

**SRI SIDDHARTHA INSTITUTE OF TECHNOLOGY  
TUMKUR  
DEPARTMENT  
OF  
INDUSTRIAL ENGINEERING & MANAGEMENT  
VII SEM**

| SL                        | CODE    | NAME OF THE SUBJECT         | L         | T         | P        | S        | C         |
|---------------------------|---------|-----------------------------|-----------|-----------|----------|----------|-----------|
| 1                         | IM7T01  | OPERATIONS RESEARCH         | 3         | 2         | 0        | 0        | 4         |
| 2                         | IM7T02  | ENTERPRISE RESOURCE         | 4         | 0         | 0        | 0        | 4         |
| 3                         | IM7T03  | QUALITY ASSURANCE &         | 3         | 2         | 0        | 0        | 4         |
| 4                         | IM7PE41 | PROFESSIONAL ELECTIVE - II  | 3         | 0         | 0        | 0        | 3         |
| 5                         | IM7PE51 | PROFESSIONAL ELECTIVE - III | 3         | 0         | 0        | 0        | 3         |
| 6                         | IM7L01  | QUALITY ENGINEERING LAB     | 0         | 0         | 3        | 0        | 1.5       |
| 7                         | IM7L02  | ENTERPRISE SOLUTIONS LAB    | 0         | 0         | 3        | 0        | 1.5       |
| 8                         | IM7PW0  | PROJECT WORK ( PHASE - I)   | 0         | 8         | 0        | 1        | 4         |
| <b>TOTAL contact hour</b> |         |                             | <b>16</b> | <b>12</b> | <b>6</b> | <b>1</b> | <b>25</b> |

**PROFESSIONAL ELECTIVE - II**

1. IM7PE411 ESSENTIALS OF INFORMATION TECHNOLOGY
2. IM7PE412 SOFTWARE ENGG. & MANAGEMENT
3. IM7PE413 MIS & E-COMMERCE
4. IM7PE414 DECISION SUPPORT SYSTEM
5. IM7PE415 SIX SIGMA METHODOLOGY

**PROFESSIONAL ELECTIVE - III**

1. IM7PE511 KNOWLEDGE MANAGEMENT
2. IM7PE512 ARTIFICIAL INTELLIGENCE SYSTEMS
3. IM7PE513 MARKETING MANAGEMENT
4. IM7PE514 HUMAN RESOURCE MANAGEMENT
5. IM7PE515 CONCURRENT ENGINEERING

## OPERATIONS RESEARCH

**Course Code: IM7T01**

**L-T-P-S-C**  
**3-2-0-0-4**

### Course Objectives

1. To equip the students with the knowledge based on OR models for problem solving and decision making situations in organizations.
2. To develop mathematical model for interactive decision making situations, where competitors are involved under conditions of conflict.
3. Construct the required activities in an efficient manner so as to complete it on or before a specified time limit and at minimum cost.
4. To draw Network diagram for the Projects and to find the cost and time

### UNIT I

**07 Hrs**

**Introduction:** Definition of OR, Historical development, Phases of OR study, Models of OR, Features and Limitation of OR.

**Linear programming:** Definition, mathematical formulation, standard form, Solution space, Types of solution feasible, basic feasible, optimal, infeasible, multiple, Redundancy, Degeneracy, Graphical method.

### UNIT II

**10 Hrs**

**Simplex Method:** Variants of simplex algorithm Artificial basis techniques, Big-M method Duality-Economic interpretation of dual, Solution of LPP using duality concept, Dual simplex method.

### UNIT III

**07 Hrs**

**Transportation problem:** Formulation of transportation model, Basic feasible solution using different methods (North-West corner, Least Cost, Vogel's Approximation Method) Optimality Methods. Unbalanced transportation problem, Degeneracy in transportation problems, Variants in Transportation Problems, Applications of Transportation problems.

### UNIT IV

**07 Hrs**

**Assignment problem:** Formulation of the Assignment problem, unbalanced assignment problem, Traveling salesman problem

**Game theory:** Formulations of games, Strategies, Two-person-zero sum game, games with and without saddle point, Dominance property, Graphical solutions ( $2 \times n$ ,  $m \times 2$  games).

### UNIT V

**8 Hrs**

**Project management using network analysis:** Network construction, Rules for drawing network, common errors, Determination of critical path and duration, Floats

**PERT-** Estimation of probability of project duration, variance, Crashing of networks, optimum and least cost scheduling.

### **Course Outcomes**

- CO1. Identify and develop operational research models from the verbal description of the real system.
- CO2. Understand the mathematical tools that are needed to solve optimization problems.
- CO3. Use mathematical software to solve the proposed models.
- CO4. Develop a report that describes the model and the solving technique, analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.

### **Text Books**

- 1. Introduction to Operation Research - Taha HA, Prentice Hall of India, 6<sup>th</sup> edition, 1999
- 2. Operations Research Kanthi Swarup & others, Sultan chand and Sons. 1992

### **Reference Books**

- 1. Introduction to Operation Research- Hiller and Libermann, McGraw Hill 5<sup>th</sup> edn.
- 2. Operations Research, S.D. Sharma, Kedarnath, Ramnath &Co, 1996
- 3. Operations Research Theory and Application- J K Sharma, Pearson Education Pvt Ltd ,2<sup>nd</sup> Edn, ISBN-0333-92394-4
- 4. Principles of Operations Research- Philips, Ravindram and Soleberg Theory and Practice, PHI, 2<sup>nd</sup> Edition, 2007

## ENTERPRISE RESOURCE PLANNING

**Course Code: IM7T02**

**LT PSC  
4-0-0-4**

### Course Objectives

1. To understand the basics of ERP
2. To know ERP implementation process\
3. To understand the different modules of ERP\
4. To implement ERP market Place

### UNIT I

**10 Hrs**

**Introduction to ERP:** Introduction, advantages of ERP. **Enterprise An Overview:** Introduction, Integrated Management Information, Business modeling, Integrated Data Model. Benefits of ERP. **ERP Related Technologies:** Business Process Reengineering, Data Warehousing, Data Mining, On-line Analytical Processing, Supply Chain Management.

### UNIT II

**12 Hrs**

**ERP Implementation, introduction, evolution of ERP, ERP Implementation Life Cycle:** introduction, different phases of ERP implementation, **ERP Implementation, Implementation methodology,** ERP implementation - hidden costs, organizing the implementation, vendors, consultants and users, project management and monitoring.

### UNIT III

**12 Hrs**

**ERP Modules:** Introduction, Finance module, financial accounting, controlling, investment management, treasury module, business planning and budgeting. Manufacturing module, introduction and subsystems of manufacturing module, introduction and subsystems of human resource module. introduction and subsystems of materials management, introduction and subsystems of sales and distribution module.

### UNIT IV

**09 Hrs**

**ERP market place:** Market share, vendors, SAPAG, company profile, product and technology, R/3 an overview, R/3 system, R/3 application module, R/3 module SAP application, People soft company profile, business management solution, commercial solution, industry solutions, people tool, people soft implementation tool kit, BAAN company profile, BAAN ERP module, BAAN ERP tools, introductions to GD Edwards.

## UNIT 5

9 Hrs

**ERP - Present and Future** : Limitations of ERP systems, Extend the power of ERP systems, ERP and E-commerce, E-commerce work flows, future directions in ERP - new modules and web enabling.

### Course Outcomes

- CO1. Students will be able to describe and explain fundamentals of ERP.
- CO2. Students will be able to aware of ERP practices in the industry.
- CO3. Understand the concepts of different ERP modules
- CO4. Able to apply ERP modules in E-commerce.

### Text Books

1. Enterprise Resource Planning - Alexis Leon, Tata Mc Graw Hill Publishing Company Ltd -1999.
2. Enterprise Resource Planning - Concept and Practice, VinodKumar Garg and Venkita krishnan N. K.- Prentice Hall, - 2<sup>nd</sup> Edition, New Delhi, India, 2004.

### Reference Book

1. Enterprise Resource Planning, Michel Hammer, Adision Wesley, New Delhi, 2000.

## QUALITY ASSURANCE & RELIABILITY

Course Code: IM7T03

L-T-P-S-C  
3-2-0-0-4

### Course Objectives

1. To develop the analytical understanding of tools used in the quality engineering process
2. To expose students to the quality tools and techniques used in the process monitoring
3. To understand the design of sampling plan for acceptance sampling
4. To apply the Reliability and life testing concepts

## UNIT I

08 Hrs

**Introduction**: Definition of quality, Quality function, Dimension of Quality, Quality engineering terminology, Brief history of quality methodology, Statistical method for quality improvement, quality costs four categories costs and hidden costs. Brief discussion on sporadic and chronic quality problems.

**Quality Assurance:** Definition and concept of quality assurance, Quality audit concept, Audit approach. Ingredients of quality programs.

## **UNIT II**

**7 Hrs**

**Statistical Process Control:** Introduction to statistical control. Statistical process control . Chance and assignable causes of variation. Basic principle of control charts, choice of control limits, sample size and sampling frequency, rational subgroups. Analysis of patterns of control charts.

**Process Capability:** Basic definition, standardized formula, and 6- $\sigma$  concept of process capability.

## **UNIT III**

**8 Hrs**

**Control Charts for Variables:** Control charts for  $\bar{X}$ -R. chart statistical basis of the charts development and use of X-R. Chart, interpretation of charts.

## **UNIT IV**

**8 Hrs**

**Control Charts For Attributes:** Control chart for fraction non conforming (defectives) development and operation of control chart, brief discussion on variable sample size, Control chart for non-conformities (defects)- development and operation of control chart for constant sample size and variable sample size.

## **UNIT V**

**8 Hrs**

**Inspection and Test-Sampling Plans:** Inspection planning - concept of accepting sampling, economics of inspection. Operating characteristic curves - construction and use. Acceptance plans - single, double sampling, Determination of average outgoing quality, average outgoing quality level, average total inspection, production risk and consumer risk.

### **Reliability and life testing:**

Introduction, Failures of engineering systems, Causes of failures, Reliability characteristics, Common failure rate curves, Simple cases of exponential failures in series and parallel devices.

## **Course Outcomes**

- CO1. Students will understand definition of quality and terminologies
- CO2. Students will appreciate the use of statistical concepts in process control
- CO3. Demonstrate ability to collect data, analyse and interpret the status of process
- CO 4. Apply the concepts of Reliability and life testing in real life situations

### Text Books

1. D.C. Montgomery, "Introduction to statistical Quality control", 3<sup>rd</sup> Edition, John Wiley and sons.
2. J.M. Juran and Frank M.Gryna, "Quality Planning and Analysis", 3<sup>rd</sup> Edition, TATA McGraw-Hill.

### Reference Books:

1. Grant and Leavenworth, "Statistical Quality Control", McGraw-Hill.
2. Janet L. Novak and Kathleen C. Bosheers, "the QS9000 documentation Toolkit" Prentice Hall PTR.
3. Suresh Dalela and Saurabh, "ISO 9000 A Manual for total Quality Management", S. Chand and company Ltd, Ram Nagar, New Delhi.

## ESSENTIALS OF INFORMATION TECHNOLOGY

**Course Code: IM7PE411**

**LT PSC  
3-0-0-3**

### Course Objectives

1. To expose students to the Operating System Concepts and software testing.
2. To expose students to the Programming Basics and Structured Programming.
3. To expose students to project handling and basic of DBMS.
4. To draw the structured programming

### UNIT I

**8 Hrs**

**Operating System Concepts:** Introduction, Memory Management, Process Management, Inter process Communication, Deadlocks, File Management, Device Management.

**Software Testing:** Evolving role of Software Testing, Characteristics, Component and application, SDLC, Software testing objectives, principles, testability.

### UNIT II

**8 Hrs**

**Problem Solving Techniques:** Introduction, Techniques, Computational problem and its classification, Logic and its types, Introduction to Algorithms, Implementation of Algorithms using flowchart, flowchart implementation through RAPTOR tool, Searching and sorting Algorithms.

### UNIT III

**8 Hrs**

**Programming Basics:** Introduction to Programming Paradigms and Pseudo

Code Basic programming concepts, Program Life Cycle, Control Structures, Introduction and demonstration of 1-D array and 2-D array, Searching and sorting techniques, Demonstration concepts of memory references in arrays, Strings.

**Structured Programming:** Functions, structures, file handling, introduction to Software development cycle, Industry coding standards and best practices, Testing and Debugging, code review.

#### **UNIT IV**

**7 Hrs**

**Project:** Project specification, Preparation of high level design and detailed design document, UNIT test plan and integrated test plan, Coding and UNIT testing activities, Integration testing, Project evaluation

#### **UNIT V**

**8 Hrs**

**RDBMS:** Data processing, database technology, data models, ER MODELLING CONCEPTS, Notations, Extended ER features, LOGICAL DATABASE DESIGN, Normalization SQL, DDL statements, DML statements, DCL statements, Joins, Sub queries, views & Database design issues.

#### **Course Outcomes**

- CO1. Identify and define the requirements that must be satisfied to address user needs.
- CO2. Analyze user requirements to design IT-based solutions
- CO3. Identify and evaluate current technologies and assess their applicability to address individual and organizational needs
- CO4. Use current computing techniques, skills, and/or technologies.

#### **Text Books**

1. Andrew S Tanenbaum, 'Structured Computer Organisation', PHI 4<sup>th</sup> edition, 1999
2. John L Hennessy, David Goldberg, David a Patterson, 'Computer Architecture-

#### **Reference Books**



1. Silberschatz and Galvin, 'Operating System Concepts', John Wiley & sons, 6<sup>th</sup> Edition.
2. Andrew Tanenbaum, 'Modern Operating Systems', Pearson education.
3. Milan Milenkovic, 'Operating Systems-concepts and design', McGraw Hill.
4. Charles Crowley, 'Operating Systems-A Design oriented approach. A Quantitative Approach, 2<sup>nd</sup> edition, Morgan Kaufman publishers, 1996

## SOFTWARE ENGG. & MANAGEMENT

**Course Code: IM7PE412**

**LT PSC  
3-0-0-0-3**

### Course Objectives

1. Learn the vocabulary of the major concepts of software engineering.
2. Understand the tasks that have to be done in order to accomplish a software development project with an understanding of unique elements of managing software programs
3. To write a Software Development Plan.
4. To apply the concepts of software testing in real life situations

### UNIT I

**09 Hrs**

**Product and the process:** The product-Evolving role of software, characteristics, component and applications. The process- software process, models-linear, sequential, Prototype, RAD, process technology, software development lifecycle

**Software project management concepts:** The management specification, people, problem, process.

### UNIT II

**8 Hrs**

**Software project planning:** Objectives, scope, resource, project estimation, decomposition techniques, empirical estimation models. make-buy decision, automated estimation tools.

**Risk management:** Reactive v/s proactive risk strategies, software risks. Risk identification, risk projection, monitoring.

### UNIT III

**8 Hrs**

**Software project scheduling and tracking:** Basic concepts, defining a task set selection, defining scheduling, project plan.

**Software quality assurance:** Quality assurance concept, cost impact of software defects, technical review, statistical quality assurance, software reliability, ISO 9000 quality standards.

### UNIT IV

**7 Hrs**

**System analysis concept and principles:** Requirement analysis, principles, software prototyping, specifications, data modeling functional modeling and information flow, structural analysis, data dictionary.

## UNIT V

7 Hrs

**Software testing:** Objectives, principles, testability.

**Object oriented concepts and principles:** Object oriented concepts, identifying the elements of an object model, examples.

### Course Outcomes

- CO1 Students will demonstrate knowledge of the distinction between critical and non-critical systems.
- CO2 Students will demonstrate the ability to manage a project including planning, scheduling and risk assessment/management.
- CO3. Students will demonstrate an understanding of the proper contents of a software requirements document.
- CO4. Apply the concepts of software testing in real life situations

### Text Book

1. Software Engineering Pressman, computer science series TATA McGraw-Hill publications.

### Reference Book

1. Software engineering, Shooman, TATA McGraw-Hill publications.

## MIS & E-COMMERCE

**Course Code: IM7PE413**

**LT PSC  
3-0-0-3**

### Course Objectives

1. To understand basic concepts and resources of information systems
2. To describe the development of an IS
3. To understand need for an IS and its applications
4. To understand advances in MIS

## UNIT I

8 Hrs

**Foundation concepts :** Foundation of Information systems in Business-Information system and technologies, Business Applications, Developments and Management, Competing with Information Technology Fundamentals of Strategic Advantage, Using information Technology for Strategic advantage.

## UNIT II

8 Hrs

**Review of Information Technologies :** Computer Hardware- Computer Systems, end user and Enterprise computing, Computer Peripherals, Input, Output and storage technologies , computer software , Application Software, End user Application, System software, Computer System Management.

### UNIT III

09 Hrs

#### **Data Resource Management:**

Managing Data Resources, Technical foundations of Database Management, Telecommunications and Networks Overview of Telecommunications and Networks, Technical Telecommunications alternatives.

**Business Applications :** The internet worked E-business Enterprise- The internet, Intranets and Extranets in Business, Enterprise communication and Collaboration, Electronic Business Systems, Cross Functional E-Business Systems, Functional E-business systems.

### UNIT IV

07 Hrs

**Electronic Commerce:** Fundamentals , E-Commerce Applications and Issues, Decision support System in E-Business, Artificial Intelligence Technologies in Business

### UNIT V

7 Hrs

**Management Challenges :** Security, Ethical, Societal, health Challenges of E-Business , Security Management of E-Business Enterprises, Global and political challenges of E-Business

### Course Outcomes

- CO1. Student are capable of developing information systems for business
- CO2. Students will come to know the importance of MIS in an organisation.
- CO3. Students will be aware of computer based MIS in an organization.
- CO4. Able to manage the challenges in global situations

### Text Books

1. Management Information Systems: Managing Information Technology in the Internet Worked Enterprise Jams A. O'Brien Tata McGraw Hill Publishing Company Ltd. 2002, 5<sup>th</sup> Edition ISBN 0-07-048637-9.
2. Management Information Systems " W.S. Jawadekar, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1998, ISBN 0-07-463197-9

### Reference Books

1. "Management Information System" Laaudon and Laudon, PHI, 1998, Ed., ISBN 81-203-1282-1.
2. Management Information Systems " S. Sadagopan, Prentice Hall of India, 1998, Ed. ISBN 81-203-1180-9. Information Systems for Modern Management" G.R. Murdick, PHI 2002.

## DECISION SUPPORT SYSTEM

**Course Code: IM7PE414**

**LT PSC  
3-0-0-3**

### Course Objectives

1. To select appropriate modelling techniques for supporting semi-structured business decision making
2. To identify and select appropriate decision support systems for generating innovative business solutions
3. To design and implement decision support systems for generating innovative business solutions
4. To know the concepts of decision support systems

### UNIT I

**8 Hrs**

**Decision Support Systems:** An Overview, Opening Vignette: Evaluating the Quality of Journals in Hong Kong, DSS Configuration, What is a DSS? Characteristics and Capabilities, Components of DSS, The Data Management Subsystem.

**Model Management Subsystem:** The Knowledge-Based Management Subsystem, The User Interface (Dialog) Subsystem, The User, DSS Hardware, Distinguishing DSS from Management Science and MIS, DSS Classifications

### UNIT 2

**7 Hrs**

**Data Warehousing, Access, Analysis, Mining And Visualization:** Opening Vignette: OBI Makes the best out of the Data Warehouse, Data Warehousing, Access, Analysis and Visualization, The Nature and Sources of Data, Data Collection, Problems and Quality, The Internet and Commercial Database Services.

### UNIT III

**7 Hrs**

**Data Warehousing, Access, Analysis, Mining And Visualization:** Database management Systems in DSS, Database Organization and Structures, Data Warehousing, OLAP: Data Access, Querying and Analysis, Data Mining, Data Visualization and Multidimensionality, Geographic Information Systems and Virtual Reality.

### UNIT IV

**7 Hrs**

**Modeling And Analysis:** Opening Vignette: Dupont Simulates Rail Transportation System and Avoids Costly Capital Expense, Modeling for MSS, Static and Dynamic Models, Treating Certainty, Uncertainty and Risk, Influence Diagrams, MSS Modeling in Spreadsheets.

## UNIT V

10 Hrs

**Decision Support System Development:** Opening Vignette: Osram Sylvania Thinks Small, Strategizes Big Develops the Info Net HR Portal System, Introduction to DSS Development, The Traditional System Development Life Cycle, Alternate Development Methodologies, Prototyping.

**DSS Development Methodology:** DSS Technology Levels and Tools, DSS Development Platforms, DSS Development Tool Selection, Team Developed DSS, End User-Developed DSS, Developing DSS: Putting the System Together

### Course Outcomes

CO1. Recognize the relationship between business information needs and decision making.

CO2. Appraise the general nature and range of decision support systems.

CO3. Select appropriate modelling techniques.

CO4. Analyse, design and implement a DSS.

### Text Book

1. Decision Support Systems and Artificial Intelligence, - Efraim Turban, Jay E Aronson, 6<sup>th</sup> Edn, Pearson Education, ISBN 81-7808-367-1

## SIX SIGMA METHODOLOGY

Course Code: IM7PE415

L T P S C  
3-0-0-0-3

### Course Objectives

1. To introduce students to the six sigma process improvement concepts philosophy.
2. To enable the students gain the knowledge of various tools needed for successful implementation of six sigma methodology.
3. To apply the concepts in Improve stage
4. To know the different parameters of Control stage

## UNIT I

08 Hrs

Introduction to six sigma and define stage: what is six sigma, historical evaluation, ingredients of six sigma, selecting projects. Define the opportunity, power tools for define, coming together as team.

## UNIT II

07 Hrs

Measure stage: Measuring process performance, power tools for measure, guiding the six sigma team in measure phase.

### **UNIT III**

**08 Hrs**

Analyze stage: Analyzing the data and investigating causes, power tools for analyzing, normal data and team norms.

### **UNIT IV**

**08 Hrs**

Improve stage: Improve the process, power tools for improve, building a successful team.

### **UNIT V**

**08 Hrs**

Control stage: Control the process management, power tools for control, guiding the team in control stage, six sigma process design / Redesign.

### **Course Outcomes**

- CO1. Exposure to six sigma concepts and tools.
- CO2. Display proficiency in applying six sigma methodology.
- CO3. Apply the concepts in Improve stage
- CO4. Know the different parameters of Control stage

### **Text Book**

1. Peter S. Pande et al., **The six sigma way team field book: An implementation Guide for process improvement Teams**, McGraw Hill, 1<sup>st</sup> Edition, 2002

### **Reference Book**

1. Peter S. Pande et al., 'The six sigma way' How GE, Motorola and other top companies are Honing their performance, McGraw Hill, 1<sup>st</sup> Edition, 2000.

## **KNOWLEDGE MANAGEMENT**

**Course Code: IM7PE511**

**L T P S C  
3-0-0-0-3**

### **Course Objectives**

1. To give solid foundation covering the major problems, challenges, concepts, and techniques
2. To deal with the organization and management of knowledge with the help of computers.
3. To understand and exploit systems to offer support to modern knowledge workers,
4. To have knowledge and information that is available and necessary to stay competitive for many tasks.

### **UNIT I**

**8 Hrs**

**Introduction:** Knowledge- What, Why, Information to Knowledge Classification of Knowledge Categories, types, components, Integration creating the Knowledge edge. Knowledge Management Definition, Value Drivers Personal Focused, Process, economic. Knowledge Management v/s existing technologies.

### **UNIT II**

**8 Hrs**

**Implementing Knowledge Management:** Infrastructural evaluation analyzing existing infrastructure enabling technologies for Knowledge management - aligning KM and business strategy strategic imperatives for successful KM systems.

### **UNIT III**

**07 Hrs**

**Knowledge Management System Analysis, Design and Development:** KM architecture and design Knowledge audit and analysis designing KM team creating KM system blueprint developing the KM system.

### **UNIT IV**

**8 Hrs**

**Development and Evaluation:** Pilot Testing, Deployment using the Results Driven Instrumentalism (RDI) methodology- the CKO, reward structures, technology and change management metrics for knowledge work.

### **UNIT V**

**8 Hrs**

**Case Studies:** Aerospace industry, sales and marketing. Customer support KM assessment kit alternative schemes for structuring KM systems front end software tools.

### **Course Outcomes**

- CO1. Understand the fundamental concepts in the study of knowledge and its creation, acquisition, representation, dissemination, use and re-use, and management.
- CO2. Appreciate the role and use of knowledge in organizations and institutions, and the typical obstacles that KM aims to overcome.
- CO3. Know the core concepts, methods, techniques, and tools for computer support of knowledge management.
- CO4. Understand to apply and integrate appropriate components and functions of various knowledge management systems.

### **Text Book**

1. Amrit Tiwana, "Knowledge Management Tool kit, The practical Techniques for Building a knowledge Management System", Prentice Hall, BK& Cd Rom edition. December 7, 1999

### Reference Book

1. Louis Carter: (Editor), Phil Harkins (Editor), Amy Timmins (Editor), Hubert St. Onge. "Best Practices in Knowledge Management & Organizational Learning Handbook" Linkage press, 2000

## ARTIFICIAL INTELLIGENCE SYSTEMS

Course Code: IM7PE512

L T P S C  
3-0-0-0-3

### Course Objectives

1. To give students a solid understanding of the main abstractions and reasoning techniques used in AI.
2. To represent and inference first-order logic
3. To know modern deterministic and decision-theoretic planning technique
4. To supervise learning methods; and Bayesian network inference and learning.

### UNIT I

8 Hrs

**Artificial Intelligence:** Introduction, definition, underlying assumption, important of AI, AI & related fields State space representations, defining a problem, production systems and its characteristic, search and control strategies Introduction, preliminary concepts, examples of Search problems.

### UNIT II

7 Hrs

**Uniformed or Preliminary Concepts:** Examples of search problems, Uniformed or Blind Serach, Informed Search, Or Graphs, Heuristic Search techniques Generate and Test, Hill climbing, best first search, problem reduction, constraint satisfaction, Means Ends Analysis.

### UNIT - 3

8 Hrs

**Knowledge Representation Issues:** Representations and Mapping, Approaches, Issues in Kr, Types of Knowledge procedural Vs Declarative, Logic programming, Forward Vs Backward reasoning, Matching, Non monotonic reasoning and it logic.

**Use of Predicate Logic:** Representing simple facts, Instance and is a relationships, Syntax and Semantics for Propositional logic, FOPL, and properties of Wffs, conversion to causal form, Resolution, Natural deduction.



#### UNIT IV

8 Hrs

**Statistical and Probabilistic Reasoning:** Symbolic reasoning under uncertainty, Probability and Bayes' theorem, Certainty factors and Rule based systems, Bayesian Networks, Dempster Shafer Theory, Fuzzy Logic.

**Expert Systems:** Introduction, Structure and uses, Representing and using domain knowledge, Expert System shells. Pattern recognition, introduction, Recognition and classification process, learning classification patterns, recognizing and understanding speech.

#### UNIT V

8 Hrs

**Introduction to Knowledge Acquisition:** Types of learning, General learning model, and performance measures.

**Typical Expert Systems:** MYCIN, Variants of MYCIN, PROSPECTOR, DENDRAL, PUFF etc.

**Introduction to Machine Learning:** Perceptons, Checker Playing examples, Learning, Automata, Genetic Algorithms, Intelligent Editors.

#### Course Outcomes

- CO1. Use various symbolic knowledge representations to specify domains and reasoning tasks of a situated software agent.
- CO2. Use different logical systems for inference over formal domain representations, and trace how a particular inference algorithm works on a given problem specification.
- CO3. Understand the conceptual and computational trade-offs between the expressiveness of different formal representations. Use key logic-based techniques in a variety of research settings.
- CO4. Communicate scientific knowledge at different levels of abstraction.

#### Text Books

1. Artificial intelligence Elaine Rich & Kevin Knight, M/H 1983.
2. Artificial intelligence in business, Science & Industry Wendry B.Ranch, Vol II application, Ph 1985.

#### Reference Books

1. A guide to expert systems waterman, D.A., Addison wesley inc. 1986.
2. Building expert systems Hayes, Roth, Waterman, D.A (ed), AW 1983.
3. Designing expert systems weis, S.M. and Kulliknowske, London Champion Hull 1984.

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## MARKETING MANAGEMENT

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Course Code: **IM7PE513**

**L T P S C**  
**3-0-0-0-3**

### **Course Objectives**

1. Make students have an understanding of the concepts of marketing and the marketing system
2. Make students understand evolution of marketing and the emphasis on each stage
3. Make students understand the marketing system, and marketing environment
4. Make students have clear understanding of the marketing mix and functions

### **UNIT I**

**8 Hrs**

**Introduction:** Historical development of marketing management, Definition of Marketing, Core marketing concepts, Marketing Management philosophies, Micro and Macro Environment, importance of marketing in the India Socio economics system.

**Marketing Information Systems and Research:** Components of marketing information system benefits & uses marketing research system, marketing research procedure, measurement of market demand.

### **UNIT II**

**8 Hrs**

**Consumer Markets and Buying Behavior:** Characteristics affecting Consumer behavior, Types of buying decisions, buying decision process, Classification of consumer products, Market Segmentation.

**Marketing of Industrial Goods:** Nature and importance of the Industrial market, classification of industrial products, participants in the industrial buying process, major factors influencing industrial buying behaviour, characteristics of industrial market demand. Determinants of industrial market demand Buying power of Industrial users, buying motives of Industrials users, the industrial buying process, buying patterns of industrial users

### **UNIT III**

**7 Hrs**

**Product Planning and Development:** The concept of a product, features of a product, classification of products, product policies product planning and development, product line, product mix factors influencing change in product mix, product mix strategies, meaning of New product; major stages in new product development, product life cycle.

#### UNIT IV

8 Hrs

**Pricing:** Importance of Price, pricing objectives, factors affecting pricing decisions, procedure for price determination, kinds of pricing, pricing strategies and decisions

**Branding, Labeling and Packaging:** Branding, Reasons for branding, functions of branding, features and types of brands, kinds of brand name.

**Labeling:** Types, functions, advantages and disadvantages

**Packaging:** Meaning, growth of packaging, function of packaging, kinds of packaging.

#### UNIT V

8 Hrs

**Distribution:** Marketing channels functions, types of channels of distribution, number of channel levels. Physical distribution importance, total systems concept, strategy, use of physical distribution.

**Advertising and Sales Promotion:** Objectives of advertisement function of advertising, classification of advertisement copy, advertisement media kinds of media, advantages of advertising. Objectives of sales promotion, advantages sales promotion.

**Personal Selling:** Objectives of personal selling, establishing the Sales force objectives, sales force strategy, sales force structure and size, salesmanship, qualities of good salesman, types of salesman, major steps in effective selling.

#### Course Outcomes

- CO1. Differentiate between the various elements in the various stages of the marketing evolution.
- CO2. Know the functions performed by marketing in the economy.
- CO3. Know the marketing strategies to achieve profitability.
- CO4. Know how to control the marketing mix variables in order to achieve organizational goals

#### Text Books

1. Principles of Marketing - Philip Kotler , Prentice Hall. 11<sup>th</sup> Edn.
2. Marketing Management - Philip Kotler , Prentice Hall. 12<sup>th</sup> Edn.

#### Reference Books

1. Fundamentals of Marketing - Wiliam J Stanton, McGraw Hill, 1994
2. Marketing Management - S.A Sherlaker, , 1999.
3. Rajagopal, Marketing Management Text & Cases - Vikas Publishing House, ISBN 81-259-0773-4
4. Marketing Management - Michael R Czinkota, , 2<sup>nd</sup> Edition, Vikas Publishing House, ISBN 981-240-366-3

# HUMAN RESOURCE MANAGEMENT

Course Code: **IM7PE514**

**L T P S C**  
**3-0-0-0-3**

## Course Objectives

1. To educate students on evolution of HRM, and their function
2. To know Man power planning, forecasting, Inventory etc
3. To understand recruitment, selection process and its basic procedure
4. To understand training needs, evaluation and procedure.

## UNIT I

**8 Hrs**

**Introduction to HRM:** Overview, objectives, environmental influence, competitive advantage, skills required. H.R Policies, need of HRM

**Human Resource Planning:** Integrated Strategic planning and human resources planning HRP at different levels, Methods of HRP, Process of HRP, Control and review mechanism.

## UNIT II

**7 Hrs**

**Recruitment:** Sources and techniques of recruitment (internal, external) assessment of recruitment program.

**Selection, Placement and Induction:** Meaning, Significance, factors affecting decisions, procedure, concept of testing, Interviews, Placement and induction process.

## UNIT III

**8 Hrs**

**Motivation** Human factors in managing, Motivation and Motivators, The hierarchy of needs theory, Theory X and Theory Y, The Motivation Hygiene theory, Immaturity Maturity theory, A systems and contingency approach to Motivation.

**Leadership** Defining leadership, Ingredients of leadership, Leadership behavior and styles, Situational or Contingency, approach to leadership.

**Communication** The communication function, Communication process, Communication in enterprise, Barriers and break downs in communication, Effective communication. Electronic Media in communication.

#### **UNIT IV**

**8 Hrs**

**Performance Appraisal:** Meaning, need, purpose, content, legalities of performance appraisal. Methods of performance appraisal traditional, graphic rating scales, ranking, paired comparison, forced distribution, checklist, critical incidence, essay or free form, group confidential reports. Modern Behaviorally Anchored Rating Scales (BARS) and related Modern Scales, Assessment Centre, Characteristics of a Effective Appraisal System and Uses Problems of performance Appraisal, Performance Appraisal through Computers.

#### **UNIT V**

**8 Hrs**

**Counseling** Characteristics, Need, Function, Types and suggestions for Personnel Development.

**Compensations Management** - Concept and Theories of wage machinery, Benchmarking Performance linked compensation system statutory requirement in compensation Management.

#### **Course Outcomes**

- CO1. Recruit and select the candidates properly to suite the requirements in the organizations.
- CO2. Identify the training needs effectively and thus train and develop the employees properly.
- CO3. Make communication effective and informative in the organizations.
- CO4. Evaluate the performances of employees through proper performance appraisal methods.

#### **Text Books**

- 1. P. Subba Rao, "Human Resource Management and Industrial Relations", Himalaya Publishing House
- 2. Human resource management by K.Aswathappa

#### **Reference Books**

- 1. Peter C.Cairo, "Counseling in Industry Personnel Psychology"
- 2. Wayne F Casio, "Management Human Resources" TATA Mc GrawHill New Delhi
- 3. H.John Bernardino, and Joyce E.A Russel, "Human Resource Management", McGraw Hill International Editions.
- 4. C.B. Memoria, "Personnel Management" Himalaya Publishing House

## CONCURRENT ENGINEERING

L T P S C  
3-0-0-0-3

Course Code: **IM7PE515**

### Course objectives

1. To gain an understanding and appreciation of the principles of concurrent engineering
2. To develop skills and learn process reengineering
3. To gain knowledge of basic principles, components of CE models
4. To understand the concepts of matrices of CE in IT industry.

### UNIT I

8 Hrs

**Manufacturing competitiveness-** Review, Product and Services, Process and Methodologies, performance, the need for change, Sequential versus concurrent Engineering.

### UNIT II

7 Hrs

**Process Reengineering-** Managing change, Re engineering approaches, enterprise models, concurrent process reengineering.

### UNIT III

8 Hrs

**Concurrent Engineering-** Introduction, Basic principles, components of CE models, Benefits, co-operative concurrent teams, Types of CE organizations.

### UNIT IV

8 Hrs

**System Engineering-** Introduction, system Thinking, System complexity, System integration. Angle Virtual company.

**Information Modeling-** Methodology, foundation of information modeling, concurrent engineering process invariant enterprise model class, product mode class, cognitive models.

### UNIT V

8 hrs

**CE metrics for IT-** based manufacturing- process efficiency metrics, Process effectiveness metrics.

### Course outcomes

- CO1. Understand and appreciate the principles of concurrent engineering
- CO2. Develop skills and learn process reengineering
- CO3. Gain knowledge of basic principles, components of CE models
- CO4. Understand the concepts of matrices of CE in IT industry.

### Text Book

1. Prasad.B, concurrent engineering Fundamentals, - Integrated Product and process organization Vol. 1&2, Prentice Hall Englewood, Chiffs, New Jersey 1996.

### **Reference Book**

1. Hartely R John, "Concurrent engineering"- Shortening lead times, raising quality & Lowering costs, Productivity Press, Portland, Oregon 1992.
2. Carter DE & Baker BS, "Concurrent Engineering" The product development for the 1990's. Addison- Wesley Publication company, Reading MA 1992.

## QUALITY ENGINEERING LAB

Course Code : IM7L01

L T P S C  
0-0-3-0-1.5

### Course Objectives

To develop the analytical understanding of tools used in the quality engineering process and to expose students to the quality tools and techniques used in the process monitoring

#### Part-A

1. Goodness of fit test for the given Quality characteristic using Uniform distribution
2. Goodness of fit test for the given Quality characteristic using Binomial distribution
3. Goodness of fit test for the given Quality characteristic using Poisson distribution
4. Goodness of fit test for the given Quality characteristic using Normal distribution
5. Process Capability of the manufacturing process using Normal Probability paper method and Process capability indices
6. Repeatability and Reproducibility study for appraiser and instrument

#### Part-B

1. Experiments on application of 7 QC tools
2. Construction of control charts for variable quality characteristic using software
3. Construction of control charts for attribute quality characteristic
4. Attribute sampling plans-single, double sampling plans
5. Correlation and simple linear regressions
6. Design of Experiments-Full Factorial approach

### Course Outcomes

The students will be understand the different tools and techniques of Quality and able to apply in real life situations

### Reference Books

1. Introduction to Statistical Quality Control by D C Montgomery 3<sup>rd</sup> Edn, John Wiley & sons
2. Quality Planning and Analysis by J M Jurna, Frank M Gryna 3<sup>rd</sup> Edn, Tata McGraw Hill
3. Statistical Quality Control by Grant and Leavenworth - McGraw Hill



## ENTERPRISE SOLUTIONS LAB

L T P S C  
0-0-3-0-1.5

**Course Code : IM7L02**

### Course Objectives

. To describe and explain fundamentals of ERP aware of ERP practices in the industry.

1. Processing of customers orders under seasonal/unseasonable & Blanket orders.
2. Generating bill of materials for various engineering designs.
3. MRP 2 Generating of various MRP reports for confirmed orders
4. Functional evaluation of business processes.- Order Processing, Sales & Distribution, Production Planning, Materials Management & other engineering practices
5. Estimation & Determination of time delay using software.
6. Analyses of existing capacity & defining routes optimizing the resources along routes.
7. Optimization problems using OR packages.

**Suggested Software Packages:**

1. Statistical Packages: SYSTAT/MINITAB/SPSS.
2. ERP Packages: RAMCO/MAARS
3. MAN : CIMAS/UNISOFT/Optimizer
4. OR Packages: LINDO/LINGO/STORM

**Course outcomes**

Students will be able understand the concepts of different ERP modules and their applications in ERP modules in E-commerce

**PROJECT WORK ( PHASE - I )**

**Course Code : IM7PW01**

**L T P S C**  
**0-8-0-1-4**

Students have to form a group of 3 to 4 (maximum) and select the topic and organization in which they carry out the project work in discussion with the guide. They have to do an extensive literature survey of recent trends in technology / management by referring Journals, Research papers and submit an extended abstract followed by a seminar.

|                                     |            |
|-------------------------------------|------------|
| Literature survey + Topic selection | - 50 marks |
| Seminar with Synopsis               | - 50 marks |

**SRI SIDDHARTHA INSTITUTE OF TECHNOLOGY  
TUMKUR**

**DEPARTMENT OF INDUSTRIAL ENGINEERING AND  
MANAGEMENT**

**VIII SEM**

| <b>SL NO</b>              | <b>CODE</b> | <b>NAME OF THE SUBJECT</b>          | <b>L T P S C</b>     |
|---------------------------|-------------|-------------------------------------|----------------------|
| 1.                        | IM8T01      | FINANCIAL MANAGEMENT & COSTING      | 3 2 0 0 4            |
| 2.                        | IM8T02      | SUPPLY CHAIN & LOGISTICS MANAGEMENT | 3 2 0 0 4            |
| 3.                        | IM8PE31X    | PROFESSIONAL ELECTIVE - IV          | 3 0 0 0 3            |
| 4.                        | IM8PE41X    | PROFESSIONAL ELECTIVE - V           | 3 0 0 0 3            |
| 5.                        | IM8TS01     | TECHNICAL SEMINAR                   | 0 2 0 1 1            |
| 6.                        | IM8PW01     | PROJECT WORK ( PHASE - II)          | 2 4 12 2 10          |
| <b>TOTAL contact hour</b> |             |                                     | <b>14 10 12 3 25</b> |

**PROFESSIONAL ELECTIVE - IV**

1. IM8PE311      ADVANCED OPERATION RESEARCH
2. IM8PE312      PROJECT MANAGEMENT
3. IM8PE313      DESIGN OF EXPERIEMENTS
4. IM8PE314      TOTAL QUALITY MANAGEMENT
5. IM8PE315      FINITE ELEMENT METHODS

**PROFESSIONAL ELECTIVE - V**

1. IM8PE411      INTELLECTUAL PROPERTY RIGHTS
2. IM8PE412      TECHNOLOGY MANAGEMENT
3. IM8PE413      DESIGN AND DEVELOPMENT OF ENTERPRISE
4. IM8PE414      WORLD CLASS MANUFACTURING
5. IM8PE415      ORGANIZATIONAL BEHAVIOUR

## FINANCIAL MANAGEMENT & COSTING

Course Code : IM8T01

L- T- P- S- C  
3-2-0-0-4

### Course objectives

1. To know the basic knowledge of accounting and types of accounting
2. To compute and analyse various financial ratios
3. To understand types of organizations and taxes
4. To understand working capital management

### UNIT I

08 Hrs

**Introduction to Financial Management:** Forms of organization, direct and indirect taxes. Statutory Registration- excise Duty, central sales tax, VAT, service tax, international fund availability.

**Book Keeping: Introduction,** Double entry book keeping journalizing and ledger posting.

### UNIT II

08 Hrs

**Financial Statement and Analysis:** Preparation of Trial balance, profit and Loss Account, Balance Sheet with adjustments

**Ratio Analysis / Accounting Ratio:** Liquidity ratio Current ratio, quick ratio, turnover ratio, capital structure ratio- Debt equity ratio, Coverage ratio, Profitability ratio, Profit margin, Return on assets, Activity ratios Inventory turnover ratio, Debtors Turnover ratio.

### UNIT- 3

07 Hrs

**Working Capital Management:** Definition, need and factors influencing the working capital requirement. Determination of operating cycle, cash cycle and operating cycle analysis. Calculation of gross working capital and net working capital requirement.

### UNIT IV

08 Hrs

**Costing:** Objectives of costing, elements of costing, methods of costing, problems

**Standard costing: Introduction,** material, labor and overhead variances for a single product.

### UNIT V

08 Hrs

**Budgeting:** Types of budgets Flexible budgets, preparation of cash budgets, purchase and production budgets and master budget, Budgetary control, advantages & limitations of budgeting.

## Course Outcomes

- CO1. Understand the basics of accountancy and management accounting
- CO2. Exposed to various types of costing and budgeting.
- CO3. Able to prepare financial statements.
- CO4. Capable to prepare budgeting

## Text Books

1. Financial Management, Khan & Jain, text & problems TMH ISBN 0-07-460208-A. 20001
2. Financial Accounting, Costing and Management Accounting, S. M. Maheshwari, 2000

## Reference Books

1. Financial Management, I. M. Pandey, Vikas Publication House ISBN 0-7069-5435-1. 2002
2. Financial Management, Abrish Gupta, Pearson.
3. Financial Decision Making, Humpton. 2000
4. Financial Management, Theory and Practice, Prasanna Chandra TMH ISBN -07-462047-9, 3<sup>rd</sup> edition 2002
5. Elements of Accountancy: B.S.Raman, UNITED publishers, Mangalore

# SUPPLY CHAIN & LOGISTICS MANAGEMENT

Course Code : IM8T02

L-T-P-S-C  
3-2-0-0-4

## Course objectives

1. To introduce students to the development of mathematical modeling and solution tools for logistics and supply chain management;
2. To teach students to use these tools to analyze strategic, tactical, and operational decisions
3. To understand facility location, vehicle routing, and inventory management
4. To engage students in case studies based on real world logistics and supply chain decisions.

## UNIT I

08 Hrs

**Strategic Frame Work:** Supply chain stages and decision phases, process view of a supply chain. Supply chain flows. Examples of supply chains. Competitive and supply chain strategies. Achieving strategic fit. Expanding

strategic scope. Drivers of supply chain performance. Framework for structuring drivers-Inventory, Transportation, Facilities, Information. Obstacles for achieving fit. Case discussion.

#### **UNIT II**

**08 Hrs**

**Network Planning and Distribution Strategies:** Introduction, network design- data collection, data aggregation, mileage estimation, warehouse cost, future demand, model and data validation. Distribution Network-Role of facility decisions, factors influencing network decision decisions and frame work for supply chain decisions, Models for facility Location and Capacity Allocation.

#### **UNIT III**

**08 Hrs**

**Planning and Managing Inventories in a Supply Chain:** Role of cycle inventory , economies of scale to exploit fixed cost, managing multi echelon cycle inventory estimated cycle inventory related costs in practice, role of safety stock supply chain, determining appropriate level of safety inventory, impact of supply uncertainty on safety inventory, impact of aggregation on safety inventory, impact of replenishment policy on safety inventory, managing safety inventory in a multi echelon supply chain, estimating and managing inventory in practice and non moving items. Problems on:EOQ, Cycle inventory, Safety stock calculations.

#### **UNIT IV**

**08 Hrs**

**Sourcing, Transporting Products:** Role of sourcing, Supplier-Scoring and Assessment, selection and Contracts. Design collaboration. Role of transportation, Factors affecting transportation decisions. Modes of transportation and their performance characteristics. Designing transportation network. Trade off in transportation design. Tailored transportation, Routing and scheduling in transportation. International transportation. Analytical problems.

#### **UNIT V**

**07 Hrs**

**Coordination and Technology in the Supply Chain:** coordination in a supply chain: Bullwhip effect. Obstacles to coordination. Managerial levers to achieve co- ordination, Building strategic partnerships. The role of IT in supply chain, the supply chain IT Framework, CRM, International SCM, SRM.The role of E-business in a supply chain.

### **Course Outcomes**

- CO1. Draw on key logistics and supply chain management concepts and theories to inform a variety of business situations.
- CO2. Apply logistics and supply chain management strategies to assist other functional areas of a business organization.
- CO3. Apply leadership and organisational skills to leverage resources of a group and develop solutions to operational issues.
- CO4. Interact and communicate effectively in team settings to solve problems in supply chain management.

### Text Books

1. Sunil Chopra & Peter Meindl; supply chain management-Strategy, planning & Operation; 2<sup>nd</sup> edition 2005. Pearson Education Inc.
2. Simchi-Levi Davi Kaminasky Philip & Simchi- Levi Edith, Designing & Managing the Supply Chain , Tata McGrade-Hill pub.Comp Ltd, New Delhi, 2003

### Reference Books

1. Douglas Lambert & James Stock: Strategic Logistics Management: Irwin Mc Graw Hill.
2. Introduction to supply chain management By Martin Christopher.

## ADVANCED OPERATION RESEARCH

**Course Code: IM8PE311**

**LTPSC  
3-0-0-3**

### Course objectives

1. To enable students get acquainted with the mathematical logic behind the advanced operations research techniques
2. To build capacity in students to formulate real-life problems into mathematical models amenable for solution.
3. To enable them to evaluate alternative solutions and arrive at the optimum one based on predetermined criteria
4. To learn the application of sophisticated techniques such as Integer programming, nonlinear programming, dynamic programming, queuing and network analysis.

### UNIT I

**7 Hrs**

**Linear Programming:** Two phase simplex techniques, Revised simplex techniques.

**Advanced Linear Programming:** Sensitivity analysis, Integer Programming, Gomory's techniques.

### UNIT II

**8 Hrs**

**Special Type of LPP:** Solutions of Assignment and Travelling salesman problems using Branch and Bound Approach.

**Goal Programming:** Introduction and simple formulation.

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### UNIT III

8 Hrs

**Non-Linear Programming:** Kuhn Tucker conditions, QPP Problems solution using Wolfes algorithm

**Dynamic Programming:** Characteristics and DP model, Computational procedure -Simple problems only.

### UNIT - 4

8 Hrs

**Advanced CPM Techniques:** CPM Elements of crashing, least cost project scheduling. Flow in networks; Determination of shortest route, Determination of Maximum flow through the networks, Minimal Spanning Tree. Resource Allocation for optimal tilization of resources

### UNIT V

8 Hrs

**Queing Theory:** M/Ek/1, M/D/1, M/M/C and MG1

**Markov Chains:** Discrete Stochastic Process, Markovian process, Stationary Markov chains, Markov diagrams, Ergodic and Absorbing Markov chains, Steady State probabilities, stochastic matrix, transition m, matrix and their applications.

### Course Outcomes

CO1. Identify real-life problems and choose appropriate tool/technique to model them, being aware of the assumptions underlying the tools.

CO2. Analyze complex problems through the techniques learnt, and to suggest the optimum solution.

CO3. Evaluate alternative solutions and arrive at the optimum one based on predetermined criteria

CO4. Apply sophisticated techniques such as Integer programming, nonlinear programming, dynamic programming, queuing and network analysis.

### Text Books

1. Operation Research and Introduction Taha H A, Prentice Hall of India, 6<sup>th</sup> edition, 1999
2. Principles of Operations Research Philips, Ravindram and Soleberg Theory and Practice, PHI, 2<sup>nd</sup> Edition, 2007

### Reference Books

1. Introduction to Operation Research Hiller and Libermann, McGraw Hill 5<sup>th</sup> edn.
2. Operations Research S.D. Sharma Kedarnath, Ramnath &Co, 1996
3. J K Sharma, Operations Research Theory and Application, Pearson Education Pvt Ltd ,2<sup>nd</sup> Edn, ISBN-0333-92394-4
4. Operations Research Kanthi Swarup Sultan chand and Sons. 1992.



## PROJECT MANAGEMENT

Course Code : IM8PE312

L T P S C  
3-0-0-0-3

### Course Objectives

1. To have an insight about Project Life Cycle, Project Team & Scheduling
2. To understand the applications of tools & techniques of Project Management.
3. To understand Project co-ordination & control methods
4. To know the various performance measures in project management

### UNIT I

8 Hrs

**Concepts of Project Management:** concepts of a project, categories of projects, phases of project life cycle, roles and responsibilities of project leader, tools and techniques for project management.

### UNIT II

8 Hrs

**Project Planning and Estimating:** feasibility report, phased planning, project planning steps, objectives and goals of the project, preparation of cost estimates

### UNIT III

7 Hrs

**Organizing and Staffing, the Project Team:** Skills/abilities required for project manager. Authorities and responsibilities of project manager. Project organization and type accountability in project execution, controls, tending and selection of contractors.

### UNIT IV

8 Hrs

**Tools & Techniques of Project Management:** Bar (GANTT) chart. Bar chart for combined activities, logic diagrams and networks. Programme evaluation and review techniques (PERT) critical path method (CPM), total PERT/ CPM planning, computerized project management.

### UNIT V

8 Hrs

**Performance Measures in Project Management:** Performance indicators, performance improvement the CM & DM companies for better project managements. Project management and environment.

**Case Studies on Project Management:** Case studies covering project planning, scheduling, use of tools & techniques, performance measurements.

## Course Outcomes

- CO1. Allocate resources to different activities while planning a project
- CO2. Crashing (expedite) certain project activities to speed up a project
- CO3. Identify, quantify and mitigate risks
- CO4. Do Project performance evaluation

### Text Books

- 1. Project management a system approach to planning scheduling & controlling, Harlod Kerzner, CBS publishers and distributors.
- 2. Project management with PERT and CPM. Moder Joseph J and Philips cerel R. 2<sup>nd</sup> edition, New York V AN Nostrand, Rienhold- 1976.

### Reference Books

- 1. Project management- Benington Lawrence- Mc Graw Hill-1970.
- 2. A management guide to PERT and CPM, WESIT & LEVY, Eastern economy edition of PHL.
- 3. PERT & CPM-L.S.Srinath.
- 4. Project execution plan: for project execution interaction, Chaudhury.S.
- 5. Project planning, scheduling & control, James P lewis, Meo publishing company.

## DESIGN OF EXPERIMENTS

L T P S C

### Course objectives

1. To educate students plan an experimentation and select an appropriate experimental design
2. To ensure appropriate selection of control factors and their levels for the experimentation
3. To identify the uncontrollable variations those exist during experimentation as well as in the customer environment
4. To quantify the quality loss inflicted to the society when a product quality characteristic deviates from the target.

### UNIT I

8 Hrs

**Introduction:** History of quality engineering: Japan versus U.S. track records. Taguchi Approach to Quality: Definition of quality. Loss function. Off-line and on-line quality control. Taguchi's quality philosophy.

**Basic Designs:** Completely Randomised Design, Randomised Block Design, Latin Square Designs, one way analysis of variance and two way analysis of variance.

### UNIT II

8 Hrs

**Factorial Experimentation -Two Levels:** Full Factorial Designs: Experimentation as a learning process. Traditional scientific experiments. Two-factor design. Four-factor design, Replicating experiments. Factor interactions.

**Factorial Experimentation-Eight and Sixteen Run Experiments:** Fractional factorial designs based on eight-run experiments, Folding over an eight run and sixteen run experiment

### UNIT III

8 Hrs

**Constructing Orthogonal Arrays:** Counting degrees of freedom, selecting a standard orthogonal array, dummy level technique, and compound factor method. Linear graphs and interaction assignment. Modification of linear graphs, column merging method, branching design. Strategy for constructing an orthogonal array. Comparison with the classical statistical experiment design.

### UNIT IV

7 Hrs

**Steps in Robust Design:** Case study discussion. Noise factors and testing conditions. Quality characteristics and objective functions. Control factors and their levels. Matrix experiment and data analysis plan. Conducting the matrix experiment, data analysis, verification experiment and future plan.

**UNIT V**

**8 Hrs**

**Signal-To-Noise Ratio For Static Problems:** Evaluation of sensitivity to noise. S/N ratios for Smaller-the-better, Larger-the-better, Nominal-the-best and Asymmetric Cases

**Signal-To-Noise Ratio For Dynamic Problems:** S/N ratios for Continuous-continuous, continuous-digital, digital-continuous, digital-digital cases. Introduction to Taguchi Inner and Outer Arrays

**Course Outcomes**

CO1. Apply the knowledge of design of experiments for the selection of appropriate design as well as control factors and their levels.

CO2. Conduct experiments, analyze the experimental data and suggest optimal values for the control factors that make the product insensitive to uncontrollable variation.

CO3. Apply the right type of quality loss function for a given situation

CO4. Evaluate the quality loss caused by the product.

**Text Books**

1. D.C. Montgomery, "Introduction to statistical Quality control", 3<sup>rd</sup> Edition, John Wiley and sons.
2. J.M. Juran and Frank M.Gryna, "Quality Planning and Analysis", 3<sup>rd</sup> Edition, TATAMcGraw-Hill.

**Reference Books**

1. Grant and Leavenworth, "Statistical Quality Control", McGraw-Hill.
2. Janet L. Novak and Kathleen C. Bosheers, "the QS9000 documentation Toolkit" Prentice Hall PTR.
3. Suresh Dalela and Saurabh, "ISO 9000 A Manual for total Quality Management", S. Chand and company Ltd, Ram Nagar, New Delhi.

## **TOTAL QUALITY MANAGEMENT**

**Course Code : IM8PE314**

**L T P S C  
3-0-0-0-3**

**Course objectives**

1. To educate students the core concepts of TQM.
2. To educate students to know how one can delight customers through continuous improvement of the quality of products and services.
3. To educate to understand the importance of total participation of employees in an organization for improving quality.
4. To educate students to recognize the importance of networking of companies with Govt, Semi-Govt. organizations, Research Institutes, Universities, etc

**UNIT 1**

**8 Hrs**

**Overview of Total Quality Management : Concept and definition of TQM.**

## 7/8 Industrial Engg. & Management

Overview of Social system, technical system, house of total quality. History of TQM quality, Consciousness during stone-age, introduction of interchangeable parts and division of labor, scientific Management and Taylorism, Walter Shewart's concept of variation and control system, post world WarII and Japanese resurrection. Contribution of quality Gurus Deming's approach. Juran's Quality Trilogy, Crosby and quality treatment, Imani's Kaizen. Ishikwa's company wide quality control, and Fegenbaum's theory of TQC.

### **UNIT 2**

**8 Hrs**

**Evolution of Quality Concepts and Method:** Quality concepts. Development of four fitnesses, Evolution of methodology, evolution of company integration, quality of conformance versus quality of Design, from deviations to weaknesses to opportUNITies. Future fitness, four revolution in management thinking, and four level of practice.

**Continuous Improvement:** Improvement as problem solving process : Management by process, WV model of continuous Improvement, process control, process control and process improvement, process versus creativity.

### **UNIT-3**

**7 Hrs**

**Reactive Improvement:** Identifying the problem, standard steps and tools, seven steps case study And seven QC tools. Management diagnosis of seven steps reactive improvement. General guidelines For managers diagnosis a QI story. Discussion on case study for diagnosis of the seven steps.

**Proactive Improvement:** Introduction to proactive improvement, standard steps for Proactive Improvement, semantics, examplecustomer visitation. Applying proactive improvement to Develop New products three stages and nine steps.

### **UNIT 4**

**8 hrs**

**Total Participation:** Teamwork, dual function of work, principles of activating teamwork, creativity in team processes, initiation strategies, CEO involvement, infrastructure for mobilization, goal setting(vision / mission), organization setting, training and education, promotional activities, diffusion of success stories, awards and incentives monitoring and diagnosis, phase-in orientation, alignment phase, evolution of parallel organization.

### **UNIT 5**

**8 Hrs**

**Societal Networking:** Networking and societal diffusion, regional and nationwide networking infra-structure for networking, openness with real case, change agent, center for quality management, dynamics of a societal learning system, TQM as learning system, keeping pace with the need for skill, TQMmodel for skill development, summary. Hoshin management definition, phases, strategic planning, hoshin deployment, conventional business planning, an alternative deployment system,system engineering for alignment, hoshin management V/s management.

## **Course Outcomes**

CO1. Demonstrate the various aspects which delight the customer.

CO2. Apply the TQM tools & techniques for continuously improving the products.

CO3. Involve employees at all levels for effective implementation of TQM techniques.

CO4. Appreciate mutual learning & develop network with all stake holders.

### **Text Books:**

1. Shoji Shiba, Alan Graham and David Walden, "A new American TQM four practical revolutions in management"
2. J.M Juran and F.M Gryana, "Quality planning & analysis", TATA McGraw Hill

### **Reference Books**

1. N. Loothetis, "Managing for Total Quality", Prentice Hall of India, New Delhi
2. Mohammed Zairi, "Total Quality Management for Engineers", Aditya Books Pvt., Ltd., New Delhi

## **FINITE ELEMENT METHODS**

**Course Code: IM8PE315**

**LT P S C**  
**3-0-0-3**

### **Course Objectives**

1. To equip the students with the Finite Element Analysis fundamentals
2. To enable the students to formulate the design problems into FEA.
3. To enable the students to perform engineering simulations
4. To understand the concepts of SPC and MPC

### **UNIT 1**

**8 Hrs**

**Introduction to FEM:** Need for use of FEM Advantages and Disadvantages of FEM Matrix algebra Terminologies relating to matrices, methods of solution of linear algebraic equations. Eigen values and eigen vectors, Simple numeric Gaussian Quadrature 1 pt. 2pt and 3pt formula.

**Basic Of Theory Of Elasticity:** Definition of stress and strain, stress-strain relations; strain-displacement, Relations in 2D and 3D Cartesian and Polar coordinates.

**UNIT 2**

**8 Hrs**

**Continuum Methods:** Variational methods Raleigh-Ritz method applied to simple problems on axially loaded members cantilever. Simply supported and fixed beam with point loads and UDL Galerkin method as applied to simple elasticity problem.

**UNIT III**

**7 Hrs**

**FEM- Basic Definitions:** Displacement method, Nodal degrees of freedom, different coordinate systems shape functions. Lagrangian polynomial; complete formulation of bar-truss-beam-triangular-quadrilateral Tetrahedral hexahedral elements.

**UNIT IV**

**8 Hrs**

**Boundary Conditions:** SPC and MPC. Methods of handling boundary conditions eliminating method-penalty method. Simple numerical, ISO parametric sub parametric super parametric elements Convergence criteria requirements of convergence of a displacement model.

**UNIT V**

**8 Hrs**

**Higher Order Elements:** Bar triangular-quadrilateral elements. Tetrahedral and hexahedral elements (non-Formulation) Pascal triangle Pascal pyramid. Introduction to axis symmetric problems-formulation of axis symmetric triangular element.

**Course Outcomes**

- CO1. Identify mathematical model for solution of common engineering problems.
- CO2. Formulate simple problems into finite elements.
- CO3. Solve simple FEM problems.
- CO4. Apply the boundary conditions through SPC and MPC

**Text Books**

- 1. Finite Element Method - J.N.Reddy Tat McGraw Hill - edition 2002.
- 2. Introduction to Finite elements in engineering Chandraupatla and Belegundu Pearson edn - 2002.

**Reference Books**

- 1. A First course in Finite Element methods - Daryl.L.Logon - Thomson Learning - 3rd edition, 2001.
- 2. Fundamentals of Finite Element method - Hutton Mc Graw Hill 2004.



3. Concepts & applications of FEA - Robert Cook et,al Jonh willey& sons - 2002.
4. Finite element analysis Chandrupatla - University press - 2002.
5. Theory and Practice of Finite elements - Alexandre ERN - I K International Publishing house Pvt. Ltd 2004.

## **INTELLECTUAL PROPERTY RIGHTS**

**Course Code: IM8PE411**

**LT PSC  
3-0-0-3**

### **Course objectives**

1. To understand the basic concepts of IP and its associated rights, forms of IP.
2. To get insight into the importance of innovation and its applicability in serving society.
3. To get awareness about the protections given to the mental labor put forth by individuals in various forms of IP.
4. To know about the basic legal aspects of IP

### **UNIT I**

**08 Hrs**

**Basic principles of IP laws:** Introduction, History, Concept of property, Constitutional aspects of IP, Evolution of the patent system in UK, US and India, Basis for protection, Invention, Criteria for patentability, Non patentable inventions.

**Patents:** Introduction, Origin and meaning of the term patent, Objective of a patent law, The legislative provisions regulating patents, principles underlying the patent law in India, patentable invention.

### **UNIT II**

**08 Hrs**

**Procedure for obtaining patent:** Submission of application, Filing provisional and complete specification, Examination of the application, advertisement of the acceptance, opposition, Grant and sealing of patent, Term of the patent, Compulsory license.

**Rights conferred on a patentee:** Patent rights, Exception and limitations, Duties of a Patentee.

### **UNIT III**

**08 Hrs**

**Transfer of patent:** Forms of transfer of Patent rights, Assignment, kinds of assignment, License, kinds of license, Rights conferred on a licensee, Transmission of patent by operation of law.

**Infringement of patents:** Construction of claims and infringement, patents held to be infringed, patents held to be not infringed, patent agents, patent drafting, database searching, case studies.

**UNIT IV**

**08 Hrs**

**Copy Right:** Meaning and characteristics of copy right, Indian copy right law, requirement of copy right, Illustrations copy right in literary work, Musical work, Artistic work, work of architecture, Cinematograph film, sound recording.

**Author and Ownership of copy right:** Ownership of copy right, Contract of service, Contract for service, rights conferred by copy right, terms of copy right, license of copy right.

**UNIT V**

**07 Hrs**

**Trade Marks:** Introduction, Statutory authorities, procedure of registration of trade marks, rights conferred by registration of trade marks, licensing in trade mark, infringement of trade mark and action against infringement.

**Industrial Design:** Introduction, procedure of registration of a design, Piracy of a registered design, Case studies.

**Course Outcomes**

CO1. Identify the importance of IPR in the Society.

CO2. Innovate & apply for patents in his/her area of interest.

CO3. Apply for copyrights for the novel work executed.

CO4. Understands the concepts of trademarks and industrial design

**Text Books**

1. Dr. T Ramakrishna -Basic principles and acquisition of Intellectual Property Rights, CIPRA, NSLIU -2005.
2. Dr.B.L.Wadhera -Intellectual Property Law Handbook, Universal Law Publishing Co. Ltd.. 2002.

**Reference Books**

1. Dr. T Ramakrishna -Ownership and Enforcement of Intellectual Property Rights, CIPRA, NSLIU -2005.
2. Intellectual Property Law (Bare Act with short comments) - Universal Law Publishing Co. Ltd.. 2007.
3. The Trade marks Act 1999 (Bare Act with short comments) - Universal Law Publishing Co. Ltd.. 2005.
4. The Patents Act, 1970 (Bare Act with short comments) - as amended by Patents (Amendment) Rules 2006 w.e.f. 5-5-2006. Commercial law publishers (India) Pvt. Ltd., 2006.
5. Thomas T Gordon and Arthur S Cookfair -Patent Fundamentals for Scientist and Engineers, CRC Press 1995.
6. Prabuddha Ganguli -Intellectual Property Rights, TMH Publishing Co. Ltd..2001

# TECHNOLOGY MANAGEMENT

COURSE CODE : IM8PE412

LT PSC  
3-0-0-3

## Course Objectives

1. To make students appreciate the role of technological change in shaping the future of a business/economy.
2. To make them understand the process behind formulation of technology strategy, and its integration with business strategy.
3. To prepare them for managing organizational change in view of increasing technology orientation of businesses.
4. To enable them to effectively manage technology projects in an organization.

## UNIT I

8 Hrs

**Concept of Technology:** Introduction, The nature of knowledge, Aspects of classification, Concept and Meaning of technology, character of a specific technology, Scope of technology, Examples of classification of technology, Scale of technology information, Levels of technology, Technology portfolios, Technology as an environment.

## UNIT II

8 Hrs

**Nature of Technological Change:** Introduction, Meaning of technological change, Concept of invention, Nature of innovation, Emergence of new technologies, Life cycle of a technology, Motivation for technological change, Nature of technological progress, Nature of mature technology, Nature of diffusion, Technological convergence.

## UNIT III

8 Hrs

**Economics of Technology:** Introduction, Meaning of technological economics, Examples of technological economics, Scope of technological economics, Engineering economics, Production economics, Concept of economy of scale, Concept of optimum size, Technology as a commodity, Technology at the macro-economic level.

**Corporate Technology Strategy:** Introduction, The business mission, Where is the business? Concept of business strategy, Capability for strategic planning, Corporate technology strategy, Competitive technology, Focus of strategy, Technological alliances, Realization of strategy, Technology crisis.

## UNIT IV

07 Hrs

**The Realization of New Technology:** Introduction, Concept of R&D policy, Stimuli for innovation, Sources of innovation, Intelligence function of R&D,

## 7/8 Industrial Engg. & Management

Management of R&D, R&D team, Effectiveness of R&D, Marketing aspects of R&D, Finance for Design, Development, Manufacture and Marketing, reduction of development lead time, Patterns for new technology development, Remaining a going concern.

### **UNIT-5**

**8 Hrs**

**Adoption of New Manufacturing Technology:** Introduction, manufacturing strategy, Introduction of new technology, Challenges of factory automation, Stages of factory automation, Manufacturing FMS, CIM, CAD/CAM, Intelligent manufacturing systems, operation of new technology, Change management, People and technology at work, Work structures.

### **Course outcomes**

CO1. Clear understanding of the need for technological advancements for economic growth and social welfare.

CO2. Ability to analyze the inputs needed for building a technology strategy given the business strategy.

CO3. Ability to plan out projects for technological change and implement them.

CO4. Ability to work on the facilitators of organizational change while switching over to newer technologies.

### **Text Books:**

1. The Management of Technology - Paul Lowe, Perceptions & opportunities, Chapman & Hall, London, 1995.
2. Strategic Management of Technology -Frederick Betz, McGraw- Hill Inc 1993.

### **Reference Book**

1. Management of Technology & Innovation: competing Through Technological Excellence, -Rastogi, P.N., Sage Publications, 1995

## **DESIGN & DEVELOPMENT OF ENTERPRISE**

**Course Code: IM8PE413**

**LT PS C  
3-0-0-3**

### **Course Objectives**

1. To understand analyze the creative business environment, opportunity recognition, and the business idea-generation process;
2. To know how to acquire necessary resources and organizational matters of new venture creation process;

3. To write a business plan that creates and starts a new venture.
4. To apply a strategy for growth and manage the implications of growth;

### **UNIT I**

**07 Hrs**

**Definition and Concept of Enterprise:** Profile of an entrepreneur-need scope and characteristics of entrepreneurs. Attitude development, creativity stress management-positive reinforcement.

### **UNIT II**

**08 Hrs**

**Methodology of Project Identification:** Short listing and zeroing on to product/service-project in outline project planning- technical and feasibility analysis-evaluation of project report. Project appraisal technical, commercial and financial appraisal - problems in project equation -legal, financial and environmental aspects.

### **UNIT III**

**08 Hrs**

**Marketing:** Market share-distribution-sale strategies-certification agencies-term finance-source and management working capital-coating and cost control (basic principles only) need analysis-product design (basic principles only)-developing operational expertise- innovation and change.

### **UNIT IV**

**08 Hrs**

**Small Industries Development:** Small Industries development in India and its concepts- ancillary industries-starting a small scale industry-steps involved-role of financing and other institutions providing assistance to small industries-preparation of project (case study).

### **UNIT V**

**08 Hrs**

**Accounting Principles:** Conventions and concepts-balance sheet profit and loss account. Accounting rate of return, pay back period, SSI duty practice.

## **Course Outcomes**

- CO1. Identify and apply the elements of entrepreneurship and to entrepreneurial processes;
- CO2. Recognize the importance of entrepreneurship and identify the profile of entrepreneurs and their role in economic growth;
- CO3. Use the entrepreneurial mind-set and behave responsibly and ethically in their roles as entrepreneurs.
- CO4. To Use capital budgeting that includes cost of capital, leverage and dividend policy in a financial management context;

## **Text Books**

1. Developing Entrepreneurship -Udai Pareek and T.V. Venkateswara Rao, A Hand Book of Learning systems - ND. 1978.

1. Entrepreneurship Development - P. Saravanavel - Ess Pee Kay publishing house -1st Edition.

### **Reference Books**

1. EDI - 1 Faculty and External Experts, A handbook for new entrepreneurs, Entrepreneurship development institute of India -1986.
2. Entrepreneurship and Small Business - Anil Kumar - I K International Publishing house Pvt. Ltd - 1st Edition.

## **WORLD CLASS MANUFACTURING**

**Course Code: IM8PE414**

**LT P S C  
3-0-0-0-3**

### **Course Objectives**

1. To understand and apply fundamental principles and tools of business process to obtain dramatic improvement in the organizations.
2. To learn about the tool which facilitate to know the best practices of the competitors and to inculcate the same and stay ahead
3. Entry level understanding of the six sigma tool to function effectively in both quantitative and non quantitative analysis
4. To learn about the different management tools like total productive maintenance, activity based management and the awards given to the organizations for the world class quality

### **UNIT I**

**08 Hrs**

**Introduction** - World-Class Manufacturing, Manufacturing Excellence and Competitiveness, Hall's framework of world-Class Manufacturing (WCM), Gunn's Model of World-Class Manufacturing, Maskell's Model of World-Class Manufacturing, America's Best Plants Model of World Class Manufacturing.

**Philosophy of WCM** - The First Principles of World-Class Manufacturing, The practices of World-Class Manufacturing-The customers Interface, Supplier Interface, World-Class Practices in the factory, Shingo's Quality Management.

### **UNIT II**

**08 Hrs**

**Data Collection Plan**- research-internal public domain sources, outside experts etc. original research, site visits, and code of conduct. Analyzing the gap: Top displaying data, deciding and combining best work practices, Balance Score Card Technique, Value Stream Mapping, validation, recommendations etc

**Theory of constraints (TOC) - Theory of Inventive Problem Solving.**

**UNIT III**

**08 Hrs**

**Re-engineering:** Definition of Business Process Reengineering fundamentals rethinking, radical redesign, and dramatic improvement. **Rethinking business process, new world of and enabling role of information technology.**

**Activity Based Management (ABM) -** Introduction, Traditional Cost Systems, Activity Based activity Based Costing, Activity Based Management, ABM Implementation, and case study.

**UNIT IV**

**8 Hrs**

**Benchmarking -** Definition, mission and objectives, managing benchmarking process, training and code of conduct, future scope and benchmarking process. What to benchmark: concept of step zero, priorities, business processes linking to goals etc, investigation, documentation, performance measures, improving business processes. Whom to benchmarks: Developing candidate list, systematic search, refining the initial list. Importance of 3Cs- customers takes charges, competition intensifies, and change becomes constant.

**UNIT V**

**07 Hrs**

**Quality Systems -** The Basics, The core of Six Sigma(DMAIC), design for Six Sigma, DFSS and the customer, Quality time and the Bottom line , core of DFSS-IDOV method , DFSS Metrics, DFSS Infrastructure People and resources, Implementing DFSS, ISO 9000-2000, IS 14000, Frame Work for Business Excellence - Malcolm Baldrige Award, Deming's Award.

**Course Outcomes**

CO1. Apply the different quality techniques to reach the level of world class in the manufacturing sector.

CO2. Appreciate the importance of change in terms of continuous learning and application of new technology to strive highest quality.

CO3. Analyze the importance of doing things right at the first time and learn the various techniques which helps to do so.

CO4. Demonstrate the latest techniques like design for six sigma in reaching to world class level.

**Text Books**

1. World Class Manufacturing- A Strategic Perspective-Sahay B S, Saxena K B C, Ashish Kumar,,: MacMillan India Ltd, ISBN 0333-93-4741.
2. Six sigma for Managers- TMH 2002,Greg Brue, ISBN-0-07-048639-5

### Reference Books

1. Design for Six Sigma -Grege, TMh 2003,ISBN 0-07-058120
2. Creveling, Design for Six Sigma in Technology and Product Development -Pearson Education 2008.
3. Total Quality Management -Dale H. Besterfield, Carol Besterfield-Minchna, Glen H Besterfield and Mary Besterfield 3<sup>rd</sup> edition Pearson education, ISBN 81-297-0260-6
4. Total Quality Management Keshavan R, IK International Publishing house Pvt. Ltd - 2008

## ORGANIZATIONAL BEHAVIOUR

Course Code: IM8PE415

LT P S C  
3-0-0-3

### Course Objectives

1. To understand the nature of human behavior in corporate and other organizations
2. To learn about the concepts of different styles of motivation, company leadership, power and authority
3. To know about the strategies of organization, organization design and structure and to measure organization effectiveness.
4. To learn and adopt team work and collaboration

### UNIT I

8 Hrs

**Introduction:** Definition of Organization, Behavior and Historical development, Environmental context (Information Technology and Globalization, Diversity and Ethics, Design and Cultural, Reward Systems.

**The Individual: Foundation of individual behaviour, Ability.**

### UNIT - 2

8 Hrs

**Learning:** Definition, Theories of Learning, Individual Decision Making, classical conditioning, operant conditioning, social Making, learning theory, Continuous and intermittent reinforcement.

**Perception:** Definition, Factors influencing perception, Attribution theory, Selective perception, Projection, Stereotyping, Halo effect.

### UNIT - 3

8 Hrs

**Values and Attitudes:** Definitions values, Attitudes: Types of values, job satisfaction, job involvement, professional Ethics, Organizational commitment, cognitive dissonance.



**Conflict Management:** Definition of conflict, functional and dysfunctional conflict, stages of conflict process

**UNIT IV**

**7 Hrs**

**Leadership:** Definition, Behavioural theories Blake and Mouton managerial grid, Contingency theories hersey - Blanchard's situational theory, Leadership styles characteristics, Transactional, transformation leaders.

**UNIT -5**

**8 Hrs**

**Motivation:** Maslow's Hierarchy of Needs, Mc. Gregor's theory X and Y, Herzberg's motivation Hygiene theory, David Mc Clelland three needs theory, Victor vroom's expectancy theory of motivation.

**Work stress:** Meaning and definition, Relationship between stressors and stress, Work stress model, Type A personality, Type B personality, Group level stressors, organizational stressors and extra organizational stressors.

**Course Outcomes**

- CO1. Manage the art of getting work in the corporate and other organization.
- CO2. Identify the different motivational factors and leadership styles which can be applied to reach the organization's goal.
- CO3. Appreciate the importance of team work and team building strategies.
- CO4. Develop the structure and hierarchy of the organization.

**Text Books**

- 1. Organizational Behaviour, Stephen P Robbins, 9<sup>th</sup> Edn, Pearson Education Publications, ISBN817808561-5
- 2. Organizational Behaviour Fred Luthans, 9<sup>th</sup> Edn, Mc Graw Hill International Edition, ISBN007 204121

**Reference Books**

- 1. Organisation Behaviour Hellriegel, Srocum and woodman, Thompson Learning, 9<sup>th</sup> Edition, Prentice Hall India, 2001
- 2. Organizational Behavior Aswathappa Himalaya Publishers. 2001.
- 3. Organizational Behaviour VSP Rao, Konark Publishers 2002.
- 4. Organizational Behaviour (Human behaviour at work) 9<sup>th</sup> Edition John Newstron / Keith Davis. 2002.
- 5. Management of Organizational Behaviour, Paul Henry and Kenneth H. Blanchard, Prentice Hall of India, 1996.

## **TECHNICAL SEMINAR**

**Course Code : IM8TS01**

**L T P S C**  
**0-2-0-1-1**

**Course Objectives:** To make the students to understand the current technical topics and their applications

Students have to select the topics on recent advances in Engineering/ Technology / Management in discussion with the guide. He/ She has to register the topic along with the abstract. There will be two seminars and they have to submit the seminar report according to University norms.

**Course Outcomes:** The students will be able to extract the technical papers through journals and present their views

## **PROJECT WORK ( PHASE - II )**

**Course Code : IM8PW01**

**L T P S C**  
**2-4-12-2-10**

In continuation with Phase-I, students have to undergo an intensive project work of related topic in consultation with the guide. The progress report has to be submitted to the coordinator once in fortnight with attestation by the concerned guide. After completion of the project works, dissertation has to be submitted along with the presentation.

- 1 Internal Viva (Project Progress presentation + seminar with Project report) - 100 Marks
2. External Viva (Dissertation + Seminar + Viva) - 100 Marks