practices, how and when to measure the quality of hire, measuring the quality of applicants	**Text Book**	**Ch-5**
19-20	Attrition metrics techniques used to calculate attrition,	**Text Book**	**Ch-5**
MID TERM			
21-22	Manpower planning metrics tools for forecasting manpower requirements.	**Text Book**	**Ch-5**
23	Exercise		
24-26	Development Metrics: Training ROI, measuring employee satisfaction, attitude measurement and survey, and rating systems, scales for evaluation of performance, HR‘s role in value chain, HR Accounting.	**Text Book**	**Ch-8**
27	Exercise		
28-29	Training evaluation models, tracking the value of career management, measurement,	**Text Book**	**Ch-8**
30	Exercise		
31-32	Performance metrics, assessing the training organization, customer focused metrics, BSC, HR Scorecard, performance measurement using ranking	**Text Book**	**Ch-9**
33	Scales for evaluation of performance, HR‘s role in value chain, HR Accounting.	**Text Book**	**Ch-9**

34	**Compensation Metrics:** Connecting it to revenues and expenses, calculating various wage/salary related measures.	**Text Book**	**Ch-6**
35	Variable pay systems, types of executive compensation, quantitative application in Compensation percentiles	**Text Book**	**Ch-6**
36	Cost benefit analysis, and comparators. Mistakes in compensation designing.	**Text Book**	**Ch-6**
37	Employee benefits, Calculation of incentives, measuring the impact of weak incentives.	**Text Book**	**Ch-6**
38	Trends in Quantitative HRM**:** Development of HR dashboard, HR index, internal improvement**.** HR Audit research, and Organization Health survey	**Text Book**	**Readings & Ch-11**
39-40	Presentations		
END TERM			

READING MATERIALS:

- Bhattacharyya, Kumar,D. (2007). ***HR Research Methods***. Oxford University Press
- Enz, J. F. & Mattox, J. R. (2014). ***Predictive Analytics for Human Resource Management***. Wiley New Jersy
- HR Metrics standards & glossary published by the HR metrics service. Version 6.3/Dec 2010

Note: Latest edition of the readings will be used.

ASSESSMENT SCHEME:

Assessment Component	**Weightage**
Class Participation and attendance	**10%**
Assignment report and Presentation	**10%**
Quiz and Class Test	**10%**
Mid Term-II	20%
End Term	50%

Total	100%

Activities Related to Skill Development and Employability

Case Study 1: Employee Opinion Surveys Engaged Employee Inspires Engaging Sales

Case Study 2: Frito Lays Case : Talent management through analytics

Project1: Developing organization Value chain of an organization for analytics

Introduction to Organizational Behavior|BBA

Course Code: HR17
Credit: 3
L-T-P: 3-0-0
Course Instructor: Dr. Upasana Singh

Course Description:

People in organizations don't always behave the way we think they will. As a result, our ability to understand, explain, and predict human behavior within organizations is a rare and valuable skill whether you are a new employee, a middle manager, or a top level executive. This course is designed to expose students to important theories and conceptual models for analyzing, understanding, and managing human behavior within organizations. In this paper, students will study a wide range of organizational situations and examples of human behavior, and connect them to foundational theories and effective practical management methods.

Course Learning Outcomes:

After completing this course, students should be able to:

- Thoughtfully thinking through the practical implications of each topic covered.
- Design the solutions to the organizational people related issues.
- Demonstrate proficiency in communicating ideas and work in teams.

Topics to be Covered:

- Eras in OB
- Perception
- Introduction to personality.
- Motivation
- Stress
- Concept of groups
- Conflict
- Introduction to decision making
- Power and politics
- Organizational change and development.

Reading Materials:

- Singh, K. (2015). *Organizational Behaviour: Text and Cases.* New Delhi: Pearson Education Pvt. Ltd.
- Luthans, F. (2011). *Organizational Behavior: An Evidence-Based Approach 12th edition.* McGraw-Hill Education (India).
- Robbins, S. P. Judge, T.A., Vohra, N. (2013). *Organizational behavior, 15th edition.* Pearson Education India

Note: Latest edition of the readings will be used.

Assessment Matrix:

Assessment Criteria	Percentage
Continuous Assessment • Class participation - 10% • Assignments - 20% • Project Presentation – 10%	40%
Mid- term-I Examination	NIL
Mid-term-II Examination	20%
End-term Examination	40%
Grand Total:	100%

Activities Related to Skill Development and Employability

1. Foundations of Individual Behavior: Differing Perceptions at Clarkston Industries -Case Study
2. Need-Based Perspectives on Motivation: More Than a Paycheck -Case Study
3. Managing Stress and the Work-Life Balance: Stress Takes Its Toll -Case Study

Course Title: Organizational Behavior-I|MBA
Course Code: HR18
Credits: 3
Semester: 1

COURSE DESCRIPTION:

Organizational behavior is the study of what people as individuals and teams think, feel and behave in organizations. As a discipline, it has taken roots from other disciplines like management thought, social psychology, personality psychology, sociology and political science to name a few. It educates one on the causes and consequences of various behaviors in an organizational context. In the corporate world, a great deal of interest revolves around the development of soft skills. This course fundamentally provides the knowledge in that area. This is not a skill development course, but a knowledge and awareness building course in people management. Organizational behavior comprises of three major units of analysis. They are the individual, the group/team and the organization as a whole. To quote a few, needs, expectations, motivation and satisfaction at the individual level governs a person's personal and interpersonal effectiveness in an organization. In teams, there are a lot perspectives which explain the dynamics of effectiveness among team deliverables. The top management makes policy decisions and shapes the culture, and moves the organization through the process of organizational development and change. The content and coverage of this course will aim to predominantly understand individual and team level organizational dynamics.

COURSE OBJECTIVES:

- To enable the student comprehend & appreciate the multiple dimensions of individual variations in employee behavior and productivity.
- To enable the student to understand the multiple enablers and constraints of team productivity.
- To enable the student to understand the behavioral dynamics in execution of roles for effective problem solving in organization.
- To enable the student to understand the basis of mid and top managerial behavior, decision and responses.

COURSE LEARNING OUTCOMES:

By the end of the course the student should have:

- Ability to identify individual level performance related factors including personality and environmental factors in a people management context.
- Ability to identify team level performance related factors including role-related, and process-related factors in a people management context.
- Ability to identify organization level performance-related factors including leadership and environment in a people management context.
- Ability to differentiate between emotionality and rationality in a people management context.

TENTATIVE SESSION PLAN:

Session No.	Topics to be covered in the course	CASE/READINGS
Week 1 (S1-3)	Organizational Behavior- The importance of interpersonal skills-Management functions, roles, skills. Disciplines That Contribute to the OB Field -Psychology Social Psychology Sociology Anthropology -There Are Few Absolutes in OB -Challenges and Opportunities for OB Developing an OB Model	Chapter 1 of Robbins & Vohra

Week 2 (S4-6)	Organization Diversity - Demographic Characteristics of the U.S. Workforce, Levels of Diversity Discrimination ,Biographical Characteristics Other Biographical Characteristics: Tenure, Religion, Sexual Orientation, and Gender Identity Ability	Chapter 2 of Robbins & Vohra Case-Increasing Age Diversity in the work place
Week-3 (S7-9)	Values, Attitudes, and Their Effects in the Workplace- What Are the Main Components of Attitudes? Does Behavior Always Follow from Attitudes? What Are the Major Job Attitudes? Job Satisfaction The Impact of Satisfied and Dissatisfied Employees on the Workplace	Chapter 3 of Robbins & Vohra http://en.wikiversity.org/wiki/The_Factors_that_Determine_Success_in_Attitude_Change_Programs
Week-4 (S10-12)	Emotions and Moods- What Are Emotions and Moods? The Basic Emotions The Basic Moods: Positive and Negative Affect • The Function of Emotions Sources of Emotions and Moods Emotional Affective Events Theory Deviant Workplace Behaviors • Safety and Injury at Work, How Managers Can Influence Moods	Chapter 4 of Robbins & Vohra
Week-5 (S13-14)	Personality & Values- What Is Personality?, The Myers-Briggs Type Indicator ,The Big Five Personality Model , Other Personality Traits Relevant to Values -The Importance of Values , Terminal versus Instrumental Values , Generational Values, Linking an Individual's Personality and Values to the Workplace, Person–Job Fit , Person–Organization Fit	Chapter 5 of Robbins & Vohra Case- Difficult Task Force
Week-5 (S15)	**QUIZ-1**	
Week-6 (S16-17)	Perception & Individual Decision Making- What Is Perception? , Person Perception: Making Judgments About Others, The Link Between Perception and Individual Decision Making, Decision Making in Organizations Influences on Decision Making, What About Ethics in Decision Making?	Chapter 6 of Robbins & Vohra
Week-6 (S-18)	**REVIEW AND RECAP**	
	MID TERM EXAM	
Week- 7 (S19-21)	Motivation Concepts- Defining Motivation , Early Theories of Motivation , Hierarchy of Needs Theory, Theory X and Theory Y , Two-Factor Theory McClelland's Theory of Needs, Contemporary Theories of Motivation, Self-Determination Theory, Job Engagement, Goal-Setting Theory Equity Theory/Organizational Justice, Expectancy Theory, Integrating Contemporary Theories of Motivation	Chapter 7 of Robbins & Vohra
Week-8 (S22-24)	Application of Motivation concepts- Motivating by Job Design: The Job Characteristics Model, The Job Characteristics Model, The Social and Physical Context of Work, Employee Involvement, Linking Employee Involvement Programs and Motivation Theories, Using Rewards to Motivate Employees	Chapter 8 of Robbins & Vohra
Week -9	Foundations of Group Behavior-	Chapter 8 of Robbins & Vohra

(S25-27)	Defining and Classifying Groups, Stages of Group Development, The Five-Stage Model ,An Alternative Model for Temporary Groups with Deadlines ,Group Decision Making Groups versus the Individual, Groupthink and Group shift, Group Decision-Making Techniques	
Week-10 (S28-30)	Understanding Work Teams- Why Have Teams Become So Popular?, Differences Between Groups and Teams, Types of Teams Problem-Solving Teams, Self-Managed Work Teams, Cross-Functional Teams, Virtual Teams, Creating Effective Teams Context: What Factors Determine Whether Teams Are Successful, Team Composition Team Processes, Turning Individuals into Team Players	
Week-11 (S31-33)	Leadership- Trait Theories, Behavioral Theories, Contingency Theories, The Fiedler Model Other Contingency Theories Leader–Member Exchange (LMX) Theory Charismatic Leadership and Transformational Leadership, Charismatic Leadership, Transformational Leadership, Authentic Leadership: Ethics and Trust	Chapter 12 of Robbins & Vohra
Week-12 (S34-36)	Conflict and Negotiation- A Definition of Conflict, Transitions in Conflict Thought The Traditional View of Conflict , The Interactionist View of Conflict , Resolution-Focused View of Conflict The Conflict Process-Stage I: Potential Opposition or Incompatibility Stage II: Cognition and Personalization Stage III: Intentions Stage IV: Stage V: Outcomes Negotiation	Chapter14 of Robbins & Vohra
Week-12 (S37)	**QUIZ-II**	
Week 13 (38-40)	Group Presentation, Discussion and Q&A	

***READING MATERIALS*:**

- Robbins, S. P. Timothy.A.,J.,&Vohra.N,. (2014). *Organizational Behavior:* 15Th Edition. Pearson Education India.
- Luthans, F. (2013). *Organizational behavior: An evidence-based approach*. 12th Ed.McGraw-Hill Education.
- Ivancevich, J. M. K., & Matteson, R. (2011). *Organizational behavior and management*.
- Aswathappa, K. (2010). *Organisational Behaviour. Text Cases Games*
- For detailed reading on Psychological contract please refer to http://www.cipd.co.uk/subjects/empreltns/psycntrct/psycontr.htm
- http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/-
- http://coms.uconn.edu/directory/faculty/mhamilton/persuassion/Chapter%205d.pdf.The handbook of social psychology, Volume 1 By Daniel T. Gilbert)
- http://en.wikipedia.org/wiki/Attitude_changeWaysof changing
- http://en.wikiversity.org/wiki/The_Factors_that_Determine_Success_in_Attitude_Change_Programs http://www.thenationalforum.org/Docs/PDF/2005_ASHE_attitude_change_paper.pdf)

Note: Latest edition of the readings will be used.

ASSESSMENT SCHEME:

Assessment Components	Weightage
Group Presentations- Concept paper/Quiz	20%
Case analysis	10%
Midterm examination	20%
End term examination	50 %

Activities Related to Skill Development and Employability

1. Managing People and Organizations: Humanized Robots? Case Study
2. MBTI Assessment test
3. TKI Conflict handling style
4. Differing Perceptions at Clarkston Industries- Case Study

Course Title: Organizational Behavior-II|MBA
Course Code: HR19
Credits: 3
Semester: 1

COURSE DESCRIPTION:
Understanding organizations is essential to become more effective managers, analyst and leaders. Aggressive competition, demanding customers, evolving technologies, global markets and economic upheavals are building pressure on organizations to rethink on their business practices. The purpose of the course is to introduce the students about the organizational practices, theories and some of its complexities. The course also includes the understanding about organizations goals requirement of various designs and structure under various context. It will help students to build a perspective on organization design and change including the recent advancements.

COURSE OBJECTIVES:
Upon completion of this course you should be able.

- To develop an understanding of the nature, functioning and design of organisation as social collectivities.
- To examine the reciprocal relationship between the organisational characteristics (for example: structure, strategies, systems etc.) and managerial behaviour.
- To develop theoretical and practical insights and problem-solving capabilities for effectively managing the organisational processes.

COURSE LEARNING OUTCOMES:

- After the successful completion of this course, the students will be able to:
- Appreciate dynamics of interaction between organizational structure and processes and their impact on effectiveness of the organization.
- Design appropriate organization structure and systems to meet strategic and other consideration
- Acquire insight into various planned change strategies for organizational excellence.

TENTATIVE SESSION PLAN:

Session No.	Topic
1-4	Organization and Organization theory: What is an organization? Perspective on organizations, evolution of organization theory and design
5-8	Strategy, organization design and effectiveness
9-11	Fundamentals of organization structure
12	Case Analysis
13-15	The External Environment
16-18	Organization Size, Life Cycle and Decline
19-20	Power and Politics
MID TERM	
21-23	Organizational Culture and Climate
24	Case Analysis
24-27	Learning Organization
28-29	Case Analysis and Exercise
30-33	Organizational Change: Sequential process, Main roles, Effective implementation, Dealing with resistance to change,
34	Case Analysis
36	Case Analysis
37-40	Presentations

***READING MATERIALS*:**

- Richard Daft (2013). Organizational Theory, Change and Design. New Delhi; Cengage Learning.
- Pareek, U. and Kahanna, S. (2016). Understanding Organization Behaviour, 4/e. New Delhi: Oxford University Press.
- Shrivastava, Bhupen (2007). Organizational Design and Development. New Delhi: Biztantra
- Cumming, T.G. and Worley, C.G. (2005). Theory of Organizational Development and Change. South-Western: Cengage Learning.

Note: Latest edition of the readings will be used.

ASSESSMENT SCHEME:

Assessment Components	Weightage
Continuous Assessment	**30%**
Class Participation	5%
Project Presentation	15%
Quiz and Assignments	10%
Mid-term Examination	**20%**
End-term Examination	**50%**
Grand Total:	**100%**

Activities Related to Skill Development and Employability

1. An Overview of Organizational Behavior :Difficult Transitions (case study)
2. Comparing Organizational Structures: Two Case Studies of Engineering Companies
3. The Struggle for Power at Ramsey Electronics

JK Lakshmipat University, Jaipur
Institute of Management

MASTER of BUSINESS ADMINISTRATION
MANAGING SELF
COURSE OUTLINE
SEMESTER II: 2017-18

Instructor(s) & Contact Information
Name: Prof. R. L. Raina & Dr. Richa Mishra*
E-mail:* richamishra@jklu.edu.in
Office: Room# *228 (IM Block, 2nd Floor)
Office Tel: *0141- 7107553

L-T-P: 2-0-0
COURSE CREDIT: 2
SESSION DURATION : 75MINUTES

COURSE DESCRIPTION:
Self-understanding is vital to success. The process of self-exploration entails gaining a deep understanding of one's values, interests, motivation, skills, personality traits, and lifestyle preferences. Having imperfections, preferences and prejudices is all part of being human. It requires HONESTY which acknowledges our imperfections and an understanding that we have developed about our preferences and prejudices in life. The course is designed for students to learn more about themselves by taking them on a journey of self-discovery and self-reflection. It teaches them the strategies and skills that will make them shine and thrive in their personal as well as professional lives. The aim is that the students understand and sharpen their skill sets and competencies and develop their own leadership footprint.

COURSE OBJECTIVES:
1. To increase self-awareness.
2. To understand the meaning and positive effects of self-management.
3. To acquire an understanding of self-management skills.
4. To develop an awareness of what they enjoy, what they find difficult, their personal strengths and limitations.
5. To define the self and different aspects of the self.

COURSE LEARNING OUTCOMES:
Upon successful completion of this course, the student should have the ability to:
1. Recognize the blind spots and build on their strengths.
2. Better self-manage tasks in hand.
3. Set goals for themselves and develop their individual plans.
4. Set priorities and manage time.
5. Be able to self-motivate and deal confidently with set backs

SESSION PLAN

Session No.	Topics to be covered in the course	READINGS
Week 1 *(Session 1-2)*	Introduction to Understanding Self: *What Are My Strengths? How Do I Perform? What Are My Values? Where Do I Belong? What Should I Contribute? Responsibility for Relationships*	Managing Oneself (HBR Classic)
Week 2 *(Session 3-4)*	Self-Awareness: *What do I really want? Developing Self Awareness, How well do you know yourself? Defining your dreams, getting in touch with your values.*	Activities: • *How self- conscious are you?* • *Values Inventory*
Week-3 *(Session 5-6)*	Discovering Your Strength: *Personality and Individuality, Exploring your skills and interest, What do I really want?*	Activities: • *Personality Self Portrait* • *Skills Assessment* • *Discover your multiple Intelligences* • *Interest Survey*
Week-4 *(Session 7-8)*	Goals and Obstacles: *Setting and Achieving goals, What are your goals? Overcoming Hurdles,*	Activities: • *Setting Smart Goals* • *Generating Short Term Goals* • *Anticipating Obstacles*
Week-5 *(Session 9-10)*	Handling Stress and Anger: *Stress and Stressors, Coping with Anger, Stress Management Techniques*	Activities: • *How Stressed are you?* • *Personal Stressors and relievers*
Week-6 *(Session 11-12)*	Self Esteem: *Understanding Self-esteem, the power of self-esteem, Learning to like yourself, self-acceptance, Using positive self- talk.*	Activities: • *Test Your Self Esteem* • *Social Support and self Esteem* • *Negative self-talk* • *Handling criticism*
Week- 7 *(Session 13-14)*	Positive Thinking: *Becoming positive thinker, Adopting positive habits, Overcoming self-defeating attitude*	Activities: • *Are you positive thinker* • *Challenging self-defeating attitude* • *Disputing negative thought*
Week-8 *(Session 15-16)*	Self-Discipline: *What is self-discipline? Controlling impulses, Embracing change, conquering bad habits.*	Activities: • *Do you control your life* • *Making positive changes* • *Overcoming resistance to change*
Week -9 *(Session 17-18)*	Critical Thinking*: Learning to think critically*, *How to become better decision maker*	Activities: • *How critical is your thinking* • *Developing your critical thinking* • *Using the decision making process.*

Week-10 *(Session 19-20)*	Self –Motivation: *How can I succeed, Understanding motivation, the power of motivation, Generating positive motivation, overcoming fear of success and failure*	Activities: • *What Motivates you* • *Are your needs being met* • *Visualizing success*
Week-11 *(Session 21-22)*	Managing Resources: *Time management, Taking control of your time, Prioritizing your life, Tackling procrastination*	Activities: • *Time demand survey* • *Examining your priorities* • *Time Management Practice* • *Do you procrastinate*
Week-12 *(Session 23-24)*	Effective Communication: *Understanding communication, Improving Communication Skills*	Activities: • *How much do you know about your communication* • *Analyzing communication* • *Giving Feedback*
Week-13 (Session 25-26)	**Individual Presentations by the students**	

ACADEMIC DISHONESTY

Academic dishonesty or misconduct is cheating that relates to an academic activity. It is a violation of trust between the Institute and its stakeholders. Plagiarism, fabrication, deception, cheating and sabotage are examples of unacceptable academic conduct.

REQUIRED COURSE BOOK & ADDITIONAL READING MATERIAL

1. Denis Waitley, Psychology of Success: Finding Meaning in Work and Life, McGraw-Hill 2010

COURSE READINGS (ADDITIONAL)

1. Carnegie Dale, How to win Friends and Influence People, New York: Simon & Schuster, 1998.
2. Covey Sean, Seven Habits of Highly Effective Teens, New York, Fireside Publishers, 1998.
3. Daniel Coleman, Emotional Intelligence, Bantam Book, 2006
4. McGrath, S.J., E.H. Basic Managerial Skills for All. 9th ed. New Delhi, PHI Learning, 2011. 812 p.
5. Peter F Druker, Management Challenges for the 21st Century, HarperCollins, 1999
6. Robbins, Stephen P. Organizational Behavior. 15th ed. New Delhi, Pearson, 2013. 672 p.
7. Singh, Kavita. Organizational Behaviour. 2nd ed. Delhi, Pearson, 2013. 560 p.
8. Thomas A Harris, I am ok, You are ok , New York-Harper and Row, 1972
9. Whetten, David A. & Cameron, Kim S. Developing Management Skills. 8th ed. Boston, Prentice Hall, 2011. 720 p.
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10. Handouts, activity sheets, exercises and case readings will be shared as the session's progress.

COURSE PEDAGOGY:

The course would be conducted in a workshop/seminar mode using:

- Interactive Lectures
- Role-plays/Games/Simulations
- Activities and Experiential Exercises
- Self-assessment Tools
- Cases
- Seminars and Presentations

ASSESSMENT AND GRADING:

Evaluations will be based on attendance, participation, homework, class/workshops participation, seminars/presentations and exam.

Components	**Weightage**
1. Homework/Assignment	30%
2. Presentations/Workshops/Seminars	30%
3. Class Participation	20%
4. Attendance	05%
5. Exam	15%

Homework/Assignments	**Week**
1. Read Managing Oneself (HBR Classic) and complete activity sheets related to Understanding Self	2
2. Read Chapter 2 – Self-Awareness, pgs. 42- 83. Complete Activity 9: Personality Self Portrait, pgs. 61-63.	3
3. Read Chapter 3 – Goals and Obstacles, pgs. 84-119. Complete Activity 14: Generating Short-Term goals, pgs. 91-92.	4
4. Complete Activity 16: How Stressed Are You? pgs. 103.	5
5. Read Chapter 4 –Self-Esteem, pgs. 120-167.	6
6. Read Chapter 5 –Positive Thinking, pgs. 168-207. Complete Activity 25: Banishing Worry, pgs. 180-181.	7
7. Read Chapter 6 –Self Discipline, pgs. 208-228.	8
8. Read Study material on Critical thinking	9
9. Read Chapter 7 –Self-Motivation, pgs. 254-287. Complete Activity 36: What Motivates You? pgs. 260-262.	10
10. Discuss Chapter 7. Homework: Read Chapter 8 –Managing Your Resources, pgs. 288-325. Complete Activity 40: Time Demand Survey, pgs. 292-293. Read Chapter 9, pgs. 326-367 (no exercise assigned).	11
11. Discuss Chapter 8 & 9.	12
12. Individual presentations by student	13

Activities Related to Skill Development and Employability

1.Case 1- Arohi and Rahul Jayakar

2. Details of other activities are mentioned in the session plan

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2017-18
Business Analytics

Course Code: IT08
Credits: 3
Semester: II

Course Description:
Business Analytics is the use of data, information technology, statistical analysis, quantitative methods, and mathematical or computer-based models to help managers gain improved insight about their business operations and make better, fact-based decisions. It is a process of transforming data into actions through analysis and insights in the context of organizational decision making and problem solving. Analytics is used everywhere, from marketing to operations to customer service. In recent years, analytics has become increasingly important in the world of business, particularly as organizations have access to more and more data. Managers today no longer make decisions based on pure judgment and experience; they rely on factual data and the ability to manipulate and analyze data to support their decisions. Data to support business decisions – including those specifically collected by firms as well as through the Internet and social media such as Facebook – are growing exponentially and becoming increasingly difficult to understand and use. As a result, many companies have recently established analytics department. Companies are increasingly seeking business graduates with the ability to understand and use analytics. The present course on Business Analytics will familiarize the students with the fascinating and rewarding world of Business Analytics and will help them in understanding the different types of Analytics. Students shall be able to take their spreadsheet skills to the next level and will be able to use descriptive, predictive and prescriptive analytics to solve real world business problems.

Course Learning Outcomes:
Upon successful completion, the student should be able to:

- understand the areas where business analytics is being used in real world;
- appreciate the role of business analytics in business decision making;
- use spreadsheets and other statistical software to perform analytics

Course Content:

- Foundations of Business Analytics, Evolution, Types of Analytics
- Analytics on Spreadsheets
- Visualization and Exploring Data, Descriptive Statistical Measures
- Data Modelling, Sampling & Estimation, Statistical Inference
- Predictive Modelling, Regression Analysis
- Forecasting, Simulation and Risk Analysis
- Data Mining
- Linear Optimization, Integer Optimization
- Decision Analysis

Activities Related to Skill Development and Employability

- Perform descriptive analytics on business data.
- Identify relationship between salient business metrics.
- Formulate estimation models to predict business metrics and estimate the associated risks.

- Use decision theory to recommend business decisions in the events of uncertainty.
- Solving Optimization problems using Spreadsheet software.

JK Lakshmipat University, Jaipur
Institute of Management
MBA
Academic Year- 2017-18
CAMPUS TO CORPORATE

Course Code : LS11
Course Credits : 2

Course Description

Campus to Corporate is an exclusive training module designed for MBA students. The module is a blend of domain specific case studies and real-life corporate management practices. It essentially prepares students to have a smooth transition from academia to the corporate world. The course draws inputs from soft skills and technical training domains, wherein students find themselves ready to perform in the job market from day one. Before delivering the contents, a training need analysis focused on SWOT of the candidates shall be done. Results of such an analysis define the exact needs of the batch that are then mapped to the expected outcome of the course. Interactive sessions focused on skill grooming through workshops, discussions and participations are then delivered to prepare the students for the corporate world. Instructor driven assessment, based on the extent of achievement of the expected learning outcomes, shall involve presentations, role-plays, case discussions etc.

Learning Outcomes

- To evolve students from their academia to their professional locus by incorporating right skills.
- To evolve professionals from average to excellent performers in their chosen work areas.
- To create entrepreneurs and evolve them into industry leaders.

Activities Related to Skill Development and Employability

Case Analysis 1: Samsung- How best to launch its first Netbook?
Case Analysis 2: Lacoste - How to organize a sponsorship operation to take over the Moroccan golf Open?
Case Analysis 3: Renault- How to launch a crossover in the European market?

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
MTCS433	Advanced Computer Graphics	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	NA	NA	NA	NA	NA

*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 Description

Topics may include: hidden line/surface algorithms, curved lines and surfaces, illumination and shading techniques, color models, geometric and solids modeling, animation, graphics for game programming, virtual reality, image processing, image compression, and pattern recognition algorithms. Prerequisites: Admission to MS in CS program, or consent of department, plus CS 5250 or equivalent.

Course Syllabus

- **X-Windows**
  - Client/Server model
  - XLIB graphics toolkit
  - Graphical User Interface Toolkits
- **Hidden line/surface algorithms**
  - Z-buffer
  - Heedless Painter
  - Scanline methods
  - Area Subdivision methods
- **Curved line and surfaces**
  - Hermite, Bezier and Splines
  - Bi-cubic surfaces
  - Drawing Techniques
- **Color**
  - Theory of color
  - Color Models

RGB, CMY, CMYK, YIQ, HSV

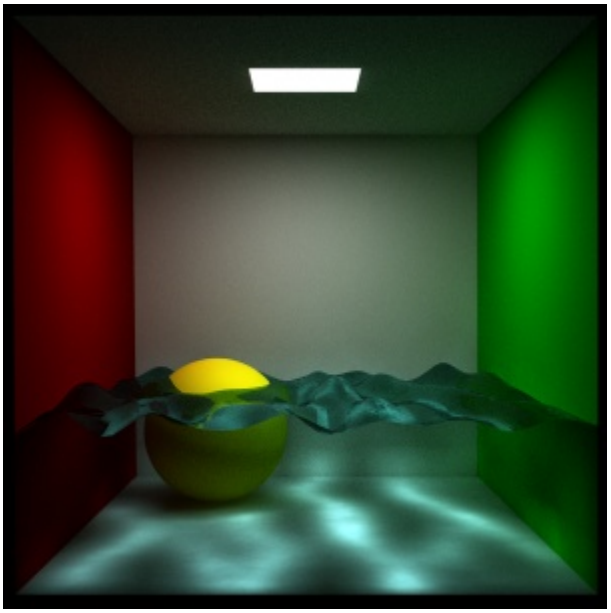
  - Color Interpolation techniques
- **Realism Techniques**
  - Illumination Models
  - Shading
    - Flat, Gouraud, Phong
    - Color issues
  - Texture & Bump Mapping
  - Shadow & transparency effects
  - Ray Tracing

- Radiosity

- **Additional topics as time permits**
- JPEG and MPG standards
- VRML
- Fractals

Activities Related to Skill Development and Employability

Project



Implement direct illumination for a diffuse scene with (at least) one area light source.

Course Title and Code: Internet Technologies MTCS122	
Hours per Week	**L-T-P: 3-0-0**
Credits	**3**
Students who can take	M.Tech

Syllabus (Theory)

- Fundamental of networking:
- Internet Architecture:
- TCP/IP: IP addressing, IPv4, IPv6, IP subnetting
- Internet routing: IP routing table, inter-domain: BGP, intra-domain: RIP, IGRP, OSPF, IS-IS
- TCP and UDP
- world wide web
- Hypertext Transfer Protocol
- Mail Protocols POP3 and SMTP, IMAP
- File Transfer Protocol
- Voice over IP
- Internet-of-things

References:

- Nokia Scalable IP Networks Self-Study Guide, Nokia Publication
- Forouzan, Data Communications and Networking
- P. K. Verma and L. Wang, Voice over IP Networks, Chapter 2: Voice over Internet Protocol
- Internet of Things: A Survey on Enabling Technologies, Protocols, and Applications, IEEE COMMUNICATION SURVEYS & TUTORIALS, VOL. 17, NO. 4, FOURTH QUARTER 2015
- https://neo4j.com/
- http://www.caida.org/

Activities Related to Skill Development and Employability

Each Student has developed a case study

- Analysis of Internet topology using the Neo4j—a graph Database

JK Lakshmipat University, Jaipur
Institute of Management
B Com H

2017-18

Indian Economy

Course Code: GN16

Course Credits: 4

Semester: IV

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

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CE623 (Elective II)	Rural water supply and sanitation	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):

Concept of environment and scope of sanitation in rural areas.Magnitude of problems of rural water supply and sanitation.Population to be covered, difficulties. National policy

Water supply: Design population and demand loads. Various approaches of planning of water supply schemes in rural areas. Development of proffered sources of water springs. Wells, infiltration wells, radial wells and infiltration galleries, collection of raw water from surface source. Specific practices and problems encountered in rural water supply.

Improved methods and compact systems of treatment of surface and ground waters for rural water supply, Brief Details of multi-bottom settlers (MBS), diatomaceous earth filter, cloth filter, slow sand filter, chlorine diffusion cartridges. Pumps, pipe materials, appurtenances and improved devices for use in rural water supply. Planning of distribution system in rural areas

Community and sanitary latrines.Various methods of collection and disposal of night soil.Planning of waste water collection system in rural areas.Treatment and Disposal of waste water. Compact and simple waste water treatment units and systems in rural areas such as stabilization ponds, septic tanks, Imhoff tank, soak pit etc. Disposal of waste water soakage pits and trenches.

Disposal of Solid Wastes. Composting, land filling, incineration, Biogas plants, Rural health. Other specific issues and problems encountered in rural sanitation

Text Books:

1. 'Water Treatment and Sanitation – Simple Method for Rural Area' by Mann H.T. and Williamson D.
2. 'Water Supply for Rural Areas & Small Communities' by Wanger E.G. and Lanoix J.N., WHO

Reference Books:

1. 'Water Supply and Sewerage', by E.W.Steel&T.J.Mcghee, McGraw Hill.
2. Manual on Water Supply and Treatment', CPHEEO, Mini. Of Urban Development, Govt. of India.
3. Manual on Sewerage and Sewage Treatment', CPHEEO, Mini. Of Urban Development, Govt. of India
4. 'Environmental Engineering' by D. Srinivasan, PHI Learning Pvt. Ltd. 2009

Employability skill activities

A Report

On

Two day Workshop on "**Introduction of Water Modelling Software- MIKE Powered by DHI and Hands on Training on MIKE Hydro River**"

(31st Oct-1 Nov, 2017)

Submitted to

Honourable Vice Chancellor
JK Lakshmipat University
&

Director
Institute of Engineering & Technology

JK LAKSHMIPAT UNIVERSITY
ज्ञानम् अमृतम्
Enlightening Minds. Inspiring Leadership

MIKE
Powered by DHI

Gallery

Students of Civil Engineering VI semester at Sewage Treatment Plant, Delawas Jaipur with Prof. Vinod Kumar Vishwakarma , Prof. Amit Kumar , Mr. Jaspal and Staff of Treatment Plant.

About Jaipur Integrated Textile Park's effluent treatment plant (ETP)Jaipur:

The first thematic park on block printing in the country at Jaipur has been created a ne benchmark on for the textile industry setting up a common effluent treatment plant (CEPT) th would achieve zero discharge, and recycle and reuse around 90% of waste water.

VISIT TO The Jaipur Integrated Textile Park's effluent treatment plant (CETP)Jaipur

Course Code & Title: CSESP401: Information Management Basics

Course Title and Code: Information Management Basics: CSESP401	
Hours per Week	**L-T-P: 3-0-2**
Credits	**4**
Students who can take	B.Tech Sem VI

Course Objective: This course introduces the features, functions, and services provided by DB2, a relational database management system. Topics covered include: installation; data modeling and design; relational databases; database query languages; relational database design; distributed databases; physical database design; information storage and retrieval; and mapping DB2 vs. Oracle.

Learning Outcome:
On successful completion of this course, the students should be able to:

1. Explain the role of agents and how it is related to environment and the way of evaluating it and how agents can act by establishing goals.
2. Implement intelligent agents for making computers solve critical problems the way human beings do.
3. Analyze the usage of Game theory and role of heuristics for building Intelligent Agents.
4. Apply AI techniques in applications which involve perception, reasoning and learning.
5. Acquire the knowledge of real-world knowledge representation.
6. Identify machine learning techniques suitable for a given problem.
7. Interpret fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
8. Use the standards and energy efficient ML algorithms.
9. Apply dimensionality reduction techniques.
10. Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning.
11. Utilize state-of-the art algorithms of Machine Learning for building applications related to SDG goals.

Syllabus (Theory)

Relational Databases Installation and Planning, Data Modeling Data Modeling and Database, Design, Relational Databases Introduction to RDBMS, Understanding a table

Relational Concepts, Database Query Languages Simple SQL Queries, Retrieving Data from Multiple, Tables, Scalar Functions and Grouping, Database Query Languages Column Functions and Grouping, Union, Using Sub-queries, Relational Database Design Views and Results during DB, Design, Problem Statement, Relational Database Design Entity Relationship Model, Relational Database Design, Data and Process Inventories, Relational Database Design Tuple Types, From Tuple Types to Tables, Relational Database Design, Integrity Rules, Relational Database Design Indexes, Logical Data Structures, Distributed Databases Distributed Data, Physical Database Design Physical Implementation, Intermediate SQL, Maintaining Data, Information Storage and Retrieval Creating and Accessing DB2, Databases, Planning Disk Usage, Data Migration Methods –Loading Tables, Capacity Management, Information Storage and Retrieval Data Moving Data, Mapping DB2 vs. Oracle

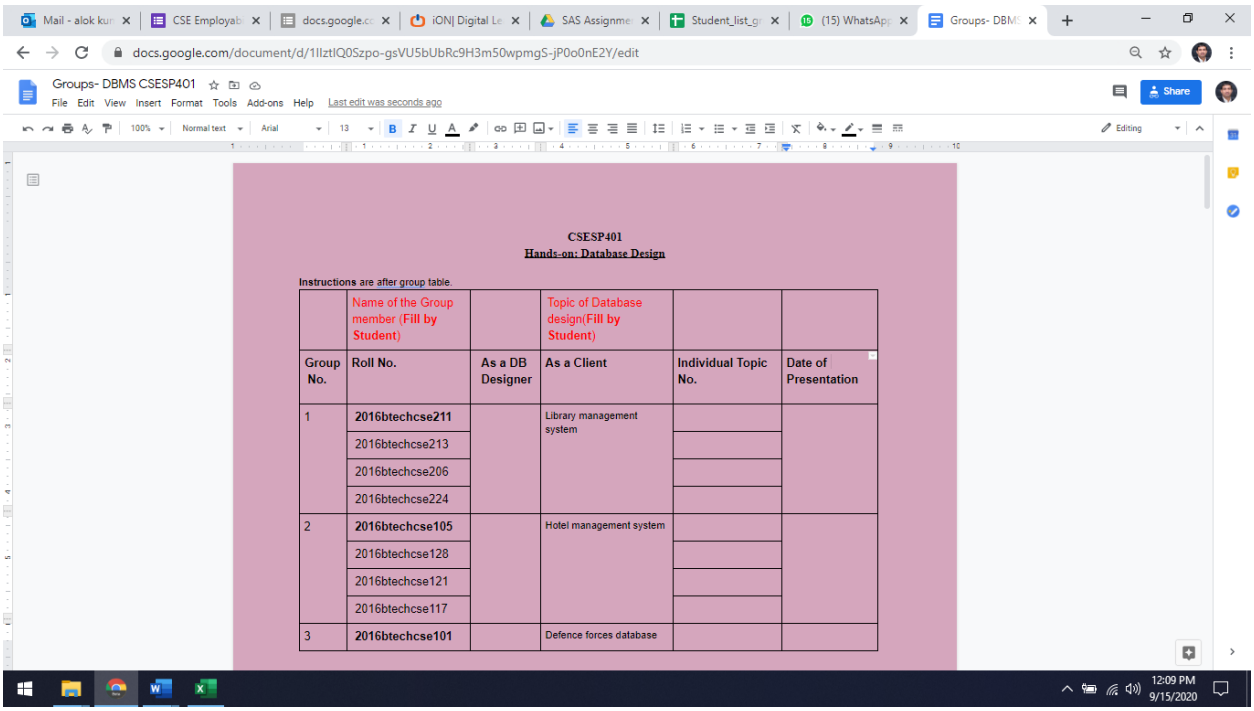
Reference Books

1. IBM material of the course: Volume 1, 2, 3 and 4
2. Avi Silberschatz, Henry F. Korth, S. Sudarshan, 'Database System Concepts' 6th Edition, McGraw-Hill, 2016

Activities Related to Skill Development and Employability

Each Student has developed a group project of database design. Sample List of Projects.

- Library management system
- Hotel management system
- Defence forces database
- Online payment/Shopping
- Database of botanical plant
- Database for details of a district court
- Wholesale management system
- Restaurant Database System
- Railway System Database Project
- Hospital management System
- Database for Movie tickets arrangement
- Health care organization system
- Blood donation management system


Groups- DBMS CSESP401
docs.google.com/document/d/1IlztIQ0Szpo-gsVU5bUbRc9H3m50wpmgS-jP0o0nE2Y/edit
CSESP401
Hands-on: Database Design
Instructions are after group table.
Name of the Group member (Fill by Student)
Topic of Database design(Fill by Student)
Group No.
Roll No.
As a DB Designer
As a Client
Individual Topic No.
Date of Presentation
1
2016btechcse211
Library management system
2016btechcse213
2016btechcse206
2016btechcse224
2
2016btechcse105
Hotel management system
2016btechcse128
2016btechcse121
2016btechcse117
3
2016btechcse101
Defence forces database
12:09 PM
9/15/2020

Course Title and Code: Project ECE 631	
Hours per Week	**L-T-P: 0 0 0**
Credits	**3**
Students who can take	B. Tech Sem VI (2015-2019) ECE
Course Objective: The course is primarily to help students gain expertise on employability skills by developing projects using concepts learned in core courses of semesters I to V.	

Syllabus: Students may choose project on any subject of Electronics and Communication. The students are required to submit synopsis at beginning of semester for approval from departmental committee in specified format. The student will have to present the work through seminars and progress reports.

Activities Related to Skill Development and Employability

S. No	Name of Student	Name of Project
1	Shubham	Car parking system using ultrasonic sensor and Arduino.
2	Sushane Mattoo	Temperature controller using Arduino
3	Pradyumn	Walking aid for visually impaired.
4	Rohit	Automatic Restaurant system using ATMEGA 328
5	Praveen Bhatti	Industrial gas leakage detection using sensors interfaced to Arduino.

INSTITUTE OF ENGINEERING AND TECHNOLOGY
JK LAKSHMIPAT UNIVERSITY, JAIPUR
UNDERGRADUATE COURSE STRUCTURE

Course Code and Title	**ECE727: Radar and Satellite communication**
Scheme	**L T P: 3 0 0**
Credits	**4**
Students who can take	**B. Tech: Semester IV, (2014-18)**

Course Objective:

This course is an elective course for students choosing to learn applications of microwave engineering in field of Radars and Satellite communication. The course introduces the fundamental concepts of radar and satellite concepts as well as advanced topics and applications.

Learning Outcomes:

On successful completion of this course, the students will be able to:

1. Understanding on the primary concepts on radar and satellite communication
2. Explain how a radar detects a stationary as well as moving target.
3. Appreciate the requirements for Doppler radars, MTI, Tracking radars.
4. Explain what geostationary and geosynchronous satellites are
5. Talk with pride about the Indian scenario on satellite launch and ISRO initiatives.
6. Explain the Multiplexing techniques for satellite communication.
7. Explain Telemetry, Tracking and command control system (TT&CS).

COURSE SYLLABUS (Theory):

Introduction to Course: Overview.

Introduction to radar, radar block diagram and operation, radar frequencies, Applications of radar Prediction of range performance, minimum detectable signal, receiver noise, probability density function, SNR, Integration of radar pulses, radar cross-section of targets, PRF and range ambiguities, transmitter power, system losses.

Doppler effect, CW radar, FM CW radar, multiple frequency CW radar, MTI radar, delay line canceller, range gated MTI radar, blind speeds, staggered PRF, limitations to the performance of MTI radar, non-coherent MTI radar.

Tracking radar: sequential lobing, conical scan, monopulse: amplitude comparison and phase comparison methods Radar antennas. Radar displays. Duplexer.

Introduction to geo-synchronous and geo-stationary satellites, Kepler's laws, Locating the satellite with respect to the earth, sub-satellite point, look angles, mechanics of launching a synchronous satellite, Orbital effects, Indian scenario in communication satellites.

Satellite sub-systems: Attitude and Orbit control systems, Telemetry, Tracking and command control system, Power supply system, Space craft antennas, multiple access techniques, comparison of FDMA, TDMA, CDMA.

Introduction to satellite link design, basic transmission theory, system noise temperature and G/T ratio, design of down link and uplink, design of satellite links for specified C/N, satellite data communication protocols.

Activities Related to Skill Development and Employability

Students under supervision of faculty have developed a project proposal on **Automatic Surveillance & Intrusion Detection** (classified report), which was presented by Dr Devika Kataria at 4th ISSE National Conference–2019, SAC-ISRO, Ahmedabad, September 26 – 27, 2019.

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
EE504	Electrical Signals & Systems	3	1	0	4

Evaluation Scheme (Theory)								
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):

- **Introduction:** Background in Complex Arithmetic, Analysis Background, Mathematical Definitions of Signals, Elementary Operations on Signals, Elementary Operations on the Independent Variable, Energy and Power Classifications ,Symmetry-Based Classifications of Signals ,Additional Classifications of Signals ,Discrete-Time Signals: Definitions, Classifications, and Operations, Continuous-Time Signal Classes, Discrete-Time Signal Classes ,Introduction to Systems, System Properties , Interconnections of Systems

- **Discrete & Continuous Time LTI Systems:** Discrete-Time LTI Systems, DT LTI Systems and Convolution, Properties of Convolution - Interconnections of DT LTI Systems ,DT LTI System Properties ,Response to Singularity Signals , Response to Exponentials (Eigen function Properties) ,DT LTI Systems Described by Linear Difference Equations, Continuous-Time LTI Systems, CT LTI Systems and Convolution, Properties of Convolution - Interconnections of DT LTI Systems, CT LTI System Properties, Response to Singularity Signals, Response to Exponentials (Eigen function Properties) ,CT LTI Systems Described by Linear Difference Equations

- **Periodic CT Signal Representation (Fourier series):** CT Fourier Series, Real Forms, Spectra, and Convergence, Operations on Signals CT LTI Frequency Response and Filtering

- **Periodic DT Signal Representation (Fourier series):** DT Fourier Series, Real Forms, Spectra, and Convergence, Operations on Signals, DT LTI Frequency Response and Filtering

- **Fourier Transform Representation for CT Signals:** Introduction to CT Fourier Transform, Fourier Transform for Periodic Signals, Properties of Fourier Transform Convolution

Property and LTI Frequency Response, Additional Fourier Transform Properties, Inverse Fourier Transform, Fourier Transform and LTI Systems Described by Differential Equations, Fourier Transform and Interconnections of LTI Systems.

Text Books:

1. Signals and Systems by Tarum Kumar Rawat, Oxford.

Reference Books:

1. Signals And Systems by Oppenhiem Willsky- Nawabi, PHI
2. Linear Systems and Signals by B.P.Lathi, Oxford
3. A. Papoulis, Circuits and Systems, Modern Approach, HRW, 1980

Activities Related to Skill Development and Employability

Projects

1. Design and evaluation of a discrete wavelet transform based multi-signal receiver.
2. Supervisory control of discrete event systems with state-dependent controllability and observability.

Course Name: Advanced Control Systems (EE604)	
Hours per Week	**L-T-P: 3-0-2**
Credits	**4**
Students who can take	
Course Objective: This course aims to create the required skills to implement and maintain advanced control systems.	
Learning Outcomes: On successful completion of this course, the students should be able to: 1. Select, specify, simulate and design basic measurement and control systems, emphasizing human safety, financial profitability and environmental integrity 2. Assess, troubleshoot, improve and document advanced measurement and control systems 3. Apply relevant engineering standards to meet technical, safety, regulatory, societal and market needs	

Syllabus

UNIT1: CLASSICAL CONTROL THEORY AND PRACTICE. LIMITATIONS

Control problem formulation. Discrete time control systems. Introduction to system identification. PID and compensators design. Performance assessment. Limits of performance. Technical issues. Standards: IEC 61131 – Industrial controllers. ISA 88 – Batch Control Systems. ISA 106 – Procedural Automation.

UNIT2: STATE SPACE ANALYSIS

Basic concepts. Linear algebra. State vector, state model, state model of linear systems, state model for Single-Input/Single-Output linear systems and linearization of the state equation. Canonical representations, transfer function for state model. Properties of the state transition matrix. Computation of state transition matrix. Controllability and observability.

UNIT3: STATE FEEDBACK AND OBSERVERS

Full-state feedback control design. Observer design. Integrated full-state feedback and observer. Reference Inputs. Introduction to optimal control problems.

UNIT4: CASE STUDIES

Application of advanced control systems theory to sustainability problems: health, energy, water, smart cities, etc.

Activities Related to Skill Development and Employability

Students work in practical applications like:

1) Automation project management
2) Sensor specification, calibration and test
3) Control loop design and maintenance
4) Motion control and robotics

Certificates

Preparation for ISA Certified Automation Professional® (CAP®) Certification Program

ISA CAP certification provides a non-biased, third-party, objective assessment and confirmation of an automation professional's skills – specifically, the CAP exam is focused on direction, definition, design, development/application, deployment, documentation, and support of systems, software, and equipment used in control systems, manufacturing information systems, systems integration, and operational consulting. The CAP certification exam reflects the documented knowledge, skills, and abilities needed for competent job performance.

EE605 Microprocessor

Course Title and Code: Microprocessor EE 605	
Hours per Week	**L-T-P: 3-0-2**
Credits	**4**
Students who can take	B. Tech Sem VI (2015-2019) EE

Course Objective: The course introduces the architectures of 8085 microprocessor and helps to develop programming concepts. The course includes concepts of interfacing between microprocessor and peripherals using 8255 PPI.

Learning Outcome:

On successful completion of this course, the students should be able to:

1. Determine which hardware blocks required for a project using microprocessor and peripherals.
2. Write programs for microprocessors 8085 using assembly language and to interface peripherals with minimum resources.
3. Use interrupts for special tasks on microprocessors and develop interrupt handler programs.
4. Understand the use of Analog to Digital convertor and interface analog sensors to microprocessor.
5. Explain the advantages of 8086 (16 bit) processor, especially in context of multitasking.

Syllabus (Theory):

Evolution and Overview of Microprocessor, microcomputer organization. Microprocessor Architecture - introduction and pin diagrams of 8085, ALU timings and control unit, registers, data and address bus, timing and control signals, Fetch and execute operations, instructions and data flow, system timing diagram, minimum system configuration for 8085.

Instruction types and classification of instructions for addressing modes, instruction format, assembler directives, overview of instruction set, writing assembly language program with and without subroutines, concept of stack, interrupts, interrupt service routine.

Memory types, Memory organization, static RAM interfacing, use of RAM and E2PROM, RAM-6116, EPROM 2716, 2732, 2764. PPI (8255), Programmable Timer (8253), Basic concepts in Serial I/O and data transfer schemes and their classification.

Types of A/D and D/A convertors, interfacing and programming of ADC 0808 and ADC 0809 , AND dac 0800. Multiplexers and Demultiplexers, 8085 based data acquisition system, stepper motor control, DC Motor control, temperature control, traffic control.

16 bit processor 8086 and its internal architecture, instruction set, programming, interrupt handling, multiuser and multitasking, Introduction to 80286, 80386, 80486 family and comparison.

Syllabus (Practical)

1. Familiarization with 8085 register level architecture and trainer kit components, including memory map. Familiarization with process of saving and viewing contents of memory as well as regists.
2. Study of prewritten programs for trainer kit using basic instruction set.

3. Transfer block data from memory to other place in memory in direct and reverse order.
4. Searching a number in array and finding its parity.
5. Serial and parallel transfer of data on output ports of 8155 and 8255 & designing of light patterns using this hardware.
6. Generation of various waveform patterns on 8253/8254 programmable timer.

Activities Related to Skill Development and Employability

GATE exam questions on 8085/8086 solved in class as practice problems. Handson sessions on xv6 operating system using Oracle VM Vitualbox

Course code	Course Title	Teaching Scheme				
		L	T	P	S	Credits
ME308	Fluid Mechanics& Machines	3	1	2	0	5

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%

Syllabus (Theory)

UNIT I

Fluid Properties and Fluid Statics-Concept of fluid, ideal and real fluids, properties of fluids, Newtonian and non-Newtonian fluids. Pascal's law, hydrostatic equation, hydrostatic forces on plane and curved surfaces, stability of floating and submerged bodies, relative equilibrium.

UNIT II

Fluid Kinematics-Eulerian and Lagrangian description of fluid flow; stream, streak and path lines; types of flows, flow rate and continuity equation, stream and potential functions, flow net.

UNIT III

Fluid Dynamics-Concept of system and control volume, Euler's equation, Bernoulli's equation, Pitot tube, venturimeter, orificemeter, flow through orifices & mouthpieces**,** Hagen-Poiseuilli Law, hydraulic gradient and total energy lines, major and minor losses in pipes. Power transmission though pipes, branched pipes- parallel and series.

UNIT IV

Boundary Layer Analysis-Boundary layer concept, displacement, momentum and energy thickness of boundary layer. Laminar and turbulent boundary layer flows, drag on a flat plate, boundary layer separation and control. Shear stress in turbulent flow, Prandtl mixing length hypothesis, hydraulically smooth and rough pipes, velocity distribution in pipes, friction coefficients for smooth and rough pipes.

UNIT V

Fluid Machines-Analysis and design of rotodynamic pumps and turbines, Specific speed, Performance characteristic curves and selection of pumps and turbines, Single and multi-stage machines, Various head losses and respective efficiencies, Cavitations, Governing of turbines and priming of rotodynamic pumps, Analysis and design of reciprocating pumps and other machines such as hydraulic accumulator, coupling and torque converter, Performance characteristics and efficiencies

Syllabus (Practical)

1. To determine coefficient of discharge of an orificemeter.
2. To determine the coefficient of discharge of Notch (V and Rectangular types).
3. To determine the friction factor for the pipes.
4. To determine the coefficient of discharge of venturimeter.
5. To verify the Bernoullis Theorem.
6. To find critical Reynolds number for a pipe flow.
7. To determine the meta-centric height of a floating body.
8. To determine the minor losses due to sudden enlargement, sudden contraction and bends.
9. To draw the following performance characteristics of Pelton turbine-constant head, constant speed and constant efficiency curves.
10. To draw the constant head, constant speed and constant efficiency performance characteristics of Francis turbine.
11. To draw the constant head, speed and efficiency curves for a Kaplan turbine.
12. To study the constructional details of a Reciprocating Pump and draw its characteristics curves.
13. To study the construction details of a Gear oil pump and its performance curves.
14. To study the constructional details of a Hydraulic Ram and determine its various efficiencies.

Text Books:

1. D S Kumar, “Fluid Mechanics and Fluid Power Engineering” S K Kataria and Sons.
2. Modi & Seth,“Hydraulics & Fluid Mechanics”Standard Book House.
3. S S Rattan,“Fluid Mechanics and Hydraulic Machines” Khanna Publishers.

Reference Books:

1. Streeter V L and Wylie E B,“Fluid Mechanics” Mc Graw Hill.
2. I H Shames, “Mechanics of Fluids” Mc Graw Hill.

3. S K Som and G Biswas,"Introduction to Fluid Mechanics and Fluid Machines" Tata McGraw Hill.

Web Link:

https://www.youtube.com/watch?v=HGbbdXNcIQA&list=PLbMVogVj5nJQEgL1sHuY24d6omOqXInnt

https://www.youtube.com/watch?v=fa0zHI6nLUo&list=PLbMVogVj5nJTZJHsH6uLCO00I-ffGyBEm

https://www.class-central.com/mooc/5291/nptel-introduction-to-boundary-layers

https://www.class-central.com/mooc/6562/nptel-fluid-machines

https://legacy.saylor.org/me201/Intro/

List of students

1	2016BTechME001	Abhishek Phogat
2	2016BTechME002	Abhishek Sharma
3	2016BTechME003	Akshay Taparia
4	2016BTechME005	Arpit Sharma
5	2016BTechME006	Ashish Kumar Sisodiya
6	2016BTechME007	Deepansh Dikshit
7	2016BTechME008	Devkaran Singh
8	2016BTechME009	Devvrat Singh Chauhan
9	2016BTechME010	Ekhlak Ahmad
10	2016BTechME011	Jai Singh Rathore
11	2016BTechME012	Jaswant Singh Deora
12	2016BTechME013	Kaushlendra Kumar Pandey
13	2016BTechME015	Manvendra Singh
14	2016BTechME017	Param Gupta
15	2016BTechME018	Raj Agrawal
16	2016BTechME019	Rajat Nebhnani
17	2016BTechME020	Ram Upadhyay
18	2016BTechME021	Ritwik Raman
19	2016BTechME022	Rohit Dhanraj
20	2016BTechME023	Rudra Kumar Suthar
21	2016BTechME024	Sajal Jain
22	2016BTechME025	Shantanu Sharma
23	2016BTechME026	Snehashish Banerjee
24	2016BTechME028	Yash Mathur
25	2016BTechME030	Arjun Gupta
26	2016BTechME031	Deeksha Parwani
27	2015BTechME023	T. Kishor

Course and Code: Mechanical Measurements (ME411)

Academic year: 2016-20

Course code	Course Title	Teaching Scheme				
		L	T	P	S	Credits
ME411	Mechanical Measurements	3	0	2	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	20	50	30	100

Unit I

Basic Concepts of Measurement- General measurement system; Experimental test plan: variables, parameters, repetition; Calibration: Static calibration, dynamic calibration, static sensitivity, range, accuracy, precision and bias errors, sequential and random tests; Presenting data: Rectangular coordinate format, semi-log, full-log formats. Measurement System Behavior.

Unit II

Temperature Measurement- Temperature standards, Temperature scales; Thermometry based on thermal expansion: Liquid in glass thermometers, Bimetallic Thermometers; Electrical resistance thermometry: Resistance Temperature Detectors, Thermistors; Thermoelectric Temperature Measurement: Temperature measurement with thermocouples, thermocouple standards.

Unit III

Pressure and Velocity Measurement- Relative pressure scales, pressure reference instruments, barometer, manometer, deadweight tester, pressure gauges and transducers, total and static pressure measurement in moving fluids Flow measurement: Pressure differential meters: Orifice meter, Venturi meter, roto-meter.

Unit IV

Strain Measurement- Stress and strain, resistance strain gauges, gauge factor, strain gauge electrical circuits, multiple gauge bridge, bridge constant, apparent strain and temperature compensation, bending compensation. Motion, Force and Torque Measurement: Displacement measurement: Potentiometers, Linear variable differential transformers, rotary variable differential transformer; Velocity measurement: moving coil transducers; angular velocity measurement: electromagnetic techniques, stroboscopic measurement; Force measurement: load cells, piezoelectric load cells; Torque measurement: measurement of torque on rotating shafts, Power estimation from rotational speed and torque.

UNIT-V

Linear measurement- standards of linear measurement, line and end standards, Limit, fits and tolerances. Interchangeability and standardization. Linear and angular measurements devices, sine bar and system comparators: Sigma, Johansson's Microkrator. Measurement of geometric forms like straightness, flatness, roundness. Tool maker's microscope, profile projector, autocollimator.
Interferometry: principle and use of interferometry, optical flat. Measurement of screw threads and gears.

Syllabus (Practical):

1. Study of various temperature measuring devices; thermo couple, RTD, gas thermo meters.
2. Measuring velocity of fluid flow by Ventura meter/ orifice meter/ pitot-tube.
3. Measuring torque and power generated by a prime mover by using pony brake dynamometer.
4. Study of various pressure measuring devices like manometers, mercury in glass pressure gauge.
5. To develop a measuring device for fluid level measurement.

References:

1. Nakra and Chowdhry " Measurement and Control" TMH
2. Figiola RS & Beasley DE "Theory and Design for Mechanical Measurements" John Wiley
3. Katsuhiko Ogata "Modern Control Engineering" Pearson Education, New Delhi
4. Backwith and Buck "Mechanical Measurements".
5. Swahney "Metrology and Instrumentation"

Web Link:

1. https://www.youtube.com/watch?v=lc4dsNvm2Ks&list=PL70EFDD69A84246B0
2. https://www.youtube.com/watch?v=8DTt-f6wQxE&list=PL522E677B167D6CB5
3. https://www.youtube.com/watch?v=SOHTg9EFE5g&list=PL3txkL3SesVb4YIHlK-COA3drxidb-mb3
4. http://nptel.ac.in/courses/112106138/
5. http://www.nptelvideos.in/2012/12/mechanical-measurements-and-metrology.html
6. http://www.qimtonline.com/course/index.php?categoryid=84

List of students:

S. No	Roll No	Name
1	2016BTechME001	Abhishek Phogat
2	2016BTechME002	Abhishek Sharma
3	2016BTechME003	Akshay Taparia
4	2016BTechME005	Arpit Sharma
5	2016BTechME006	Ashish Kumar Sisodiya
6	2016BTechME007	Deepansh Dikshit
7	2016BTechME008	Devkaran Singh
8	2016BTechME009	Devvrat Singh Chauhan
9	2016BTechME010	Ekhlak Ahmad
10	2016BTechME011	Jai Singh Rathore
11	2016BTechME012	Jaswant Singh Deora
12	2016BTechME013	Kaushlendra Kumar Pandey
13	2016BTechME015	Manvendra Singh
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16	2016BTechME019	Rajat Nebhnani
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24	2016BTechME028	Yash Mathur
25	2016BTechME030	Arjun Gupta
26	2016BTechME031	Deeksha Parwani
27	2015BTechME023	T. Kishor

Intelligent System

Course Code	**:**	**MTCS436 (Elective-IV/V/VI)**
Course Title	**:**	**Intelligent System**
Course Credits	**:**	**3**
Total Hours Per Week (L+T+P)	**:**	**3 + 0 + 2**

Course Syllabi (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 nformation.
- **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.

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

Reference Books:

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

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
ME 606	Renewble Energy Technology	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*	Mid Term Marks**	Total	End Term Test	Class Participation/ Additional Continuous Evaluation*	Total Marks**
20	20	50	10	100	20	50	30	100

Syllabus (Theory)

Introduction: Man and Energy, world production and reserve of conventional energy sources, Indian production and reserves, Energy alternatives (Renewable). Form and characteristics of renewable energy sources.

Solar radiation: Solar radiation, its measurement and prediction. Origin, nature and availability of solar radiation, estimation of solar radiation date. Effects of receiving surface location and orientation.

Solar energy collectors: Characteristics of materials and surfaces used in solar energy absorption. Devices for thermal collection and storage.

Flat plate collectors: liquid and air type. Design consideration and performance of different types of solar thermal collectors. Basic theory of flat plate collectors, concentrating collectors, advanced collectors, optical design of concentrators, selective coatings,

Solar energy storage: Energy storage devices such as water storage systems, packed Bed storage systems, phase change storage systems. Active and passive solar heating of buildings, solar still, solar water heaters, solar driers;

Thermal storage: conversion of heat energy into mechanical energy, solar thermal power generation systems.

Application: systems for space heating, solar water pumps, solar pond, Solar Thermal Power plants, solar distillation, Solar Refrigeration and solar air conditioning. Solar PV systems.

List of Students

S.No	Registration No	Name
1	2015BTechME001	Abhishek Sankhla
2	2015BTechME002	Aman Medatwal
3	2015BTechME003	Amar Singh Rathore
4	2015BTechME006	Bijay Yadav
5	2015BTechME007	Chetan Pratap Singh Rathore
6	2015BTechME009	Krishna Verma
7	2015BTechME010	Kunal Sharma
8	2015BTechME012	Nadeem Khan
9	2015BTechME013	Naman Tyagi
10	2015BTechME014	Nikhil Shah
11	2015BTechME015	Rachit Singodia
12	2015BTechME016	Rohan Singh
13	2015BTechME018	Urvija Tiwari
14	2015BTechME019	Vishnu Kant
15	2015BTechME020	Devanshu Singh
16	2015BTechME021	Vivek Vishwakarma
17	2015BTechME022	Rahul Agnihotri
18	2015BTechME024	Prakhar Prakash
19	2015BTechME025	Nirmal Yadav
20	2016BTechME151	Aayush Arora

Report Writing

Write a report in 5-6 pages about various applications of renewable energy resources and explain the world energy scenarios.

Course code	Course Title	Teaching Scheme				
		L	T	P	S	Credits
SUR401	Survey Field Visit	01 Week				2

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 **
								100

Surveying Field Visit (Intensive Survey) (SUR401) - One Week -2 Credits

Employability skill activities

Report

on

Survey Camp at Neota Dam, Jaipur

PREPARED BY

Aayush Bansal

(2016BTECHCE001)

FACULTY MENTOR

Mr. Vinod Vishwakarma

DEPARTMENT OF CIVIL ENGINEERING
INSTITUTE OF ENGINEERING & TECHNOLOGY
J.K. LAKSHMIPAT UNIVERSITY, JAIPUR

March 2018

JK Lakshmipat University, Jaipur

Project Report on

Survey camp at Neota dam, Jaipur,302026

Survey Camp instructor: -

Prof. Vinod Kumar Vishwkarma

Asst. Professor (2016btechce009)

Report submitted by :-

Nikhil Jhanwar

4. Procedure

4.1 GPS

1. Turn on the GPS device
2. Now go to menu ->tera sync
3. Now create a file
4. Now select the way you want to perform i.e. point, line, area specific
5. For point go around different points at a distance of 1 m
6. For area walk slowly around the water body.
7. When you reach the starting point after walking around the body click the done button and your file is being saved
8. Now analyse the data in Path Finder Software

4.2 Total station

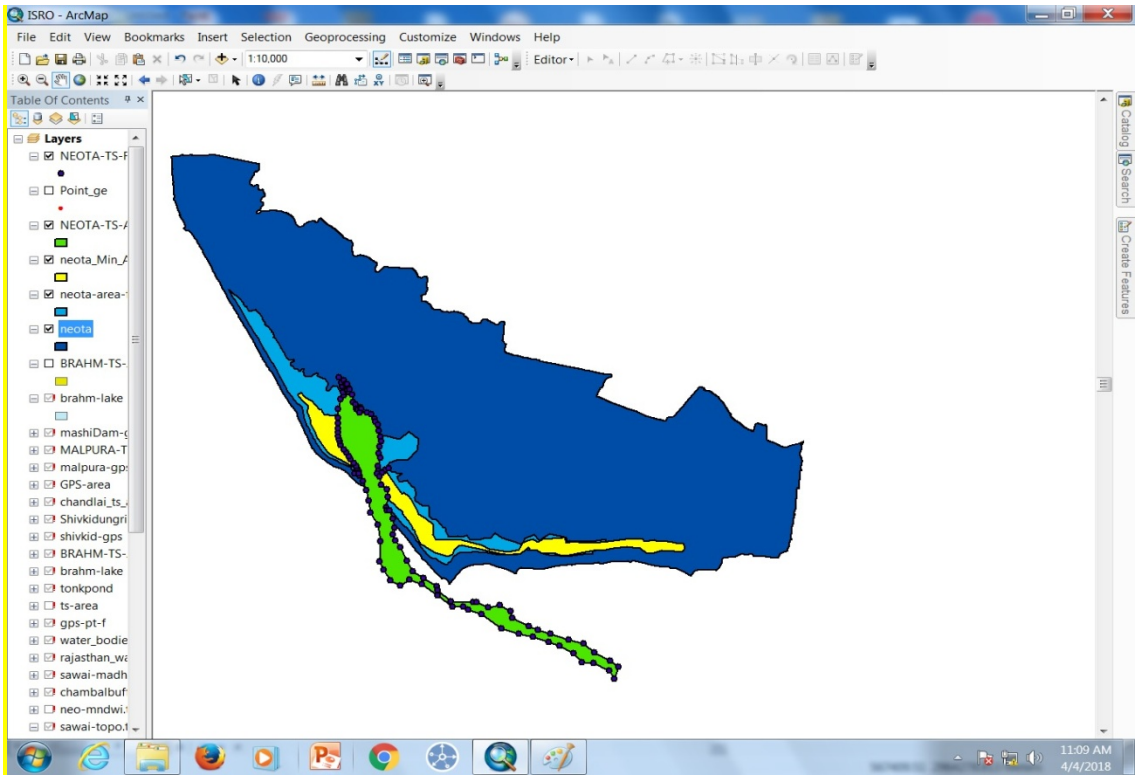
1. Turn on the device
2. Now create a new job file
3. Setup the station
4. Find the coordinates of the station by using GPS
5. Enter the coordinates
6. Now take foresight and back sight and your station is set.
7. Take readings for consecutive points
8. Analyse the data in pathfinder and Arc Gis software

1.4.1 LOCATION MAP:

FIG 1: LOCATION MAP OF NEOTA DAM

❖ Data Analysis for GPS (Neota Dam)

1	2964650	567919	324.69	ST	41	2964828	567930	323.54	WT	81	2964271	568255	324.42	WT
2	2964646	567914	318.38	BCK	42	2964819	567926	323.57	WT	82	2964276	568284	324.28	WT
3	2964653	567923	323.66	WT	43	2964819	567944	323.49	WT	83	2964261	568312	324.29	WT
4	2964653	567924	323.52	WT	44	2964815	567956	323.49	WT	84	2964240	568316	324.29	WT
5	2964662	567921	323.54	WT	45	2964802	567964	323.49	WT	85	2964218	568358	324.13	WT
6	2964669	567918	323.53	WT	46	2964793	567966	323.53	WT	86	2964207	568382	324.12	WT
7	2964677	567911	323.53	WT	47	2964786	567973	323.5	WT	87	2964197	568414	324.27	WT
8	2964688	567902	323.49	WT	48	2964767	567975	323.51	WT	88	2964180	568459	324.32	WT
9	2964696	567898	323.54	WT	49	2964751	567979	323.54	WT	89	2964169	568497	324.74	WT
10	2964706	567891	323.52	WT	50	2964738	567981	323.53	WT	90	2964143	568526	324.31	WT
11	2964715	567885	323.52	WT	51	2964723	567976	323.54	WT	91	2964120	568565	324.32	WT
12	2964727	567878	323.52	WT	52	2964705	567974	323.54	WT	92	2964103	568587	325.03	WT
13	2964739	567876	323.57	WT	53	2964692	567978	323.47	WT	93	2964069	568577	324.72	WT
14	2964745	567874	323.65	WT	54	2964668	567972	323.51	WT	94	2964092	568563	324.7	WT
15	2964754	567872	323.55	WT	55	2964656	567974	323.5	WT	95	2964113	568524	324.11	WT
16	2964764	567871	323.58	WT	56	2964658	567992	323.49	WT	96	2964116	568494	324.3	WT
17	2964775	567870	323.53	WT	57	2964662	568001	323.52	WT	97	2964141	568472	324.29	WT
18	2964788	567870	323.48	WT	58	2964650	567984	323.51	WT	98	2964163	568436	324.07	WT
19	2964803	567872	323.53	WT	59	2964647	567970	323.55	WT	99	2964173	568408	324.09	WT
24	2964892	567881	323.47	WT	64	2964552	567993	323.51	WT	104	2964263	568203	324.45	WT
25	2964903	567879	323.5	WT	65	2964543	567995	323.48	WT	105	2964273	568163	324.43	WT
26	2964918	567873	323.56	WT	66	2964544	568003	323.49	WT	106	2964304	568125	324.26	WT
27	2964909	567887	323.68	WT	67	2964521	568010	323.49	WT	107	2964337	568085	324.13	WT
28	2964899	567890	323.55	WT	68	2964494	568016	323.47	WT	108	2964348	568052	324.03	WT
29	2964898	567895	323.56	WT	69	2964475	568010	323.49	WT	109	2964332	568030	323.93	WT
30	2964886	567898	323.59	WT	70	2964458	568017	323.51	WT	110	2964347	568005	323.95	WT
31	2964879	567895	323.61	WT	71	2964441	568031	323.49	WT	111	2964376	567986	323.86	WT
32	2964876	567899	323.57	WT	72	2964402	568047	323.98	WT	112	2964400	567978	323.89	WT
33	2964883	567901	323.6	WT	73	2964372	568061	324	WT	113	2964456	567978	323.53	WT
34	2964868	567908	323.55	WT	74	2964353	568090	324.03	WT	114	2964504	567973	323.56	WT
35	2964848	567909	323.57	WT	75	2964330	568122	324.16	WT	115	2964537	567954	323.53	WT
36	2964842	567915	323.55	WT	76	2964318	568125	324.25	WT	116	2964571	567949	323.56	WT
37	2964828	567917	323.57	WT	77	2964287	568159	324.26	WT	117	2964601	567943	323.54	WT
38	2964828	567922	323.54	WT	78	2964273	568190	324.36	WT	118	2964627	567935	323.52	WT
39	2964834	567927	323.52	WT	79	2964284	568217	324.36	WT	119	2964640	567926	323.52	WT
40	2964828	567930	323.54	WT	80	2964286	568224	324.41	WT	120	2964647	567924	323.56	WT



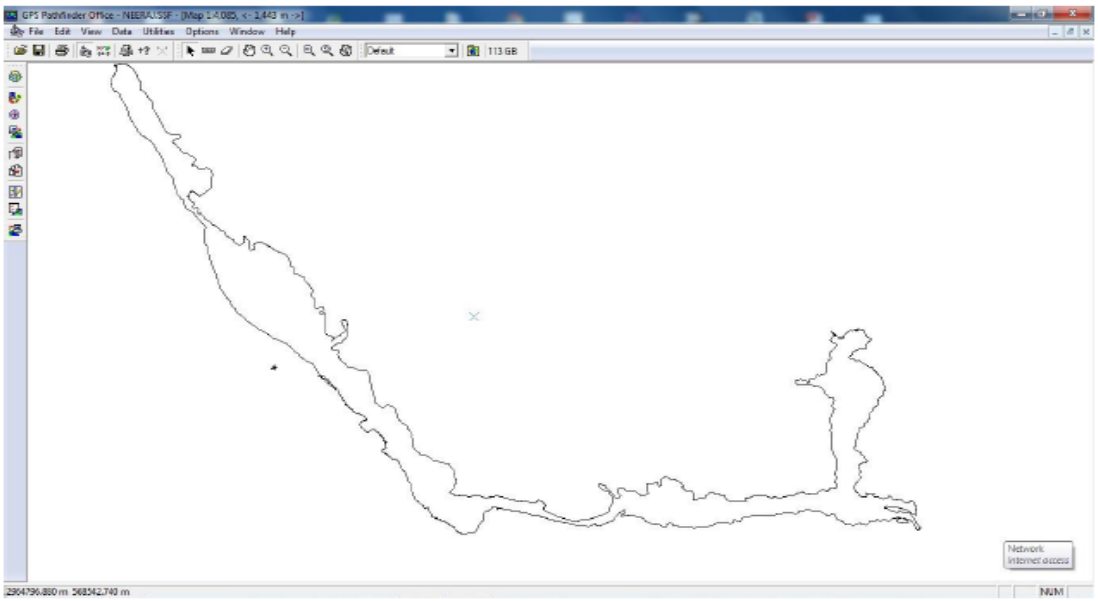


FIG 5: Area obtained by GPS using Polygon method

3.2.6 CONCLUSION:

The GPS has the several advantages not only in determining the coordinate points but also used by marine, city maps & satellite navigation etc. Hence it was great experience on conducting land survey by both methods.

MASTERS OF BUSINESS ADMINISTRATION

LS07
WRITTEN COMMUNICATION SKILLS

COURSE OUTLINE

SEMESTER III (SOFT SKILLS PAPER), 2017-18

This is the third in a series of Four Soft Skills paper. The Syllabus of Soft Skills is divided into Four Modules to be engaged by External Industry Expert / Soft Skills Trainer for atleast 10 Hours per Semester. It is preferred that Expert may take upto Two Hours per Week. However, in exceptional Cases where the Expert is available for short duration, the same may be concentrated in a higher number of Hours per week.

L-T-P : 2-0-0 (Max. Sessions – 10)
COURSE CREDITS : 1
SESSION DURATION: 60 MINUTES

Module III:

Written Communication: Writing effective emails, preparing powerful presentations and writing Business Reports.

English Grammar Capsule: Noun, Preposition, Conjunction, Pronoun, Verb, Tenses, Modifiers and Prepositional Phrases and their implementation.

Enhancing Conversational Skills: Improving Verbal English through practice exercises comprising of day to day conversational situations. Practice exercises to strengthen lexical / structural knowledge of English.

LEARNING OUTCOMES:

Upon completion of the course, the student is expected to:

1. Identify and react accordingly on one-way and two-way communication scenarios.
2. Define the communication style followed by him / her.
3. Demonstrate active-listening skills
4. Deal with challenging emotions
5. Overcome cross-cultural barriers
6. Recognize filters in himself / herself and others.
7. Express the Anger constructively.

8. Use grammatically correct language.
9. Speak impromptu on any business topic / current affairs.
10. Work effectively in diverse teams (As a part of Course activities and role plays).

READING MATERIALS:

- Mukherjee, H.S. (2013). ***Business Communication: Connecting at Work.*** New Delhi: Oxford Publishing.
- Butterfield, J. (2012). ***Soft Skills for Everyone***. New Delhi: Cengage Learning.
- Booher, D. (2012). ***Communicate with confidence! How to say it right the first time and every time.*** New Delhi: Tata McGraw Hill.

Activities Related to Skill Development and Employability

Exercise 1: on Edit sentence structure to improve clarity and comprehension

Exercise 2: on determining redundant words in a passage and replacing it with appropriate words

Exercise 3: on adding logical flow and smoothness to the jumbled and choppy paragraph.

Excercise4 : writing an article on any chosen topic. Exchange the article with the partner and edit each other's work.

B.COM (Hons)
LS08
BUSINESS ETIQUETTES
COURSE OUTLINE
SEMESTER IV (SOFT SKILLS PAPER), 2017-18

This is the fourth in a series of Four Soft Skills paper. The Syllabus of Soft Skills is divided into Four Modules to be engaged by External Industry Expert / Soft Skills Trainer for atleast 10 Hours per Semester. It is preferred that Expert may take upto Two Hours per Week. However, in exceptional Cases where the Expert is available for short duration, the same may be concentrated in a higher number of Hours per week.

L-T-P : 2-0-0 (Max. Sessions – 10)
COURSE CREDITS : 1
SESSION DURATION: 60 MINUTES

Module III:

Business Etiquette: Art of effective networking and Introductions, Power of handshake, Business Card Protocol, Telephone, cell phone and email etiquette, Pre-meeting strategies. corporate Dressing, effective usage of gestures during communication in a formal environment and balancing between Speaking and Listening to arrive at an equilibrium, negotiations and conflict management.

Achieving Genuine Communication: Creating openness, matching body language to message, working constructively with emotions, dealing with anger and managing emotionally charged situations, Managing Cross Cultural Communication.

LEARNING OUTCOMES:

Upon completion of the course, the student is expected to:

1. Identify and react accordingly on one-way and two-way communication scenarios.
2. Define the communication style followed by him / her.
3. Demonstrate active-listening skills
4. Deal with challenging emotions
5. Overcome cross-cultural barriers
6. Recognize filters in himself / herself and others.
7. Express the Anger constructively.
8. Use grammatically correct language.

9. Speak impromptu on any business topic / current affairs.
10. Work effectively in diverse teams (As a part of Course activities and role plays).

READING MATERIAL:

- Mukherjee, H.S. (2013). ***Business Communication: Connecting at Work.*** New Delhi: Oxford Publishing.
- Butterfield, J. (2012). ***Soft Skills for Everyone***. New Delhi: Cengage Learning.
- Booher, D. (2012). ***Communicate with Confidence! How to Say it Right the First Time and Every Time.*** New Delhi: Tata McGraw Hill.

Sweeney, S. (2003). ***English for Business Communication***. New Delhi: Cambridge

Activities Related to Skill Development and Employability

Exercise 1: The class divides into pair. Each pair takes center stage and acts out a scenario (Boss and subordinate, teacher and student) after the scene is over rest of the class points out the good and bad body language

Activity: Each student comes forward and tries to convey an emotion by facial expression, the class guesses the expression.

Activity 2: Interactive discussion on learning experience of correct and desirable body language.

Activity 3: Analyzing the `telephone conversation of classmate with his friend, professor etc. and providing feedback on basic etiquettes

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CSE 730 (Elective III/IV)	Cyber Laws and Intellectual Property Rights	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

Course Objectives:

1. To facilitate understand & critical understanding about Cybercrimes, Ethical Hacking, cyber security, forensics and cyber laws
2. Exploration of the legal and policy developments in various countries for cyber space
3. To provide in-depth knowledge of Information Technology Act, 2000 including Information Technology Amendment Act, 2008
4. Understanding e-Governance, Electronic Contracts, e-Banking & Secure electronic records
5. To share knowledge of the regulation of cyber space at national and international level
6. To train and prepare candidate to consider Cyber security, forensics and cyber laws as a career option.

Course outcomes

1. Identify issues to protect digital assets in compliance with cyber laws.
2. Preserve privacy in data publishing and data analysis
3. Apply legal and ethical aspects to manage and audit digital assets
4. Work in teams using common tools and environment to achieve project objectives
5. Understanding of issues and problems arising out of online transactions
6. Understand cyberspace, issues there in and need for a cyber law
7. Evaluate alternative designs focusing on efficiency, scalability, and security.
8. Understand of intellectual property issues and development of the law in this regard

Syllabus (Theory)

- **UNIT I:** History of Information Systems and its Importance, basics, Changing Nature of Information Systems, Need of Distributed Information Systems, Role of Internet and Web Services, Information System Threats and attacks, Classification of Threats and Assessing Damages Security in Mobile and Wireless Computing- Security Challenges in Mobile Devices, authentication Service Security, Security Implication for organizations, Laptops Security Basic Principles of Information Security, Confidentiality, Integrity Availability and other terms in Information Security, Information Classification and their Roles.

- **UNIT II:** Security Threats to E Commerce, Virtual Organization, and Business Transactions on Web, E Governance and EDI, Concepts in Electronics payment systems, E Cash, Credit/Debit Cards. Physical Security- Needs, Disaster and Controls, Basic Tenets of Physical Security and Physical Entry Controls, Access Control- Biometrics, Factors in Biometrics Systems, Benefits, Criteria for selection of biometrics, Design Issues in Biometric Systems, Interoperability Issues, Economic and Social Aspects, Legal Challenges

- **UNIT III:** Model of Cryptographic Systems, Issues in Documents Security, System of Keys, Public Key Cryptography, Digital Signature, Requirement of Digital Signature System, Finger Prints, Firewalls, Design and Implementation Issues, Policies Network Security- Basic Concepts, Dimensions, Perimeter for Network Protection, Network Attacks, Need of Intrusion Monitoring and Detection, Intrusion Detection Virtual Private Networks- Need, Use of Tunneling with VPN, Authentication Mechanisms, Types of VPNs and their Usage, Security Concerns in VPN.
- **UNIT IV:** Security metrics- Classification and their benefits Information Security & Law, IPR, Patent Law, Copyright Law, Legal Issues in Data mining Security, Building Security into Software Life Cycle Ethics- Ethical Issues, Issues in Data and Software Privacy Cyber Crime Types & overview of Cyber Crimes

Text Books & Reference:

1. Godbole,“ Information Systems Security”, Willey
2. Merkov, Breithaupt,“ Information Security”, Pearson Education
3. Yadav, “Foundations of Information Technology”, New Age, Delhi
4. Schou, Shoemaker, “ Information Assurance for the Enterprise”, Tata McGraw Hill
5. Sood,“Cyber Laws Simplified”, Mc Graw Hill
6. Furnell, “Computer Insecurity”, Springer
7. IT Act 2000

Activities Related to Skill Development and Employability

Each Student has Submitted Assignment, given quizzes, performed simulation of Wireshark Packet Analyzer and Presentations related to Cyber Law and IPR.

Presentation Topic-

Cyber Law & IPR (CSE730)
Presentation topics and schedule

Group	NAME	Topic	Dates
Group 1	Manoj Pareek (CSE022) Yashdeep Singh (2013 Batch)	Copyrights vs Patents debate - Authorship and Assignment Issues	03-10-2017
Group 2	Chaitanya Istarla(CSE005) Shubhag Saxena(CSE014)	Copyrights- Software — Copyright in Internet	04-10-2017
Group 3	Aditya Tripathi (CSE019) Yashveer Inda(CSE020)	Phishing, Cyber Terrorism- Violation of Privacy on Internet	19-09-2017
Group 4	Shakshi Agarwal(CSE011) Nishtha Jain(CSE008)	Cyber Stalking	19-09-2017
Group 5	Yash Pareek (CSE019) Prachi jain(CSE023)	Credit Card Fraud, Net Extortion	20-09-2017
Group 6	Tanuj Kumar(CSE017) Siddhanth jain(CSE016)	Data Protection and Privacy – Indian Court cases.	22-09-2017
Group 7	Anjali Paliwal(CSE004) Meesha Tyagi(CSE007)	Trademarks in Internet – Copyright and Trademark cases	25-10-2017
Group 8	Anant Sagar(CSE003) Praveen Bobby(2013 Batch)	Indian Position on Patents – Case Law	25-10-2017
Group 9	Ajay Maharshi(CSE001) Vaibhav Parashar(CSE018)	Multimedia and Copyright issues - Software Piracy - Trademarks	10-10-2017
Group 10	Rajat Mathur(CSE009) Rishi Gupta(CSE010)	Patents - Understanding Patents - European Position on Computer related Patents,	11-10-2017
Group 11	Sushil Rathi(CSE015)	Domain Name Disputes-Cyber Squatting-IPR cases	24-10-2017

Note:- Attendance is compulsory for all the presentations.

Instructor
Prof. Devendra Bhavsar

Assignment-

Q.1	Short answer type questions (2 questions @ 2.5 marks)	
i.	Mention what are personal traits you should consider protecting data?	
ii.	How does an authentication system differ from a firewall in functioning?	

Q.2A	Young lady named Ritika Adjania found her profile in an online community named “1worldcom” on its website 1worldcom.net. Her surprise turned to horror when she realized that the profile painted her as a person of dubious character whose only interest was money. The profile also “boasted” of her	

	achievements which included defrauding a bank of Rs.10 lakh and getting away with it. Ritika immediately informed “1worldcom” of the posting and requested them to remove it. The posting was removed the next day but reappeared a week later. It was again removed but reappeared two days later. Deeply hurt, Ritika filed a suit for defamation against “1worldcom”. With reference to jurisprudence of Defamation cases, examine the liability of “1worldcom.”	
Q.2B	What are the advantages and disadvantages of a Smart Card?	

Q.3A	Which section deals with the punishment for violation of data privacy? What is the maximum punishment provided for violation of data privacy?	
Q.3B	What is non-repudiation? How can it be achieved in designing e-cash based system? Give a suitable algorithm.	
Q.3C	How do I avoid becoming a victim of a phishing scam? Is phishing done only through email?	

Q.4A	Section 29 of the Information Technology Act 2000 confers power upon the Controller of Certifying Authorities to investigate contraventions under the Act. Section 78 confers power upon a police officer of the rank of a Deputy Superintendent of Police or above to investigate any offence under the Act. Rashmi suspects Rakesh of creating and publishing digital signature certificates for fraudulent purposes. But she is confused about whom to approach for investigating the suspected crime. Clear Rashmi’s confusion with detailed explanations.	
Q.4B	Discuss Cyber Stalking with help of example also write about penalties provided under which section of the IT act 2000?	
Q.4C	Examine the concepts of data file sharing technology in peer-to-peer networks and implication on cyber copyrights.	

Course code	Course Title	Teaching Scheme				
		L	T	P	S	Credits
CHE407	Mass Transfer Operations-I	3	1	0	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

Syllabus (Theory)

UNIT I-UNIT operations and UNIT process, Basic concepts: phase, equilibrium, property, system, driving force, chemical potential. Classification of mass transfer operations. Molecular diffusion and fluxes; Diffusion phenomenon: Molecular and eddy diffusion in gases, liquids and solids, interface mass transfer Mass transfer theories: Film theory, penetration theory and surface renewal theory.

UNIT II-Concept of Mass transfer coefficient: Individual and film coefficients, overall mass transfer co-efficient and their inter relationships. Continuous contact and differential contact, mass transfer concepts of NTU and HTU, their inter relationship.

Interphase Mass Transfer: Equilibrium, diffusion between phases, material balances, stages and concept of operating line and tie line.

UNIT III-Equipment for gas liquid contact: Sparged vessel, mechanically agitated vessel, tray towers, venture scrubber, wetted wall towers, spray towers and packed towers, tray tower vs packed tower.

Absorption: Absorption in continuous contact columns, Co-current, Counter current and cross current contacting of fluids, calculation of NTU and HTU, concept of HETP.

UNIT IV-Adsorption: Adsorption theories, types of adsorbent, activated carbon silica, silica and molecular sieves, Batch and column adsorption. Break through curves, gas adsorption, BDST models for adsorption calculation.

UNIT V-Humidification and Drying: General theory, psychometric chart, fundamental concepts in humidification and dehumidification, dry bulb and wet bulb temperature, adiabatic saturation temperature, measurement of humidity, calculation of humidification operation, cooling towers and related equipments. Equilibrium mechanism theory of drying, drying rate curve, Batch and continuous drying, working principle of different types of dryers such as tray driers, Drum dryers, spray and tunnel dryers.

Text Books:

1. Treybal, R.E., "Mass Transfer Operations," 3rd Ed. (International Edition), McGraw-Hill Book Company, Singapore, 1980.
2. McCabe, W. L., Smith, J. C., Harriott, P., "UNIT Operations of Chemical Engineering," 7th Ed. (International Edition), McGraw-Hill Education (Asia), Singapore, 2005.

Reference Books:

1. Dutta, B. K., "Principles of Mass Transfer and Separation Processes", PHI Learning Pvt. Ltd. New Delhi, 2007.
2. Foust, A. S., Wenzel, L. A., Clump, C. W., Anderson, L. B., "Principles of UNIT Operations," John Wiley and Sons, New York, 2nd Ed., 1980.

3. Perry, R. H., Green, D. W., "Perry's Chemical Engineers' Hand Book," McGraw-Hill, New York, 7th Ed., 2001.
4. Smith, B.D., "Design of Equilibrium stage Processes", McGraw-Hill, NY
5. King, C.J. "Separation Processes", McGraw –Hill, NY.
6. Coulson, J.M. and Richardson, J.F., "Chemical Engineering", Vol. I and II, Asian Books Pvt., New Delhi.

Web links

1. http://nptel.ac.in/syllabus/syllabus.php?subjectId=103103034
2. http://nptel.ac.in/syllabus/syllabus.php?subjectId=103103035
3. http://www.msubbu.in/ln/
4. http://www.bput.ac.in/lecture_notes/MASS_TRANSFER_I.pdf

Activity for Skill Development and Employability

QUIZ-1

Q1. Methane is being cracked on a catalyst, CH_4---->$C+2H_2$ under circumstance such that CH_4 (A) diffuses to the cracking surface and H_2 (B) diffuse back. At steady-state the ratio $N_A/(N_A+N_B)$ is (a) 1/3 (b) -1 (c) 2/3 (d) -2

Q2. The binary diffusivity in gases varies almost as

(a)T (b) $T^{1/2}$ (c) $T^{3/2}$ (d) T^2

Q3. The permeability increases with increases with increase in temperature for the flow of gases through a capillary according to

(a) Knudsen law (b) Poiseuille's law (c) both a and b (d) none of the above

Q4. The binary diffusivity has the same dimension as

(a) Absolute viscosity (b) Kinematic viscosity (c) Density (d) Concentration

Q5. Binary diffusivity in liquids varies almost as

(a) T (b) $T^{3/2}$ (c) T^2 (d) T^3

QUIZ-2

Q1. The Schmidt number is defined as

(a) μ/D_{AB} (b) $\mu/\rho D_{AB}$ (c) $\rho\mu/D_{AB}$ (d) $\mu D_{AB}/\rho$

Q2. For ideal gases the different mass transfer coefficient are related as

(a) $k_c=k_gRT=k_yRT/P$ (b) $k_c=k_g/RT=k_yP/RT$

(c) $k_c=k_gRT/P=k_yRT$ (d) $k_c=k_g=k_y$

Q3. The Chilton-Colburn analogy for mass transfer states that

(a) $N_{St}\,N_{Sc1}^{1/3}=f/8$ (b) $N_{St}\,N_{Sc1}^{2/3}=f/2$

(c) $N_{St}\,N_{Sc1}^{3/2}=f/2$ (d) $N_{St}\,N_{Sc1}^{3/2}=f/8$

Q4. Peclet number for mass transfer is defined as

(a) R_e/S_c (b) $R_e\,S_c$ (c) S_c/R_e (d) $S_h\,S_c$

Q5. The Sherwood number Sh is defined as

(a) $\frac{D_{AB}}{k_c d}$ (b) $\frac{k_c}{D_{AB} d}$ | (c) $\frac{k_c D_{AB}}{d}$ (d) $\frac{k_c d}{D_{AB}}$

QUIZ-3

Q1. The dew point of an unsaturated mixture of vapour and gas does not depend on

(a) The temperature of the mixture (b) the total pressure of the mixture

(c) The composition of the mixture (d) all of the above

Q2. At the boiling point of the liquid at the prevailing pressure the saturated absolute humidity becomes

(a) One (b) zero (c) infinity (d) None of the above

Q3. The psychometric ratio is defined as

(a) h_G/k_Y (b) k_Y/h_G (c) $h_G/k_Y C_S$ (d) S_c/P_r

Q4. In a cooling tower makeup fresh water must be added to replace losses from

(a) Entrainment (b) evaporation losses (c) blowdown (d) all of the above

Q5. Separation of a binary mixture of gases by absorption in the liquid solvent depends upon their differences in

(a) Density (b) solubility (c) viscosity (d) kinematic viscosity

QUIZ-4

Q1. According to the penetration theory the mass-transfer coefficient is directly proportional to (a) D_{AB} (b) D_{AB}^2 (c) $D_{AB}^{1.5}$ (d) $D_{AB}^{0.5}$

Q2. For a single component absorber the operating line is straight only when plotted in terms of (a) The mole fraction units (b) the partial pressure unit

(c) The mole ratio units (d) all of the above

Q3. The Chilton Coburn analogy for mass transfer state that

(a) $StSc^{0.33}$=f/8 (b) $StSc^{0663}$=f/2 (c) StSc1.5=f/2 (d) $StSc^{0.66}$=f/8

Q4. The solubility of a particular gas in ideal solution in any solvent is

(a) Always the same (b) always the different (c) Always zero (d) none of the above

Q5. The Lewis number of a mixture is one when mass diffusivity is equal to

(a) Movement diffusivity (b) thermal diffusivity

(c) Thermal conductivity (d) 1/thermal diffusivity

ASSIGNMENT-1

Q1. What are the critical separation in human body, and what are the classifications of separation processes with examples.

Q2. Ammonia (A) diffuses through a stagnant layer of air (B), 10mm thick, at 298K, 101.325kPa total pressures. The partial pressure of ammonia on the two sides of the air layer are 91.1925kPa and 10.1325kPa respectively. Air is non-diffusing. Calculate (a) the molar flux of ammonia, (b) the velocities of the individual components with respect to a stationary observer, and (c) the molar and the mass average velocities of the components. The diffusivity of ammonia in air is 0.214 cm2/s.

Q3. A gas mixture containing the following 5% nitrogen, 15% hydrogen, 76% ammonia, and 4% argon flows through a pipe, 2.54cm in diameter, at 405 kPa total pressure. If the velocities of the respective components are 3, 3.5, 3 cm/s, and 2 cm/s, calculate the mass average, molar average and volume average velocities of the mixture.

Q4. How mass transfer occurs between two phases, show the concentration profile near the interface.

Q5. Define the mass transfer coefficient, local mass transfer coefficient and average mass transfer coefficient.

ASSIGNMENT-2

Q1. Drive the flux equation for equimolar counter diffusion for binary system in mass transfer operation.

Q2. CO_2 is diffusing through non-diffusing air under steady state conditions at a total pressure of 1 atmosphere and temperature of 300 K. the partial pressure of CO_2 is 20kPa and one point and 5kPa at other point. The distance between the points is 5cm. calculate the flux of CO_2. The diffusivity of CO_2-air at the above condition is 0.00002 m^2/s.

Q3. Explain the Roult's law and Henry's Law, its application in mass transfer operation.

Q4. Calculate the convective mass transfer coefficient in a wetted wall tower for the transfer of benzene in CO^2 at 0°C. The gas velocity through the column is 1.25 m/s. the diameter of the column is 0.16m. Assume that the benzene concentration in CO^2 is very low. The density, viscosity and diffusivity of benzene are 1.966 kg/m^3, $1.35x10^{-5}$ kg/m. sec and $5.28x10^{-6}$ m^2/sec respectively.

Q5. A test tube 15 mm in diameter and 120 mm long partially filled with a solution of alkaline pyrogallate. The depth of the empty space above the solution is 50 mm. the temperature is 298K and the total pressure is 102.325kPa, air may be assumed to contain 21% O_2 and 79% N_2. The diffusivity of oxygen in nitrogen at the given condition is 2.1 mm^2/sec. Calculate the rate of absorption of O_2 from air in the solution at steady state if air flows gently over the open end of the test tube. And also calculate the partial pressure gradient of O_2 midway in the diffusion path.

ASSIGNMENT-3

Q1. Define the following terms: Concentration, mass average velocity, molar average velocity, mass flux, molar flux.

Q2. Drive the flux equation of molecular diffusion in liquids for component A diffusing through non-diffusing B.

Q3. In a continuous stirred tank reactor the CO_2 gas(A) is sparged in an agitated suspension of catalyst particles, 1000μm in average diameter, in a water(B). The gas dissolves in the water and is transported to the surface of the catalyst particle where it undergoes an instantaneous reaction. In a particular case the concentration of A in the water is 1.0 kmol/m^3, the rate of reaction is $3.15*10^{-6}$ kmol/m^2.s based on the external surface area of the catalyst particles, and the diffusivity of A in the water is $7*10^{-10}$ m^2/s. If the diffusion of dissolved A to the catalyst surface occurs through a stagnant film surrounding a particle, calculate the thickness of the water film.

Q4. A 10 mm diameter spherical pellet of a strongly base oxide is held at the center of a closed vessel of 5 litre volume. Initially the vessel is evacuated and then filled with an equimolar mixture of hydrogen sulphite (H_2S) and nitrogen at 25°C and 1 atm total pressure. As the molecules of H_2S reach the surface of the pellet, they get absorbed instantaneously so that the concentration of H_2S at the surface remains zero at all time. Diffusion of H_2S occurs through a stagnant film of estimated thickness of 4 mm surrounding the pellet. The bulk of the gas may be assumed to have a uniform composition at any time. Calculate the time of absorption of 95% of H_2S gas. The temperature remains at 25°C and the diffusivity of H_2S in nitrogen is $1.73*10^{-5}$ m^2/s at this temperature and 1 atm pressure.

Q5. Drive the steady state molecular diffusion for uniformly tapered equilateral triangle.

ASSIGNMENT-4

Q1. Explain the concept of the equilibrium between phases with suitable examples.

Q2. Derive the correlation for the overall mass transfer coefficient in interphase mass transfer.

Q3. Calculate convective mass transfer coefficient in a wetted wall tower for the transfer of benzene in carbon dioxide at 0ºC. The gas velocity through the column is 1.25 m/s. The diameter of the column is 0.16m. Assume the benzene concentration in carbon dioxide is very low. The density and viscosity of the CO_2 are 1.966 kg/m^3 and $1.35x10^{-5}$ kg/m. sec respectively, and diffusivity is $5.28x10^{-6}$ m^2/sec.

Q4. The equilibrium distribution of a solute A between air and water at low concentration at particular temperature is y=1.2x. At a certain point in a mass transfer devices, the concentration of solute A in the bulk air is 0.08 mole fraction and that in the bulk aqueous phase is 0.05. In which direction does the transport of solute A occurs? Calculate the overall gas-phase and liquid-phase driving force for mass transfer. At the same point, the local individual mass transfer coefficient for the transport of A from gas to liquid are 7.2 and 4.6 respectively. Calculate the interfacial concentrations in both the gas phase and liquid phase. The overall mass transfer coefficient and the local mass flux.

Q5. The gas phase mass transfer coefficient foe the evaporation of a drop of ethyl alcohol in stream of air at 300K and 1.2 bar pressure is $2.4x10^{-6}$ kmol/s m^2 mmHg.

Calculate the values of the mass transfer coefficient if the driving force is expressed in terms of difference in (i) mole fraction of alcohol in the gas phase, (ii) mole ratio of alcohol, (iii) concentration of alcohol in kmol/m3. Also calculate the coefficient F_G. If the diffusivity of alcohol in air is 0.102 cm^2/s at 0°C, vapour pressure of alcohol is 0.0877 bar at 300 K.

ASSIGNMENT-5

Q1. What are the expression of mass transfer coefficient for diffusion of A through non diffusing B in gas and liquid phase with different driving forces?

Q2. What are the importance and applications of mass transfer and heat transfer analogies?

Q3. Determine the diffusivity of CO_2 (1), O_2 (2) and N_2 (3) in a gas mixture having the composition, CO_2:28.5%, O_2:15%, N_2:56.5%. The gas mixture is at 273 K and $1.2x10^5$ Pa. the binary diffusivity values are given at 273 K as: $D_{12}P$=1.874 m^2 Pa/sec, $D_{13}P$=1.945 m^2Pa/sec, $D_{23}P$=1.834 m^2Pa/sec.

Q4. What are the vacuum rotary dryer, explain its working principle with suitable diagram. .

Q5. It is necessary to dry a batch of 160 kg of a wet material from 30% to 5% moisture content, under constant rate and falling rate period. The falling rate is assumed to be linear. Calculate the total drying time considering an available drying surface of 1 m^2/40kg of dry solid. A constant dry flux of $3x10^{-4}$ kg/m^2 is given at critical moisture content 0.2 kg moisture/kg solid and equilibrium moisture contents 0.05.

ASSIGNMENT-6

Q1. Drive the flux equation for diffusion in uniformly tapered equilateral triangle geometry.

Q2. Calculate the mass flux of benzene through a layer of air 10 mm thickness at 25°C and 200 kN/m^2 total pressure, partial pressure of benzene is 6000 N/m^2, at the left side of the layer and 1 kN/m^2 at the right side. The mass diffusivity of benzene at the above temperature and pressure is 0.0000044 m^2/sec.

Q3. A wetted-wall column, width 20cm diameter, is used for absorbing a solute 'ammonia' from an Ammonia air mixture at 100 kPa. The solvent vapour pressure and the solubility of air in the solvent are negligible. The equilibrium data are plotted. At a certain column location, the steady state liquid and gas phase mole fraction of 'ammonia' are 0.02 and 0.07, respectively, and the liquid and gas side mass transfer coefficients are estimated to be 70 and 50 kmol/m^2h respectively. Calculate the following at this location. The equilibrium mole fraction: y_{Ai} and x_{Ai}, the mass transfer coefficients: k_G, K_y and K_x. and the molar absorption rate of 'ammonia' per unit column height.

Q4. A mixture of air and water-vapor has a dry bulb temperature of 60°C and an absolute humidity of 0.03 kg-water vapor/kg-dry air. The system pressure is at 1 atmosphere absolute. Find out the followings: 1. Saturation absolute humidity, 2. Relative humidity, 3. Dew point temperature, 4.humid volume, 5. Humid heat, 6. Enthalpy, 7. Heat required to heat 1.2 m^3 of this mixture to 120°C, 8. Adiabatic saturation temperature, 9.Wet bulb temperature.

Q5. Drive the correlation for time required for drying operation with diagram.

ASSIGNMENT-7

Q1. What is the activated carbon, write the preparation methods and its properties.

Q2. What are the criteria for the selection of adsorbents for the adsorption processes in mass transfer operation?

Q3. A packed tower is designed to recover 98% CO_2 from gas mixture containing 10% CO_2 and 90% air using water. The equilibrium relation is y=14x. The water to gas rate is kept 30% more than the minimum value. Calculate the height of tower if $(HTU)_{OG}$ is 1 m.

Q4. Drive the equation for design of packed tower based on the total mass transfer coefficient.

Q5. Calculate the convective mass transfer coefficient in a wetted wall tower for the transfer of benzene into CO_2 at 0°C. The gas velocity through the column is 1.25 m/s. the diameter of the column is 0.16m. Assume that benzene concentration in CO_2 is very low. The density and viscosity of CO_2 are 1.966 kg/m^3 and $1.35x10^{-5}$ kg/m. sec, diffusivity of benzene to CO_2 is 0.00000528 m^2/sec.

INDUSTRY VISIT: Rashtriya Chemical Fertilizer Limited Tomboy, Mumbai September 2017

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE507	Mass Transfer Operations - II	3	1	3	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	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%

Syllabus (Theory)

Unit–I

Distillation: Vapor liquid Equilibria, Boiling point diagram, Relative volatility, flash and differential distillation for two component mixture, steam distillation, azeotropic distillation, extractive distillation.

Continuous and differential contact distillation: Rectification, reflux ratio and its importance, Minimum reflux, total and optimum reflux ration, material balance and Q-line equation, open steam, multiple feed and multiple product calculations, Enthalpy concentration diagram, panchon-Savarit and McCabe Theile method for calculation of number of plates. Approximate equation; Fensky and underwood equation for minimum reflux and minimum number of plate calculation, Batch distillation.

Unit–II

Liquid–Liquid extraction : Liquid-Liquid equilibrium, packed and spray column, conjugate curve and tie line data, plait-point, ternary liquid-liquid extraction, co-current, counter current and parallel current system, Hunter-Nash graphical equilibrium stage method, selection of solvent for extraction.

Unit–III

Leaching: Solid-liquid equilibrium, Equipment, principles of leaching, co-current and counter current systems and calculation of number of stage required

Unit–IV

Crystallization: Supersaturation, methods to achieve supersaturation, Factors governing nucleation and crystal growth rates, controlled-growth of crystals, super saturation curve, principle and design of batch and continuous type crystallizers, Inverted soliability, fractional crystallization.

Syllabus (Practical)

1. LIQUID-LIQUID EXTRACTION IN A PACKED TOWER
2. YORK SCHEIBEL'S EXTRACTION UNIT
3. SOLID-LIQUID EXTRACTION (BONNOTTO TYPE)
4. SIEVE PLATE DISTILLATION COLUMN
5. SIMPLE BATCH DISTILLATION SETUP

6. ABSORPTION IN WETTED WALL COLUMN
7. VAPOUR IN AIR DIFFUSION APPARATUS
8. FLUIDIZED BED DRYER
9. BATCH CRYSTALLIZER
10. VAPOUR-LIQUID EQUILIBRIUM SET-UP
11. MASS TRANSFER WITH & WITHOUT CHEMICAL REACTION (SOLID-LIQUID)
12. ADSORPTION IN PACKED BED

Text Books:

1. Treybal, R.E., "Mass Transfer Operations," 3rd Ed. (International Edition), McGraw-Hill Book Company, Singapore, 1980.
2. McCabe, W. L., Smith, J. C., Harriott, P., "Unit Operations of Chemical Engineering," 7th Ed. (International Edition), McGraw-Hill Education (Asia), Singapore, 2005.

Reference Books:

1. Dutta, B. K., "Principles of Mass Transfer and Separation Processes", PHI Learning Pvt. Ltd. New Delhi, 2007.
2. Seader, J.D., Henley, E.J., "Separation Process Principles," 2nd Edition, Wiley India Pvt. Ltd., NewDelhi, 2006.
3. Foust, A. S., Wenzel, L. A., Clump, C. W., Anderson, L. B., "Principles of Unit Operations," 2nd Ed., John Wiley and Sons, New York, 1980.
4. Perry, R. H., Green, D. W., "Perry's Chemical Engineers' Hand Book," 7th Ed., McGraw-Hill, New York, 2001.
5. Smith, B.D., "Design of Equilibrium stage Processes", McGraw-Hill, NY
6. King, C.J. "Separation Processes", McGraw –Hill, NY.
7. Coulson, J.M. and Richardson, J.F., "Chemical Engineering", Vol. I and II, Asian Books Pvt., New Delhi.

Activity for Skill Development and Employability

Quiz: **Mass Transfer Operation Practical**

Objective type multiple choice questions (20 questions @ 1 mark)	
i.	Flash distillation operation is suitable for separating components which : *(a) boil at very close temperature (b) boils at widely different temperature* *(c) from minimum boiling azeotrope (d) from maximum boiling azeotrope*
ii.	Ethanol water azeotrope at 1atm occurs at (a) 89.4 mole% ethanol and 78.2°C (b) 89.4 mole% water at 78.2°C (c) 96.0 mole % ethanol and 78.2°C (d) 96.0 ethanol and 100°C
iii.	The slope of operating line for the stripping section of distillation column is (a) 0 (b) infinity (c) less than one (d) greater than one
iv.	Most distillation column are designed for reflex ratio between (a) 3 to 5 times R_{min} (b) 1.2 to 1.7 times R_{min} (c) 2 to 10 times R_{min} (d) .2 to .7 times R_{min}
v.	At minimum reflux ratio the operating cost of a distillation column is (a) Maximum (b) Optimum (c) Minimum (d)Infinite
vi.	Which of the following is more accurate to determine the no of theoretical stage required for the separation of non-ideal binary system by distillation (a) McCabe-Thiele method (b) Ponchon–savarit method

	(c) both McCabe and Ponchon –methods are equally good (d) all of above
vii.	For all useful liquid- liquid extraction operations the selectivity of the solvent must be (a) more than 1 (b) more than 0 (c) less than 1 (d) less than or equal to 1
viii.	Select the wrong statement. The selectivity of solvent for extraction operation (a) is analogous to relative volatility for distillation operation (b) must be greater than unity (c) is unity at the plait point (d)must be unity for maximum possible separation with minimum amount of solvent
ix.	A mixture of para and Ortho nitro benzoic acid can be separated by solvent extraction operation using (a) Chloroform as solvent (b) water as solvent (c) both Chloroform and water as solvent (d) None of the above
x.	Solvent B is used to extracts solute C for a given feed containing A and C. If solute C is more soluble in A than B, the distribution coefficient for C will be (a) >>1 (b) 1 (c) <1 (d) >1
xi.	At plait point for a ternary system (a) The selectivity of solvent will be unity (b) the distribution coefficient for solute will be unity (c) The density difference between two equilibrium phases becomes zero (d) all of the above
xii.	Increased temperature increases the rate of extraction in solid liquid system due to (a) Increase liquid viscosity and decrease diffusivity (b) Increase liquid viscosity and increases diffusivity (c) Decrease liquid viscosity and decrease diffusivity (d) Decreased liquid viscosity and increased diffusivity
xiii.	Peclet number for mass transfer is the product of Reynolds and …….. Numbers.
xiv.	Lewis number is the ratio of……number to Prandtl number.
xv.	Sherwood number in mass transfer is analogous to …….. Number heat transfer.
xvi.	The solubility of any gas is influenced by the temperature , in a manner which is described by …… law of mobile equilibrium.
xvii.	The total vapour pressure of an ideal solution varies …… with composition expressed as mole fraction.
xviii.	For a stripper the operating line is always ……. The equilibrium curve.
xix.	The q- line's slope is determined by ……. Of feed.
xx.	Clausius – clapeyron equation relates the slope of the vapour-pressure curve to the …… of vaporization.

Assignment-1: Distillation, Vapour liquid Equilibria, Boiling point diagram, Relative volatility

Assignment-2: Flash and differential distillation for two component mixture, steam distillation, azeotropic distillation, extractive distillation.
Assignment-3: Liquid–Liquid extraction, Liquid-Liquid equilibrium, packed and spray column, conjugate curve and tie line data.
Assignment-4: Hunter-Nash graphical equilibrium stage method, selection of solvent for extraction
Assignment-5: Crystallization. Supersaturation, methods to achieve supersaturation, Factors governing nucleation and crystal growth rates
Industrial Visit: JK Paper Songarh

End Term Examination (Regular/Backlog), November 2017
B. Tech/ M. Tech *(as applicable)* in Chemical Engineering, Semester Fifth
COURSE CODE: **CHE507** COURSE TITLE: **Mass Transfer Operations-II**

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
xxi.	Flash distillation operation is suitable for separating components which : *(a) boil at very close temperature (b) boils at widely different temperature* *(c) from minimum boiling azeotrope (d) from maximum boiling azeotrope*	
xxii.	Ethanol water azeotrope at 1atm occurs at (a) 89.4 mole% ethanol and 78.2°C (b) 89.4 mole% water at 78.2°C (c) 96.0 mole % ethanol and 78.2°C (d) 96.0 ethanol and 100°C	
xxiii.	The slope of operating line for the stripping section of distillation column is 0 (b) infinity (c) less than one (d) greater than one	
xxiv.	Most distillation column are designed for reflex ratio between (a) 3 to 5 times R_{min} (b) 1.2 to 1.7 times R_{min} (a) (c) 2 to 10 times R_{min} (d) .2 to .7 times R_{min}	
xxv.	At minimum reflux ratio the operating cost of a distillation column is (a) Maximum (b) Optimum (c) Minimum (d)Infinite	
xxvi.	Which of the following is more accurate to determine the no of theoretical stage required for the separation of non-ideal binary system by distillation (b) McCabe-Thiele method (b) Ponchon–savarit method (c) both McCabe and Ponchon –methods are equally good (d) all of above	

xvii.	For all useful liquid- liquid extraction operations the selectivity of the solvent must be (a) more than 1 (b) more than 0 (c) less than 1 (d) less than or equal to 1	
xviii.	Select the wrong statement. The selectivity of solvent for extraction operation (a) is analogous to relative volatility for distillation operation (b) must be greater than unity (c) is unity at the plait point (d)must be unity for maximum possible separation with minimum amount of solvent	
xxix.	A mixture of para and Ortho nitro benzoic acid can be separated by solvent extraction operation using (a) Chloroform as solvent (b) water as solvent (c) both Chloroform and water as solvent (d) None of the above	
xxx.	Solvent B is used to extracts solute C for a given feed containing A and C. If solute C is more soluble in A than B, the distribution coefficient for C will be (a) >>1 (b) 1 (c) <1 (d) >1	
Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
A.	Define the solubility and plot a curve with respect to temperature.	
B.	Write the importance and applications of dimensionless analogies.	
C.	Explain the Mie's supersaturation theory.	
D.	Write the five example for leaching operation.	
Q.3A	Write the mechanism of crystallization.	05
Q.3B	A mixture of 55 mole% benzene and 45 mole% toluene is to be separated in distillation column. The concentration of benzene in the distillate in 95 mole% of all benzene is in distillate. The feed is half vapour and reflux ration is 2:1. The relative volatility is 3.5. How many equilibrium stages are required in each section of column? What could be the minimum reflux ration for such operation?	05
Q.4A	Derive the correlation for Rayleigh distillation for binary mixture with suitable diagram.	05
Q.4B	A mixture of 40 mole% benzene and 60 mole% toluene is being flash-distilled at a rate of 10 kmol/h at 1 atm total pressure. The liquid product not contain more than 30 mole % benzene. Calculate the amounts and compositions of the top and bottom products. The relative volatility of benzene in the mixture is 2.5.	05
Q.5A	Derive the correlation for steam distillation for binary mixture.	05
Q.5B	A continuous fractionating column is to be designed to separates 14000 kg/h of a mixture of 40% benzene and 60% toluene at 1 atm into an overhead product containing 97% benzene and a bottom product containing 98% toluene. These percentage are by weight. The feed is available at 293K and 1 atm. A reflux ratio of three times the minimum used. Benzene and toluene from an ideal system with a relative volatility of 2.5. The molal latent heats benzene and toluene are 30800 and 33300 kJ/kmol respectively. The bubble point of feed at 1 atm is 368 K and its specific heat is 1.85 kJ/kg.K. Calculate the quantities of overhead and bottoms in kmol/h and minimum reflux ratio.	05
Q.6A	Define the distribution coefficient and classification of ternary system for liquid-liquid extraction.	05

<table>
<tr><td>Q.6B1</td><td>Nicotine in water solution containing 1 % nicotine is to be extracted with kerosene at 293K. Water and kerosene are essentially insoluble. 100 kg of a feed solution is to be treated with kerosene in three stage cross current extraction system using equal quantity of solvent each time. If nicotine removed is 66.3% of that in feed, determine the quantity of solvent used for each stage. The equilibrium data are as follows
<table>
<tr><td>Kg nicotine/ kg water</td><td>0.00101</td><td>0.00246</td><td>0.00502</td><td>0.00751</td><td>0.00998</td><td>0</td></tr>
<tr><td>Kg nicotine/kg kerosene</td><td>0.00807</td><td>0.00196</td><td>0.00456</td><td>0.00686</td><td>0.00913</td><td>0</td></tr>
</table></td><td>05</td></tr>
<tr><td colspan="3">OR</td></tr>
<tr><td>Q.6B2</td><td>Write the correlation for enthalpy balances of crystallizer with suitable diagram</td><td>05</td></tr>
<tr><td>Q.7A</td><td>A crystallizer is charged with 7500 kg an aqueous solution at 377K, 29.6% by weight of which is anhydrous sodium sulphite. The solution is cooled. During cooling operation, 5% of the initial water is lost by evaporation. As a result, crystals of Na2SO410H2O crystalline out. If the mother liquor is found to contain 18.3% by weight anhydrous Na2SO4, calculate the yield of the crystals and the quantity of the mother liquor.</td><td>05</td></tr>
<tr><td>Q.7B1</td><td>Write the working principle of the Oslo/Krystal cooling Crystallizer with suitable diagram.</td><td>05</td></tr>
<tr><td colspan="3">OR</td></tr>
<tr><td>Q.7B2</td><td>A hot solution containing 2000 kg of MgSO4 and water at 330K and with a concentration of 30 weight % MgSO4 is cooled to 293K and MgSO47H2O crystals are removed. The solubility at 293K is 35.6kg MgSO4/100 kg water. Calculate the yield of crystals. Assume that no water is vaporized.</td><td>05</td></tr>
<tr><td>Q.8A</td><td>Derive the correlation for determination of the number of Trays-The Ponchon-Savarit Method, with suitable diagram.</td><td>10</td></tr>
<tr><td>Q.9A</td><td>Derive the correlation for determination of the number of stages for continuous multistage crosscurrent extraction with partially miscible solvent</td><td>10</td></tr>
<tr><td>Q.9B1</td><td>A Swenson-Walker crystallizer is used to produce hydrated crystals of Na2SO4 by cooling the solution from 300K to 290K with the help of cooling water which enters at 280K and leaves at 290K. Assuming evaporation to be negligible, determine number of section of crystallizer, each 3 m long, required to process 0.25 kg/s of the product. The solubility of Na2SO4 at 300K & 290K are 40kg/100kg water & 14 kg/100kr water respectively. Mean heat capacity of liquor is 3.8 kJ/kg.K, heat of crystallization is 230 kJ/kg. Overall heat transfer coefficients 0.15 kW/m2.K. The available area for heat transfer in crystallizer is 3 m2 per 1 meter length of crystallizer.</td><td>10</td></tr>
<tr><td colspan="3">OR</td></tr>
<tr><td>Q.9B2</td><td>Derive the correlation for determination of the number of stages for multistage countercurrent leaching with suitable diagram.</td><td>10</td></tr>
</table>

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE508	Process Instrumentation and Control	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	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%

Syllabus (Theory)

- Introduction to instrumentation and process control. Measuring instruments for: Temperature, pressure, level, flow, composition, pH.
- Dynamic behavior of first, second and higher order physical systems. Interacting and non-interacting processes. Linearization of non-linear systems. Controller hardware, transducers, sensors, transmitters and control valves.
- Basic concepts of feedback control: Control loop and its elements; servo and regulatory problems; P, PI, PID controllers.
- Stability of control loop using Routh's test. Introduction to root locus method. Frequency response analysis: Bode stability criteria and Nyquist plot.
- Introduction to advanced control systems: feed forward, cascade, ratio control. Design of single loop feedback control systems and tuning of feedback controllers. Cohen-Coon method, 1/4th decay ratio method, direct synthesis methods, gain and phase margins, Ziegler-Nichols method. Control schemes with applications to distillation systems, chemical reactors, heat exchangers, boilers etc. State space representation of physical system. Transfer function matrix and multivariable control.
- Instrumentation symbols introduction to process flow diagram (PFD) and piping & instrumentation diagram (P&ID)

Syllabus (Practical)

1. PRESSURE CONTROL TRAINER
2. LEVEL CONTROL TRAINER
3. TEMPERATURE CONTROL TRAINER
4. FLOW CONTROL TRAINER
5. CONTROL VALVE CHARACTERISTICS (Linear, Equal Percent & Quick Opening)
6. CHARACTERISTICS OF PID CONTROLLER
7. STUDY OF I/P AND P/I WITH MINI COMPRESSOR
8. CASCADE CONTROL TRAINER: LEVEL + FLOW (SCADA) WITH MINI COMPRESSOR AND SCADA SOFTWARE

9. MULTIPROCESS TRAINER: LEVEL, FLOW, CASCADE, RATIO &FEEDFORWARD (SCADA)
10. FIRST-ORDER AND SECOND-ORDER SYSTEM
11. PLC TRAINER
12. FLAPPER - NOZZLE SYSTEMWITH MINI COMPRESSOR
13. MULTI VARIABLE CONTROL TRAINER
14. INTERACTING & NON - INTERACTING SYSTEM
15. DCS TRAINER (HYBRID CONTROLLER)

Text Book:

- Coughanowr, D.R., Process Systems Analysis and Control, 2nd Ed., McGraw-Hill, 1991.
- George Stephanopoulos, Chemical Process Control: An Introduction to Theory and Practice, Prentice Hall, 1984.

Reference Books:

- Seborg, D. E., Edgar, T. F. and Mellichamp, D.A., "Process Dynamics and Control", 2nd Ed., John Wiley and Sons, 2004
- Ogunnaike, B.A., Ray, W.H., "Process Dynamics, Modelling and Control", Oxford University Press,1994
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Activity for Skill Development and Employability

QUIZ-1

Q1. Bode diagram is a graphical representation of

(a) logarithm of A.R. versus logarithm of frequency and phase angle versus logarithm of frequency

(b) A.R. versus logarithm of frequency and phase angle versus logarithm of frequency

(c) Logarithm of A.R. versus frequency and phase angle versus frequency

(d) A.R. versus frequency and phase angle versus frequency

Q2. Amplitude ratio and phase angle for sinusoidal response of a proportional integral control with a transfer function $k_c\left(1+\frac{1}{\tau s}\right)$ respectively are

(a) $k_c\sqrt{1+\frac{1}{(\tau\omega)^2}}\ and\ tan^{-1}(-\tau\omega)$ (b) $k_c\sqrt{1+\frac{1}{\tau\omega}}\ and\ tan^{-1}(-\tau\omega)$

(c) $k_c\sqrt{1+\frac{1}{(\tau\omega)^2}}\ and\ tan^{-1}(-\frac{1}{\tau\omega})$ (d) none of these

Q3. The response of a first order system [$G(s) = \frac{1}{\tau s+1}$] to an unit step change in input is given by

(a) $\frac{1}{\tau}\left(1 - e^{-1/\tau}\right)$ (b) $1 - e^{-t/\tau}$

(c) $\frac{e^{-t/\tau}}{\tau}$ (d) $1 + e^{-t/\tau}$

Q4. With a damping coefficient more than 1, the second order will be

(a) Under damped (b) oscillatory

(c) Overdamped (d) critically damped

Q5. A system has a transfer function $\frac{Y(s)}{X(s)} = \frac{10}{(s^2+1.6s+4)}$

A step input of 4 units' magnitude is introduced in this system. The percent overshoot is

(a) 20 (b) 30 (c) 25 (d) 35

QUIZ-2

Q1. Phase angle (φ) for the sinusoidal response of a controller with a transfer function k_c is

(a) 0° (b) -45° (c) -30° (d) -90°

Q2. Time constant of mercury in glass thermometer is

(a) $\frac{mc}{hA}$ (b) $\frac{hA}{mc}$ (c) $mchA$ (d) $\frac{1}{mchA}$

Q3. A certain thermocouple has a specific time constant of 2 sec. if process temperature changes abruptly from 800 to 900°C, then temperature reading in an indicator attached to the thermocouple after 6s will be approximately

(a) 660°C (b) 900°C (c) 890°C (d) 895°C

Q4. Transfer function of proportional plus derivative (PD) control is:

(a) $\frac{P(s)}{\epsilon(s)} = K_C + \tau_D s$ (b) $\frac{P(s)}{\epsilon(s)} = K_C(1 + \tau_D s)$

(c) $\frac{P(s)}{\epsilon(s)} = \frac{K_C}{\tau_D s+1}$ (d) $\frac{P(s)}{\epsilon(s)} = \frac{1}{K_C(\tau_D s+1)}$ Where K_c is gain and τ_D is derivative time

Q5. If tanks are connected non-interacting, transfer function relating inlet flow to outlet flow is

(a) $\frac{Q_2(s)}{Q(s)} = \frac{1}{\tau s+1}$ (b) $\frac{Q_2(s)}{Q(s)} = \tau s + 1$

(c) $\frac{Q_2(s)}{Q(s)} = (\frac{1}{\tau s+1})^2$ (d) $\frac{Q_2(s)}{Q(s)} = \frac{2}{\tau s+1}$

ASSIGNMENT-1

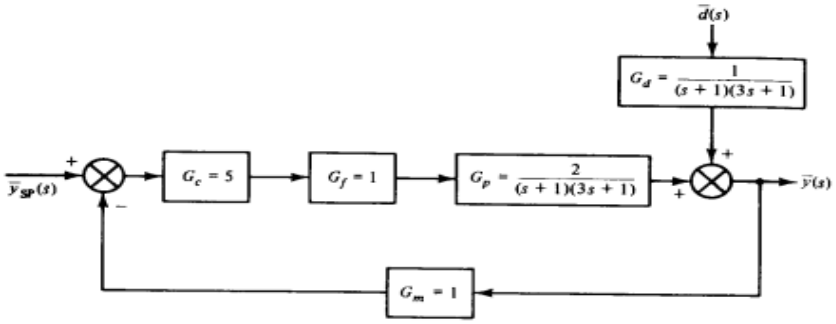
Q1. The process reaction curve of a temperature control system gave the values $K = 10$; $\tau = 2$ min ; $t_d = 0.1$ min. Compute the settings of a PID controller using Cohen-Coon tuning methodology.

Q2. Consider an isothermal batch reactor, where the following reactions with first order kinetics take place: $A \rightarrow B \rightarrow C$. Show that the concentration C_A of reactant A in the reacting mixture exhibits first order dynamic behavior with respect to the initial concentration, C_A ($t = 0$). Identify the time constant.

Q3. Write methods used to identify the tuning parameters of the feedback control system.

Q4. When frequency response analysis is used? Derive Amplitude ratio and phase angle of second order system using frequency response analysis.

Q5. Consider the closed loop block diagram of the feedback system as shown in figure given below. For a set point step change of magnitude 2, do the following: Derive an expression for the closed loop response in Laplace domain ; Compute overshoot, decay ratio, ultimate value, offset and period of oscillation

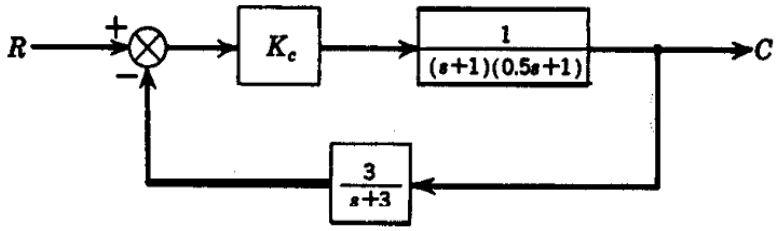


ASSIGNMENT-2

Q1. Draw a neat block diagram of Feedback control system

Q2. What is a first order system, and how do you derive the transfer functions of a liquid level tank.

Q3. Write the characteristic equation and construct the Routh array for the control system as shown in figure given below. Is the system stable for (a) $k_c = 9.5$ and (b) $k_c = 11$?



Q4. Determine the tuning parameter of PID controller using Zeigler-Nicholas tuning method by considering the process $G_p = \frac{e^{-1.02s}}{s+1}$; $G_m = G_f = 1$; $\omega_{co} = 2\ rad/min$

Q5. Using the Bode stability criterion, find that the control system with the following open loop transfer functions are stable or unstable: $G_c = \frac{10e^{-3s}}{4s+1}$

ASSIGNMENT-3

Q1. Consider two non-interacting tanks are connected in series. The time constants are $\tau_2 = 1\ and\ \tau_1 = 0.5$; $R_2 = 1$. find the response of the level in tank 2 if a unit step change is made in the inlet flow rate to tank 1.

Q2. Write short note on P controller, PI controller and PID controller.

Q3. A control system has the transfer function $G_c = \frac{10(0.5s+1)}{s}$ (PI controller);$G_p = \frac{1}{2s+1}$; $G_m = G_f = 1$. Find the characteristic equation and its roots, and determine whether the system is stable.

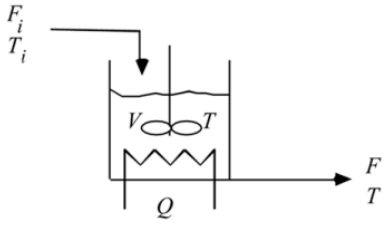
Q4. Explain the root locus technique of stability analysis considering the following control system: $G_p = \frac{1}{(s+1)(2s+1)}$; $G_c = k_c$; $G_m = G_f = 1$

Q5. For a given open loop transfer function $G_{OL} = \frac{0.8\, k_c e^{-1.74s}}{(5s+1)(10s+1)(15s+1)}$. Tune P-only controller when gain margin is 1.7

ASSIGNMENT-4

Q1. Develop a closed loop block diagram of a liquid level system. Consider P controller is apply on the system and assume first order dynamics of a control valve.

Q2. Consider a perfectly mixed stirred-tank heater, with a single feed stream and a single product stream, as shown in figure. Assuming that the flow rate and temperature of the inlet stream can vary, the tank is perfectly insulated, and the rate of heat added per unit time (Q) can vary.



(a) Develop a model to find the tank liquid temperature as a function of time.

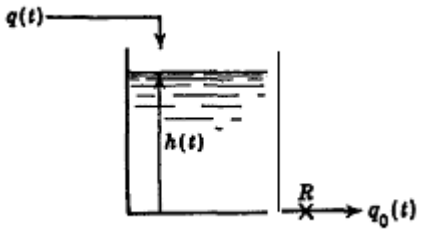
(b) Derive the transfer function of a stirred tank heater.

Consider a heater with a constant liquid volume of V= 50 liters and a constant volumetric flow rate of F = 10 liters/minute. For liquid water, the other parameters are ρC_P= 1 kcal/liter °C. Calculate the process gain and time constant.

Q3. What are bode diagrams? Construct bode plot for first order system by taking all asymptotic considerations.

Q4. Construct and explain Nyquist Plot for first order system.

Q5. Explain this function



INDUSTRY VISIT: Rashtriya Chemical Fertilizer Limited Tomboy, Mumbai September 2017

Course code	Course Title	Teaching Scheme			
		L	T	P	Credits
CHE703	Industrial Pollution Abatement	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

Syllabus (Theory):

Introduction: Industrial pollution, Different types of wastes generated in an industry, Different water pollutants, Air pollutants and solid wastes from industry, Their effects on living and non-living things, Environmental regulatory legislations and standards, Importance of industrial pollution abatement, Concept of sustainable development, Greenhouse gases, Global warming and climate change.

Water Pollution: Identification, quantification and analysis of wastewater, Classification of different treatment methods into physico-chemical and biochemical techniques, Physico-chemical methods, General concept of primary treatment, Liquid-solid separation, Design of a settling tank, Neutralization and flocculation, Biological methods, Concept of aerobic digestion, Design of activated sludge process, Concept of anaerobic digestion, Biogas plant layout, Different unit operations and unit processes involved in conversion of highly polluted water to potable standards.

Air Pollution: Classification of air pollutants, Nature and characteristics of gaseous and particulate pollutants, Analysis of different air pollutants, Description of stack monitoring kit and high volume sampler, Atmospheric dispersion of air pollutants, Gaussian model for prediction of concentration of pollutant down wind direction, Concept of temperature inversion, Plume and its behavior, Concept of effective stack height, Operating principles and simple design calculations of particulate control devices like gravity settling chamber, cyclone, bag filters, electrostatic precipitators and scrubbers, Brief concepts of control of gaseous emissions by absorption, adsorption, chemical transformation and combustion.

Solid Wastes: Analysis and quantification of hazardous and nonhazardous wastes, Treatment and disposal of solid wastes, Land filling, Leach ate Treatment, Incineration.

Environmental Management System: Environment impact assessment, its concept and constituents, Environmental audit, ISO-14000 system.

Syllabus (Practical)

Characterization of waste water (pH, BOD, COD, Nitrate, Phosphate, Solids, Turbidity, Alkalinity, Hardness, Dissolved oxygen and fluoride), Ambient air quality measurement by high volume sampler (Particulate, SOX, NOX), Gas analysis with Orsat apparatus, Determination of sludge volume index.

Text Books:

1. Peavy, H.S., Rowe, D.R., and Tchobanoglous, G. Environmental Engineering, McGraw Hill International (1985).
2. Metcalf & Eddy, Wastewater Engineering, Tata McGraw-Hill Education Private Limited (2009).

Reference Books:

1. Masters, G.M., Introduction to Environmental Engineering and Science, Prentice hall off India, (2008).
2. De Nevers, N., Air Pollution Control Engineering, McGraw-Hill (2000).
3. Rao, C.S., Environmental Pollution Control Engineering, Wiley Eastern (2010).

Activity for Skill Development and Employability

Quiz:

Q1: Define biodegradable organics. Give examples, discuss sources, and assess the impact of biodegradable organics in water.

Q2. The 5-day BOD of waste water is 190 mg/l. determine the ultimate oxygen demand. Assume k_1=0.25day^{-1}.

Q3. Cooling tower blowdown from a power plant is discharge to surface stream. The characteristics of stream and cooling water are: flow rate: 10 m^3/s & 40 m^3/min, Temperature: 15°C & 28°C, TDS: 125 mg/l & 2520 mg/l, chromate: 0.1 mg/l & 0.9 mg/l respectively. Determine the stream characteristics of the stream after mixing.

Q4: Describe an air-in water system commonly used in water purification plants.

Q5: Why is aeration used in water-treatment plants? Is it more commonly used with ground water or surface water? Why?

ASSIGNMENT-1

Q1. What are the water pollution?

Q2. What are the source of water pollution, explain it in details and define the point source and diffused sources of water pollutions.

Q3. What are the effects of water pollution (under the following head Physical effects, oxidation effects, toxic chemical effects, chemical nutrient effects, Micro-organism effects, radionuclide effects).

Q4. What are the methods used to control of water pollution. Also write the suggested remedial measures for the control of water pollution.

Q5. What are the classification of water pollutants (in the categories of Organic, inorganic, radioactive and suspended solids sediments pollutants)?

ASSIGNMENT-2

Q1. What are the organic pollutants explain it in the following categories like natural organic pollutants, sewage and industrial effluents, synthetic organic contaminants, microbiological pollutants and oil.

Q2. What are the waterborne disease causing by Bacteria, Viruses Protozoa, Helminths and Algae explain it in details.

Q3. Write the composition or characteristics of industrial waste water.

Q4. What are the methods for decomposition of waste water? Explain the aerobic and anaerobic decomposition.

Q5. What are the objectives of waste water analysis?

Q6. What are the characterization methods of waste water? Write the significance of the physical, chemical and biological characteristics of waste water.

Industrial Visit: JK Tyre Kankroli

Industry Visit: Treatment Plant, Delawas Jaipur