

CIRCULAR :-

A reference is invited to the Ordinances, Regulations and Syllabi relating to the Bachelor of Engineering (B.E.) degree course vide this office Circular No.UG/591 of 1999 dated 9th December, 1999 and Principals of the constituent affiliated colleges in Engineering are hereby informed that the recommendation made by the Faculty of Technology at its meeting held on 15th December, 2003 has been accepted by the Academic Council at its meeting held on 3rd January, 2004 vide item No.4.25 and subsequently approved by the Management Council at its meeting held on 28th January, 2004 vide item No.22 and that in accordance therewith the new branches of Biotechnology, Bio-Informatics and Packaging Technology has been added under the Bachelor of Engineering Degree Course and that amended O.3701 relating to the B.E. degree course reads as under :-

O.3701 :- The degree of Bachelor of Engineering (B.E.) will comprise the following branches :-

- i. Automobile Engineering
- ii. Bio-medical Engineering
- iii. Chemical Engineering
- iv. Civil Engineering
- v. Computer Engineering
- vi. Construction Engineering
- vii. Electrical Engineering
- viii. Electronics Engineering
- ix. Electronics & Telecommunication Engineering
- x. Instrumentation Engineering
- xi. Mechanical Engineering
- xii. Production Engineering
- xiii. Information Technology
- xiv. Marine Engineering
- xv. Bio-Technology
- xvi. Bio-Informatics
- xvii. Packaging Technology —

Further that the amended O.3701 will be brought into force with effect from the academic year 2004-2005.

MUMBAI-400 032

8th March, 2004

for REGISTRAR

To.

The Principals of the constituent affiliated colleges in Engineering.

AC.4.25/03.01.2004

No.UG/ 95-A of 2004.

MUMBAI-400 032.

8th March 2004

Copy forwarded with compliments for information to :-



UNIVERSITY OF MUMBAI



Syllabus for MCA

Semester V - (w.e.f. 2004 - 2005)

Semester VI - (w.e.f. 2005 - 2006)

MCA Semester V

Sr. No.	Subject	L	P	Theory (hours)	Theory Marks	TW	P	O	Total
1	Network Security	4	2	3	100	25	--	--	125
2	Advanced database Techniques	4	4	3	100	25	--	--	125
5	Elective I	4	4	3	100	25	--	--	125
6	Project	10	--		100	25	--	--	125
	TOTAL	22	10	--	400	100	--	--	500

MCA Semester VI

Sr. No.	Subject	L	P	Theory (hours)	Theory Marks	TW	P	O	Total
1	Wireless Technology	4	2	3	100	25	--	--	125
2	Distributed Computing	4	4	3	100	25	--	--	125
5	Elective II	4	4	3	100	25	--	--	125
6	Project	10	--		100	25	--	--	125
7	Foreign Language**	4	--	--	--	--	--	--	--
	TOTAL	22	10	--	400	100	--	--	500

**One foreign language out of German, French, Spanish, Chinese, Japanese will have to be completed as a value added course. A term work of assignments in the language will be submitted.

Sr. No.	Elective I	Elective II
1	Parallel Processing	Strategic IT Management
2	Artificial Neural Networks	Customer Resource Management
3	Network Programming	Project Management
4	Robotics	Supply Chain Management
5	Advanced Java	Business Process Reengineering
6	GIS	Industrial Engineering and ERP
7	Embedded Systems and Programming	e- Commerce and Industrial financing
8	Multimedia	IT Laws and Patents

Detailed Syllabus – Semester V

CLASS: MCA		Semester - V	
SUB: Network Security			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	2	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	--	--
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1. Introduction:

Attacks, Services and Mechanisms, Security Attacks , Security Services

Cryptography:

Terms, outline, Plain text and Cipher Text, Encryption and Decryption, symmetric cryptography, asymmetric cryptography, Integrity check, digital signatures, authentication, hash algorithms

2. Secret Key Cryptography:

Block encryption,

DES: overview, DES rounds, S-Boxes

IDEA: overview, comparison with DES, key expansion, IDEA rounds

Skipjack: history, overview

Uses of Secret Key Cryptography: ECB, CBC, OFB, CFB, Multiple encryption
DES

3. Hash Functions and Message Digests:

length of hash, uses, algorithms (MD2, MD4, MD5, SHA)

MD2: algorithm (padding, checksum, passes)

MD4&5: algorithm (padding, stages, digest computation)

SHA: overview, padding, stages

4. Public Key Cryptography:

algorithms, examples, modular arithmetic (addition, multiplication, inverse, exponentiation)

RSA: generating keys, encryption and decryption

Other Algorithms: PKCS, Diffie-Hellman, El-Gamal signatures, DSS, Zero-Knowledge Signatures

5. Authentication:

Password Based, Address Based, Cryptographic Authentication,

Passwords: in distributed systems, on-line vs off-line guessing, storing

Cryptographic Authentication: passwords as keys, protocols, KDC's,

Certification Authorities, CA's vs. KDC's,

Certification Revocation, Inter-domain, groups, delegation

- Authentication of People: Verification techniques, passwords, length of passwords, password distribution, smart cards, biometrics
6. Public Key Infrastructure:
what is PKI, certificates, directories, cross-certification of domains in PKI, X.500 directories and X.509 certificates
 7. Security Policy:
What is security policy, high and low level policy, user issues
 8. Security Handshake Pitfalls:
protocol problems, assumptions, shared secret protocols, public key protocols,
mutual authentication, reflection attacks, use of timestamps, nonces and sequence numbers, session keys, one- and two-way public key based authentication
 9. Example System:
Kerberos: purpose, authentication, server and ticket granting server, keys and tickets, use of AS and TGS, replicated servers
Kerberos V4: names, inter-realm authentication, key version numbers
Kerberos V5: names, realms, delegation, forwarding and proxies, ticket lifetimes, revoking tickets, multiple Realms
 10. Network Security:
Electronic mail security, IP security, Network management security,
 11. Security for electronic commerce: SSL, SET
 12. System security
Intruders and Viruses, Firewalls, Intrusion Detection

References

1. Kaufman, C., Perlman, R., & Speciner, M., .Network Security, Private Communication in a Public world, 2nd ed., Prentice Hall PTR., 2002
2. Stallings, W., .Cryptography and Network Security: Principles and Practice, 3rd ed., Prentice Hall PTR., 2003
3. Atul Kahate, Cryptography and Network Security, McGraw Hill
4. Stallings, W., .Network Security Essentials: Applications and Standards, Prentice Hall, 2000

CLASS: MCA		Semester - V	
SUB: Advanced Data Base Techniques			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	--	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1.) Parallel and Distributed databases.

10 hours

- Architecture for Parallel databases
- Parallel Query Evaluation.
- Parallelizing Individual operations.
- Parallel query optimization.
- Introduction to DDBMS.
- Architecture of DDBs
- Storing data in DDBs.
- Distributed Catalog Management.
- Distributed Query Processing.
- Distributed concurrency control and recovery.

2) Data Ware housing-

6 hours

Characteristics of Data Warehouse

- Data Marts

Content of Data Warehouse Database

Database Structures

Getting Data into the Data warehouse

- Extraction
- Transformation
- Cleansing
- Loading
- Summarization

Metadata

- Human
- Computer-based

Constructing a Data Warehouse System

- Stages of the project
- Planning Stage

- Data Warehouse Design Approaches
- Architecture Stage
- Any Case Study
- Levis Strauss / Hewlett Packard / Govt. of Tamil Nadu/ Govt. of Andra Pradesh

3) OLAP

5 hours

- OLAP Architecture
- Relational OLAP
- Multidimensional OLAP
- Relational vs. Multidimensional OLAP
- Web Based OLAP
-
- Star Schemas
- Facts
- Dimensions
- Attributes
- Attribute hierarchies
- Star schema representation
- Performance-improving techniques

Implementation techniques for OLAP.

- Bitmap Indexes
- Join Indexes
- File organizations

4) Data Mining.

5 hours.

- Introduction.
- Counting Co-occurrences.
- Mining for Rules.
- Tree- Structured Rules.
- Clustering.
- Neural Networks
- Similarity Search over Sequences.

5) Object Database systems.

6 hours.

- Introduction.
- User –Defined ADTs.
- Structured Types.
- Object, Object identity, and Reference types.
- Inheritance.
- Database design for ORDBMS.
- New challenges in implementing ORDBMS.
 - Storage and access methods.
 - Query Processing and optimization.
- OODBMS.
- Comparison between OODBMS and ORDBMS.

6) Advanced Data types and New Applications.

6 hours

- Motivation.
- Time in databases.
- Mobile databases.
- Main memory databases.
- Multimedia Databases.
- Geographic Information system.
- Temporal and Sequence databases.

7) Database Security

2 hours

Reference:

1. Database Management Systems.- Raghu Ramakrishnan, McGraw Hill International Editions.
2. Decision Support and Data Warehouse Systems- Efrem G. Mallach – Tata McGraw Hill Edition
3. Data Warehousing- Concepts, Techniques, Products and Applications-C.S.R. Prabhu Second Edition , PHI
- 4 .Database Systems –Design, Implementation & Management – Rob- Coronel Thomson Course Technology.
5. Database System Concepts. Korth. McGraw Hill.
6. Distributed Databases. Ceri and Pelagati.
7. Mastering Data Mining. Michael J.A.Berry, Gordon S. Linoff, Wiley Publication.
8. Data Ware House. W.H. Inmon. Wiley-dreamtech India Pvt. Ltd.

Elective I

CLASS: MCA		Semester - V	
Parallel Processing			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1. Introduction to Parallel Processing
 Flynn, Feng's Classification
 Principals of Pipelining and Vector Processing
 Scalar, Vector pipelines, super Scalar architectures (6 Hrs)
2. Parallelism Paradigms
 SIMD, MIMD, Shared and Distributed Memory, Systolic
 Arrays, Data Flow, Reduced Data Flow, Wavefront Array
 Interconnection Network:
 Various Tologies, viz. Bus, Hypercube, Mesh, Star, Tree etc.
 Static and dynamic type of networks, MIN, cross-bar , etc. (6 Hrs)
3. Types of Parallelism
 Data and Control flow Parallelism
 Parallelism in Scientific Programs (3 Hrs)
4. Programmability Issues in Parallel Processing
 Parallel/Concurrent Programming Models
 Shared Memory, Message Passing Model,
 Data Parallel Model,
 Object oriented model,
 Master-slave model, Directed Acyclic Graph (6 Hrs)
5. Data dependency Analysis
 Share memory programming using threads
 Algorithms for Parallel machines
 Data flow computing (4 Hrs)
6. Parallel programming Languages- An Introduction

HPF, Linda, OCCAM, Hence Message Passing Interface	(2 Hrs)
PVM, MPI Concepts and Programming techniques	(6 Hrs)
7. Parallel Algorithms for shared and distributed memory	(4 Hrs)
8. Modern Trends, Cluster Computing Case Studies- Beuwulf Clusters, Indian Parallel Systems: PARAM, ANUPAM	(4 Hrs)

References:

1. Advanced Computer Architecture : Parallelism, Scalability and Programmability – Kai Hwang
2. Computer Architecture and Parallel Processing – Kai Hwang and Faye A. Briggs
3. Designing Efficient Algorithms for Parallel computers – M.J.Quinn
4. Scalable Parallel Computing – Kai Hwang

CLASS: MCA		Semester - V	
SUB: Artificial Neural Networks			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	--	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	--
	Oral Examination	--	--
Detailed Syllabus	Term Work	--	25

1. Introduction

Neural Networks: History of Neural Networks development. Biological Neurons, Artificial Neurons – Activation functions. Neural Networks concepts and architecture. Knowledge representation in neural networks. Artificial Intelligence and Neural Networks. (5 Hrs)

2. Learning Methods

Categories of Learning – Supervised/Unsupervised and Reinforcement learning, Memory based learning, Hebbian learning, Competitive Learning, Boltzman learning, Statistical learning. (5Hrs)

3. Neural Network Models

Single Layer Perception, Adaptive filtering problem, Least mean square algorithm, Learning curves, Perceptron, Perceptron Convergence theorem. (5Hrs)

4. Multi Layers Perception

Introduction, Back Propagation Algorithm, XOR problem, Stopping Criteria, Complexity of learning, Hessian Matrix, Generalization, Network pruning techniques, Analysis of Back Propagation algorithms. (5 Hrs)

5. Feedback Neural Networks

Introduction, Analysis of Autoassociative FF Networks, Analysis of Pattern Storage Networks, Stochastic Networks and Simulated Annealing, Boltzmann Machines (5Hrs)

6.Radial-Basis Function Network

Introduction, Cover's theorem, Supervised learning , Regularization theory,
Generalized Radial-Basis Function Networks, Comparison of RBF networks and
Multi-layer Perceptrons. (5Hrs)

7. Principal Component Analysis

Intuitive Principles of Self-organization, Principal Component Analysis, Hebbian-
based Analysis, Adaptive PCA (3 Hrs)

8. Self-Organizing Network

Introduction, The Kohonen algorithm, Self Organizing Map, Learning Vector Quantization,
Computer Experiment: Adaptive Pattern Classification (4 Hrs)

8. Hop field Model

The Hopfield learning algorithm and its limitations, Cohen_Grossberg Theorem,
Brain-State-in-a-box model (2 Hrs)

9. Neural Networks Applications.

Direct applications, Application Areas (2Hrs)

References

1. Simon Haykin: Neural Networks – A Comprehensive Foundation. Pearson Education, India, Second Edition, 2001.
2. Artificial Neural Networks – B. Yagnanarayana PHI

CLASS: MCA		Semester - V	
SUB: Network Programming			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	--
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

Communication Protocol. Internet protocols Novell, network system, System network architecture. UUCPIPX/SPX for LANs. Protocol comparisons.

Berkeley sockets: Overview. Unix domain protocols. Socket addresses. Socket system calls Reserved ports. Passing file descriptors. I/O asynchronous and Multiplexing, socket implementation.

Winsock programming: Using the windows drovers. Netware C interface for windows. IPX/SPX procedure. Datagram communication. Connection oriented communication with SPX, IPX/SPX implementation of DLL.

Programming applications: Time and date routines. Ping. Trivial file transfer protocol. Remote login.

References

Davis, R., "Windows Network Programming" Addison Wesley, Reading, M.A., 1993.
Steven, R., "Unix Network Programming", Prentice Hall of India, New Delhi, 1994.

CLASS: MCA		Semester - V	
Robotics			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

- 1 Introduction to Manipulators Classification, d.o.f., etc., End effectors, Locomotion devices. controllers, Sensors and Interface. Terminology in robotics.
- 2 Detailed study of the above aspects. Study of different drives like stepper motors, servos, pneumatics, hydraulics and harmonic drives.
- 3 Study of automation principles :
Where ? Why? What?
Open loop, Closed loop, low cost automation, automation with hydraulics.
- 4 Relevance of Robotics, Automation in manufacturing systems.
- 5 Application of Robotics - Material Transfer machine Loading, Welding, Spray painting, Process operations, Assembly, Inspection.
- 6 Safety of Robots.
- 7 Robot Kinematics :
Position representation, Forward transformation of 2 D. O. F. arm, Reverse transformation of 2 D. O. F arm, 3 D. O. F arm in 2D, 4 D.O.F. manipulator in 3D, Homogeneous transformations and Robot Kinematics, Manipulator Path Control, Software development for Direct and Inverse Kinematics.
- 8 Robot Dynamics :
Static Analysis, Compensating for gravity, Robot arm dynamics, Configuration of robot controller, Software development for Robot Dynamics
- 9 Control of actuators in Robotic mechanisms
- 10 Compliantly supported rigid parts
Assembly of compliant parts
Design considerations
Engineered Compliance and the strategy of compliant assembly
- 11 Robotic Sensory Devices
- 12 Computer Vision for Robotic Systems
- 13 Computer Considerations for Robotic Systems
- 14 Design Example
- 15 Specification of Commercial Robots

- 16 Motor Selection in the Design of a Robotic Joint
- 17 Digital Control of a Single Axis

TERM WORK

- 1 Study of 6 axis articulated robot. (Kinematics, drives, controller and interface)
- 2 Experimenting with 6 axis articulated robot and determining positional accuracy and reliability.
- 3 Study of details of controller :
Point to Point control and continuous path control. development of software for the same.
- 4 Study of 5 axis mobile open architecture articulated robot and development of software in BASIC
- 5 Study of Robot Vision (Vision hardware and software)
- 6 Preparation of CAD package for design of atleast 3 machine elements.
- 7 Problems and assignments on Direct Kinematics
- 8 Problems and assignments on Inverse Kinematics.
- 9 Problems and assignments on Homogeneous transformations.
- 10 Problems on Software for Direct Kinematics
- 11 Problems and Assignments on Robot Dynamics.
- 12 Experiment on D.C. Servo Speed Control.
- 13 Experiment on position DC Servo.
- 14 Experiments on Linear Position Control on Electro-Hydraulic Servo Trainer.
- 15 Experiment on Angular Speed Control and Angular Position control on Electro-Hydraulic servo trainer.
- 16 Study of PLC and experiments using PLC

Assignments using a simulation Software.

Term work should contain atleast 2 assignments in the use of the above software and 10 assignments in the above listed topics. 2 seminars and one in Semester Test be conducted.

REFERENCE:

- 1 Robotics for Engineers - Yoram Koren
- 2 Robotics in Practice - J. F. Engelberger
- 3 Computer Integrated Manufacturing Technology and Systems - Ulrich rembolds, Christial Blume
- 4 Computer Aided Design in Mechanical Engineering - Ramamurthy
- 5 Robot Dynamics
- 6 Robotics - John Craig
- 7 Robot manipulators : mathematics, Programming and Control - Paul r p
- 8 Industrial Robotics - Groover and Simmers
- 9 Measurement systems - Ernest deoblin

- 10 Mechanical Measurements - Beckwith and Lewisbuck
- 11 Modern control Engineering - K. Ogata
- 12 Automatic Control Systems - Benjamin Kus
- 13 Robotic Engineering An Integrated approach - Richard D. Klafter and et. al.
- 14 Intelligent Robotic Systems - Spyros G. Tzafestas

CLASS: MCA		Semester - V	
Advanced Java			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1) Introduction to Swing

JApplet, Icons and Labels , Text Fields, Buttons, JButton Class, Check Box, Radio Buttons, The Container, Panel, Window, and Frame Classes , Combo Box, Tabbed Panes, Scroll Panes, Trees, Tables, Custom Rendering of JList Cells,

2) JDBC

- JDBC Fundamentals
- Establishing Connectivity and working with connection interface
- Working with statements
- Creating and Executing SQL statements
- Working with ResultSet Object & ResultSetMetaData

3) Servlets

- Introduction to Servlets (Life cycle of Servlet, Java Servlet Development Kit, Creating, Compiling and running servlet)**
- The servlet API : javax.servlet package
- Reading the Servlet Parameters , Reading Initialization parameter
- The javax.servlet.http.Package
- Handling HTTP Request and Response (GET / POST Request)
- Using Cookies, Session Tracking

4) Introduction to Java Beans

- What is Java Bean? , Advantage
- Installing / Starting / Using BDk (Bean Development Kit)
- JAR Files
- Using the Java Beans API

5) JSP

- Advantage of JSP Technology (Comparison with ASP / Servlet)
- JSP-Architecture , JSP Access Model

- iii) JSP Syntax Basic (Directives, Declarations, Expression, Scriptlets, Comments)
- iv) JSP Implicit Object , Object Scope
- v) Synchronization Issue
- vi) Exception Handling
- vii) Session Management

References

The Complete Reference JAVA 2 , Herbert Schildt, TMH

The Complete Guide to JAVA Database Programming, Matthew Siple, TMH

<http://java.sun.com>

Practical

Should contain at least 8 Practical from the Syllabus

Assignments

Should contain 4 assignment

CLASS: MCA		Semester - V	
GIS			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1. BUILDING BLOCKS OF GEOGRAPHIC INFORMATION.

Measurement Basics.
Measurement Frameworks.
Representation.

2. TRANSFORMATIONS AND OPERATIONS.

Attribute-based Operations.
Overlay: Integration of Disparate Sources.
Distance Transformations.
Surfaces and Near Neighbors.
Comprehensive Operations.
Transformations.

3. THE BROADER CONTEXT.

Evaluation and Implementation.
Social and Institutional Context.

Reference

Fundamentals of GIS Michel Demers
Exploring GIS Nicholas Chrisman
GIS means Business by Christian Hardar
ESRI guide to GIS analysis Vol I by Andy Mitchell

Assignments

Should contain 7 assignment.

Case Study : Present a report of 10 – 15 pages on any topics from syllabus.

CLASS: MCA		Semester - V	
Embedded Systems and Programming			
Perolds per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

Introduction :

- 1) Introduction to embedded system?, Variations on the theme, C : The least common denominator , Introduction to about hardware
- 2) What are real-time embedded systems, examples of real time embedded systems.
- 3) Introduction to embedded program ,The role of the infinite loop
- 4) Compiling, linking and locating, the Build Process.
- 5) Memory : Types of memory, Memory testing, Validating memory contents, working with Flash Memory
- 6)Peripherals: Control and status Registers, The device driver philosophy, A simple timer driver.
- 7) Operating Systems: History and Purpose, a decent embedded operating system, real-time characteristics, Selection process

References:

Programming Embedded systems in C and C++, O'reilly, SPD metrowreks.com
<http://www.ece.cmu.edu/~koopman/iccd96/iccd96.html>

Assignments

Should contain 4 assignment

Case Study : Present a report of 10 – 15 pages on any topics from syllabus.

CLASS: MCA		Semester - V	
Multimedia			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1) Introduction, What is multimedia? Components, Applications: presentation, profiles, CBTs, Conferencing etc, Issues concerning problems of transfer of data on networks due to stream orientation, Quality of services and synchronization .

2) Multimedia Elements: Analog and digital signals, Sampling and quantization, Color space/models, List of media elements Types of texts, attributes and preparation, graphic types, File formats for vector and raster graphics, Tools and processes for preparing graphical elements, Animation types and techniques and tools for preparation, Video standards, Compression techniques , file formats, Tool and process of preparing video

3) Integration and Authoring, Process of integration

4) Developing multimedia package, Content analysis for different applications, Story boarding, Media design, Integration and packaging

5) Coding and Compression, Entropy encoding-run-length, Repetition suppression, Pattern substitution, Hoffman etc, Source Encoding- Transform and differential encoding, JPEG compression process, Trade off between compression and picture quality, MPEG audio and video compression, MPEG-2 Standards, Various CD Formats.

Reference

Communication and Computing for Distributed Multimedia Systems,Guojun Lu, Artech House

Optimizing your Multimedia PC, L.J. Skibbe, S. Hafemeiseter, A.M. Chesnut, Comdex Computer Publishing

Multimedia Madness, RonWodaski, SAMS Publishing

Inside 3 D Studio Max, S. Ellioitt & Phillip Miller, Techmedia

Byte Guide to CD -Rom, Michael Nadean, Osborne McGraw Hill

3-D Graphics and Animation, Mark Giambruno, Techmedia

Multimedia: Making It Work, Tay Vaughan, Osborne McGraw Hill
Multimedia Systems, J.E.K Budford, Addison Wesley
Multimedia Systems Design, P.K. Andleigh, K Thakar, Prentice hall of India
Multimedia Systems, S.K. Tripathi, S.V. Raghvan

Assignments

Should contain 4 assignment

Case Study: Students are required to collect the information about the development in multimedia. A 5 – 10 page report has to be submitted on any topics related to multimedia. (E.g CD Mastering Techniques, CD printing, MPEG – Encoding, DVD Fabrication, DVD Mastering, Digital Synthesizer, 3-D Animation used in films etc)

Semester VI

CLASS: MCA		Semester - VI	
SUB: Wireless Technology			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	2	
	Tutorial	--	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
Detailed Syllabus	Term Work	--	25

Session 1: Introduction and Overview

Session 2: Communication Fundamental Review and Wireless Communication Technology

Transmission fundamentals, Communication Networks, TCP/IP suite, Antennas and Propagation

Session 3: Wireless Communication Technology

Signals, spread spectrum, coding and error control

Session 4: Wireless web

Internet, Mobile IP, Web, Wireless Web

Session 5: Cellular Networks –

First Generation, Second Generation, Third Generation systems,

Session 6: Fixed wireless networks and Wireless Local Loop

Cordless Systems, WLL, IEEE 802.16

Session 7: Mobile IP and Wireless Access Protocol

Session 8: Satellite Communications

Satellite Orbits, Use of Satellites for Communication, Satellite Parameters and Configuration, Capacity Allocation(Frequency Division and Time Division)

Session 9: Wireless LANs

Overview, Infrared LANs, Spread Spectrum LANs, Narrow Band Microwave LANs

Session 10: IEEE 802.11

802 Protocol Architecture, 802.11 -Architecture and Services, MAC and Physical layer

Session 11: Bluetooth

Overview, Radio Specification, Baseband Specification, Link Manager Specification, Logical Link Control and Adaptation

Session 12:

Mobile computing applications

Session 13: Special topics

- Wireless security, The Future of Wireless

References

1. S: Stallings, W., "Wireless Communications and Networks"
2. U: Umar, A., "Mobile Computing and Wireless Networks -- Technology Briefing"
3. B: Blake Roy, "Wireless Communication Technology", Thompson

CLASS: MCA		Semester - VI	
SUB: Distributed Computing			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	--	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	--
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1: Fundamentals

Evolution of Distributed Computing Systems, System models, issues in design of Distributed Systems, Distributed computing environment (4 hrs)

2: Computer Networks

Network types, LAN technologies, WAN technologies, Communication protocols, internetworking, ATM networks (4 Hrs)

3: Message Passing

Inter process Communication, Desirable Features of Good Message-Passing Systems, Issues in IPC by Message, Synchronization, Buffering, Multidatagram Messages, Encoding and Decoding of Message Data, Process Addressing, Failure Handling, Group Communication. (4 Hrs)

4: Remote Procedure Calls

The RPC Model, Transparency of RPC, Implementing RPC Mechanism, Stub Generation, RPC Messages, Marshaling Arguments and Results, Server Management, Communication Protocols for RPCs, Complicated RPCs, Client-Server Binding, Exception Handling, Security, Some Special Types of RPCs, RPC in Heterogeneous Environments, Lightweight RPC, Optimization for Better Performance. (4 Hrs)

5: Distributed Shared Memory

General Architecture of DSM Systems like Bus-based, Ring-based and NUMA multiprocessors, Design and Implementation Issues of DSM, Granularity, Structure of Shared memory Space, Consistency Models, replacement Strategy, Thrashing, Other Approaches to DSM, Advantages of DSM (4 Hrs)

6: Synchronization

Clock Synchronization, Event Ordering, Mutual Exclusion, Deadlock, Election Algorithms (2 Hrs)

7: Resource and Process Management

Desirable Features of a Good Global Scheduling Algorithm, Task Assignment Approach, Load-Balancing Approach, Load-Sharing Approach, Process Migration, Threads, Processor allocation, Real time distributed systems (6 Hrs)

8: Distributed File Systems

Desirable Features of a good Distributed File Systems, File Models, File –Accessing Models, File–shearing Semantics, File–caching Schemes, File Replication, Fault Tolerance, Atomic Transactions, Design Principles, Case Study: DCE Distributed File Service, Sun's network file system (4 Hrs)

9: Naming.

Desirable Features of a Good Naming Systems, Fundamental Terminologies and Concepts, Systems-Oriented Names, Object-Locating Mechanisms, Human-Oriented Names, Name Caches, Naming and Security, Case Study: DCE Directory Services (4 Hrs)

10: Case Studies

Amoeba: introduction, objects and capabilities, process management, memory management, communication, the Amoeba servers,
Mach: introduction, process management, memory management, communication, Unix emulation in Mach (4 Hrs)

References:

1. Distributed OS by Pradeep K Sinha (PHI)
2. Tanenbaum S., Distributed Operating Systems, Pearson Education
3. TanenbaumS, Maarten V.S., Distributed Systems Principles and Paradigms, (Pearson Education)

Elective II

CLASS: MCA		Semester – VI	
Strategic IT Management			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

i) Changing Paradigm and Strategic Learning

ii) Changing face of Strategic Thinking: Strategic Management Paradigm, Emergent strategy, Strategic flexibility.

(1) Readings: Getting off the Treadmill. & Exploring Framework of Strategic Flexibility & Managing for Strategic Flexibility. Cases: The Global Computer Industry and APPLE.

iii) Changing Strategic Situation: paradoxes, complexity, chaos, turbulence, and uncertainty.

(1) Readings: Crafting Strategy in New Environment. & In search of New Strategy Paradigms - A Survey of Emerging Thoughts. With Case study.

iv) Special models and tools of strategic management. Strategy making as a journey.

(1) Readings: Meta-strategy: The new Strategic Management. & The challenge: Turning Turmoil into Customer Centered Growth. & The Journey of Strategy Making. With Case study

(2) Building Core Competence and Strategic Capability, Culture and stake-holder expectation.

(1) Readings: Competence based Strategic Management. Cases: Indian Cases on Core Competence.

vi) Globalization Strategy, Strategy of Transnational Corporations.

(1) Readings: Do you really have a global strategy? & Global Strategy in a World of Nations.

(2) Presentations: Global Strategy of Select Corporations/Industries.

vii) Strategy Evolution and Alliances.

viii) Strategic Intent and Architecture. With Case study

ix) Strategic Alliances and Joint Ventures. Readings: The Global Logic of Strategic Alliances & Collaborate with your Competitors and win. Presentations: Analysis of Strategic Alliances and Joint Ventures.

x) Mergers and Acquisitions. Presentations: Analysis on mergers and Acquisitions.

- xi) Screening Strategic Options. Cases: Swiss Air Alliances With Case study
- xii) Comparative Strategies and Strategic profile of Indian Business Houses.
(1) Readings: Are Private Basic Telecom Projects Viable in India? Presentations:
Entry in Indian market from various Regions: US/Europe/Japan/SE Asia.
- xiii) Strategy Implementation and Change Management. Corporate Restructuring.
(1) Cases: ABB Operationalizing Strategy: Policies, Budgets, Support Systems, and Rewards.
(2) Cases: ALIP: Entering Indian Market. Issues of culture and leadership in strategy implementation, Corporate Governance. With Case study
- xiv) Managing Strategic Change and Transformation.
- xv) Functional Strategies/ Tactics: Marketing, Finance, HR, R&D.

Reference:

- (a) Strategic Management: Formulation, Implementation and Control, Pearce II, J.A. and Robinson R.B., Irwin
- (b) Strategic Management and Business Policy: Entering 21st Century Global Society, Whellen T.L. and Hunger J.D., Addison-Wesley
- (c) The Paradox Principles: How High Performance Companies Manage Chaos, Complexity and Contradiction to Achieve Superior Results, The Price Waterhouse Change Integration Team, Irwin.
- (d) Competing for the Future, Hamel G. & Prahalad C.K., Harvard Business School Press
- (e) Mergers, Restructuring, and Corporate Control, Weston J.F., Chung K.S. and Hoaf S.E., Prentice Hall of India
- (f) Cases in Strategic in Strategic Management, Budhiraja S.B. and Athreya M.B., Tata McGraw Hill

Case Study: Present a report of 10 – 15 pages on any topics from syllabus.

Assignments

Should contain 4 assignment

CLASS: MCA		Semester - VI	
Customer Resource Management			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1. **Introduction to CRM** : what is a customer? How do we define CRM? CRM technology, CRM technology components, customer life style, customer interaction.
2. **Introduction to eCRM** : difference between CRM & eCRM, features of eCRM.
3. **Sales Force Automation(SFA)** : definition & need of SFA, barriers to successful SFA, SFA:functionality , technological aspect of SFA: data synchronization , flexibility & performance, reporting tools.
4. **Enterprise Marketing Automation (EMA)** : components of EMA, marketing camping, camping, planning & management, business analytic tools. ,EMA components(promotions ,events, loyalty & retention programs), response management.
5. **Call Centers Mean Customer Interaction**: the functionality, technological implementation, what is ACD(automatic call distribution),IVR(interactive voice response), CTI(computer telephony integration),web enabling the call center, automated intelligent call routing, logging & monitoring.
6. **Implementing CRM**: pre implementation, kick off meeting, requirements gathering, prototyping & detailed proposal generation, development of customization, Power User Beta Test & Data import, training, roll out & system hand off, ongoing support , system optimization, follow up.
7. **Introduction to ASP(application service provider)**: who are ASP's?, their role & function, advantages & disadvantages of implementing ASP.

References:

1. CRM at the speed of light by Paul Greenberg, TMH.
2. Customer Relations Management by Kristin Anderson & Carol Kerr. TMH.

Assignments

Should contain 4 assignment

Case Study: Present a report of 10 – 15 pages on any topics from syllabus.

CLASS: MCA		Semester - VI	
Project Management			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

i) Projects & Project management, The project, Project Management., Types of projects, Contractual Arrangements.

(1) Readings: Basic Project Management- There are Four Types. & Making Project Management Work.

ii) The Nature of Project Management, Management principles, Some Factors in Project Management, The Project Manager. Factors for Project Success and Failure.

(1) Readings: The New Managerial work & Where does Project Cost Really Go Wrong? What it takes to be A Good Project Manager.

iii) Organizational Structures, The Project Organization, The Functional Organization, The Matrix organization, Designing an Organization, Building the Team, Leadership.

(1) Readings: Selection of the Team. & Matrix 'management: Contradiction and Insights.

iv) Project Administration: Project Authority & Project Control, Principles of Project Administration., TQM.

(1) Readings:

Skunk Works - Management Style- It's No Secret. & Executive Focus on Quality.

v) Defining and Financing the Project. How Project Evolve- the Client Brief., Financing the Project. Sources of Finance and Cash Flow.

(1) Readings:

(a) Structural Scale Models: Beyond The Computer. Clear Project Definition is Crucial. Construction Cost estimating in the Design Process. Meeting the Infrastructure Challenge.

(b) Three Perceptions of Project Cost - Cost Is More than A Four-Letter Word.

vi) Feasibility Studies and Approvals, Conducting a Feasibility Study, The Regulations Controlling Projects, Decision-Making, Economic Analysis.

(1) Readings:

(a) Project Management and Environmental Issues.

(b) Obstacles Encountered by a New Industrial Development.

(c) Environmental Planning and Engineering Decisions.

(d) Intellectual Sources of the Ideas of "acceptable Risk" in Public Policy.
(e) Speaking of Risk. Humble Decision-Making. Finding a Way to Measure Technology's Benefits. Justification Techniques for Advanced Manufacturing Technologies.

vii) The Management of Design, Documentation and Tendering: The Management of Design, Project Documentation, The Calling and Assessment of Tenders, Negotiation.

viii) The Planning of Project Implementation, The Plan of Execution, Planning the Time Scale

(1) Readings: Managing Software Development Projects. Balancing Strategy and Tactics in Project Implementations.

ix) On Time Project Completion- Managing the Critical Path. Resource Constrained Scheduling Capabilities of Commercial Project Management Software. Project Implementation and Control, Project Implementation, Project Execution, Project Control, Commercial Aspects.

(1) Readings: Managing Suppliers up to a Speed. Cost and Schedule Control in Naval Projects. Contract Negotiations, Dispute and Settlement. Project Management Control Problems: An Information Systems Focus.

x) Criteria for Controlling Projects According to Plan. Commissioning and Review, The Commissioning phase, The Completion of a Project.

(1) Readings: The Project Management Audit: Its Role and Conduct. & Knowing when to pull the Plug.

Reference

Project Management, Meridith & Mantel, McGraw Hill

Project Management - Principles and Practices, M. Pete Spinner, Prentice Hall

Essentials of Project management by Dick Billows

Projects: Planning Analysis, Selection , Implementation and Review by Chandra, Prasanna , TMH publication

Case Study: Present a report of 10 – 15 pages on any topics from syllabus.

Assignments

Should contain 4 assignment

CLASS: MCA		Semester – VI	
Supply Chain Management			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

1) Introduction to supply chain management -

Do we have the best suppliers at the lowest possible prices?
 Are we getting and sending materials as quickly as possible?
 Can the voices of our customers be heard in our processes?
 Are customers satisfied with our products?

2) Creating outcome-driven tasks and processes

Retooling the structure and business strategy of the organization
 Setting up effective people/responsibility charts
 Incorporating technology for maximum benefit
 Creating performance-based rewards
 Measuring results

3) Materials Management, Scope, importance, classification of materials, Procurement, Purchasing policies, vendor development and evaluation, Inventory control systems of stock replenishment, Cost elements, EOQ and its derivative models. Use of computers for materials function.

4) Logistics and competitive strategy, System view of logistics – Coordination and management of transportation, Inventory Order processing, Purchasing, warehousing materials handling, packaging and customer service standards

5) Supply Chain management, Distribution network design, channels of Distribution, Plant and warehouse location.

6) Transportation Systems – Individual Freight and passenger modes, intermodal transportation and third party transportation services, economic social, and political roles of transportation, demand, cost and service characteristics of different transport services, carrier selection and evaluation methods, contracting for transportation services, freight rate structure, Private fleet management, Claim management, International transportation, Ocean carrier management, port administration and regulation, costing and pricing issues of international transportation, logistics, cost transport mode choice, Dispatch decisions, routing decisions, routing Models, packaging to suit mode of Transport.

7) Total distribution Cost analysis

8) Logistic Information Systems.

References

Materials Management and purchasing, Ammer DS Taraporewala

Logistics and Supply Chain Management, Martin Christopher, Richard Irwin

Case Study : Present a report of 10 – 15 pages on any topics from syllabus.
There should be a class test

Assignments

Should contain 4 assignment

CLASS: MCA		Semester – VI	
Business Process Reengineering			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

- 1) What is BPR
- 2) Considerations in BPR
- 3) TQM4) SW available for BPR
- 5) How to Plan Your Project, Select the Right Team, and Choose Your Approach
- 6) Articulate the business issues driving the project
- 7) Clearly define your project's objectives
- 8) Gain buy-in from key business leaders
- 9) Define the project scope
- 10) Create a powerful team
- 11) Choose your reengineering steps
- 12) Select and work with consultants
- 13) Prepare a project budget
- 14) Project Planning Template and Guidelines
- 15) Reengineering Team Selection Criteria and Approach
- 16) Methodology Selection
- 17) Consultant Selection
- 18) Project Readiness Assessment

Reference

Reengineering the Corporation - A Manifesto for Business Revolution by Michael Hammer and James Champy.

Reengineering for Results: Keys To Success From Government Experience, Dr. Sharon L. Caudle; National Academy of Public Administration; Aug 94; on line text

Business Process Improvement

The Breakthrough Strategy For Total Quality, Productivity, And Competitiveness, H. James Harrington

The Change Management Toolkit for Reengineering

For companies and individuals involved in reengineering and represents a practical approach to the management of change in any organization - from Holland and Davis, Worthing Brighton Press.

Competing for the Future, Gary Hamel and C.K. Prahalad; book review and ordering info.

Deming Management Method, The Mary Walton; Perigee Books, Book review

Best Practices In Reengineering, McGraw-Hill, New York, NY, 1995 by David K. Carr and Henry J. Johansson, Coopers and Lybrand

Managing the Change Process: A Field Book for Change Agents, Team, Leaders and Reengineering Managers; David K. Carr, Kelvin J. Hard, William J. Trahan

New Tools For New Times: The Workflow Paradigm, Second Edition, WARIA Book Review on line, <http://www.waria.com/waria/fischer.html>

Process Innovation: Reengineering Work Through Information Technology, Thomas Davenport; Harvard Business School Press

Reengineering Revolution, A Handbook (The) HarperCollins Publishers, Inc. , New York, 1995, Michael Hammer and Steven A. Stanton; Book Review Only

The Wisdom of Teams : Creating the High-Performance Organization, Jon R. Katzenbach Douglas K. Smith

Winning With Quality: Applying Quality Principles In Product Development, John W. Wesner, Jeffrey M. Hiatt, and David C. Trimble

Case Study : Present a report of 10 – 15 pages on any topics from syllabus.

Assignments

Should contain 4 assignment

CLASS: MCA		Semester - VI	
Industrial Engineering and ERP			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	-
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

I INDUSTRIAL ENGINEERING

1. INTRODUCTION

System approach in manufacturing organization , Feature , Identification of different types of manufacturing systems (Mass, Batch , Job and Continuous)

2. ORGANISATION STRUCTURE AND BEHAVIOUR

Definition , Need , Types , Hierarchy , Functional matrix relationship , Responsibility , Authority delegation , Span of control , Recent developments (Lean , network , Virtual , SBU'S), Theories of motivation and leadership)

1. PRODUCTION MANAGEMENT

Production , Planning & control- Definations and Objectives, Inventory Control – Deterministic models , Statistical Quality Control – Control chart for variables - Concepts of variation, Control limit theorem. Why control charts work , Control chart techniques, -(Quality characteristics, trial control limits, revised control limits of mean, range and standard deviation chart, state of control, control chart for moving average and run charts) Control charts of attributes- Control chart for fraction defectives(p), Control chart for number of defectives(np), Control for number of defects (c), Control chart for number of defect per unit (u) . Total quality management – Policies and objectives , Organization for Quality , Cost of Quality , Designing for quality , Quality systems & Standards.

2. WORK STUDY , METHODS ENGINEERING & ERGONOMICS

Defination and Objectives , Work content – Basic work content, Total work content – in- effective time method of their reduction, Method study : Definition- Objectives and basic procedure- Different techniques used in method improvement- Process chart symbol- Process chart for operator or material process chart- Process chart for assemblies, Flow diagram- analysis and critical examination of operations and development of improved methods, Man machine chart, Multiple activity chart, Use of micromotion and memotion study , Work measurements , Significance and

procedures of work measurement , Techniques of time study: Steps in making a time study - Selection of operator, Break-up of an operation in to elements, Different timing method- Recording time study data- Form used ,Different rating practices , Normal time, Different types of allowances, Standard time. Maynard operation sequencing training (MOST) , Ergonomics , Safety , Safety devices , Occupational health and hazards , Design of Work Place.

Industrial psychology , Fatigue , Physical environment , Sound , Lighting, Ventilation.

3. FACILITIES PLANNING

Types of layout, Location of facilities, (Product, Process, Line , Cellular/group) Techniques for layout design for process ad product layouts, Assembly line balancing – Numerical problems.

4. MODERN DEVELOPMENTS IN INDUSTRIAL ENGINEERING

MRP-I (Material requirement planning), MRP-II (manufacturing resources planning), JIT , KANBAN , Push and pull production systems , Theory of constraints , BPR (Business process Re engineering) , Lean manufacturing , Agile manufacturing, Supply chain management , Enterprise Resources planning –ERP.

II ERP (ENTERPRISE RESOURCE PLANNING)

5. INTRODUCTION

What is ERP? Why ERP system is required? Managing enterprise with ERP – The new paradigm , Evolution of ERP, Material requirement planning (MRP) , Manufacturing Resoueces Planning (MRP-II)

6. THE EMERGENCE OF ERP SYSTEMS

Salient feature of of ERP systems , Different perspectives of ERP systems, Information systems perspective , Manufacturing perspective , ERP systems and management perspectives.

7. ERP & SUPPLY CHAIN MANAGEMENT (SCM)

ERP & Business Process Reengineering (BPR)

ERP & Integrated Management Systems

ERP & Multiplant management

ERP & Enterprise Paperless Management

8. JUSTIFICATION OF ERP SYSTEMS

Cost / Benefit analysis , Tangible and intangible benefits , Selection and implementation of ERP systems.

9. ERP SYSTEM IN INDIA

ERP : Perspective of Indian Industries.

Recent trends in ERP

* Topics 1,2 5 & 6 should be taught in elementary level covering basic concepts

TERM WORK.

Class test

At least five assignment on concepts , Case studies and analysis based on the topics mentioned above.

TEXT BOOKS.

1. Management A Global Perspective , 10th Edition, Heinz Wehrich, Harold, Koontz, Tata McGraw Hill Publishing Company Ltd (international Edition). Production and Operation Management, Chase, Aquilano & Jacks, Tata McGraw Hill Publishing Company Ltd
2. Time and Motion Study, Ralph M. Barnes.
3. Total Quality management , J.S. Oakland
4. Work Study and Ergonomics, H.S. Sham , Dhanpatrao
5. ERP and beyond integrating your entire organization, Gang A. LangenWalter, The St. Lucas Press/ Apics Series on resources management

REFERENCE BOOKS.

E- Business & ERP Transforming the Enterprise
Grant Norris , James R. Hurley , Kenneth M. Hurlley , John R. D. , John D. B.
Plant layout , Facilities planning By M. Apple
TQM (Total Quality management) By Besterfield
Business process reengineering Myths & Realities By Colen Coulsan , Thomson press
Business Process redesign A View From the inside By Ashley , Bragenza, Andrew Myers (International Thomson Business Press)

CLASS: MCA		Semester – VI	
SUB: E – Commerce and Industrial Financing			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
		Hours	Marks
Evaluation System	Theory Examination	3	100
	Practical	--	--
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

E E-COMMERCE

1.INTRODUCTION

Understanding E-Commerce , Emergence of the internet. Emergence of the worldwide web. Advantage and disadvantages of E- Commerce, E-Commerce in action, Reality and myth.

2.ENABLING TECHNOLOGIES OF E- COMMERCE

Internet client/server application, Networks and internets, Software agents, Internet standards and specifications, Internet service providers, Staffing for E-Commerce.

3.E-COMMERCE BUSINESS SOLUTIONS.

E- Marketing , Online marketing, advantages of online marketing, E- advertising : various means , Efficiency of E- Advertising , E- branding , Marketing strategies , E Security , Security on Net , E- business

Risk management issues

E-Payment systems , Online payment categories , Digital token based E-Payment systems , Risk and E- Payment systems

Designing E- Payment Systems.

E- Customer relationship management , E- CRM solutions, E-CRM toolkit , CRM capabilities and the customer life cycle.

E-Supply Chain Management.

Strategic advantages and benefits , Components and architectures , Major trends in E-SCM, E- strategy server dimensions, value chain and E- strategy, Planning the E-Commerce project , Brand management strategies.

4.TRANSITION TO E-COMMERCE IN INDIA

E-transition challenges to Indian corporate, The information technology Act 2000 , Positive aspects for corporate sector, Some Indian case studies , E- Commerce best practices , Modern trends in E- Business.

II Industrial Financing

1. THE SCOPE OF CORPORATE FINANCE

Introduction , Finance defined , Microfinance v/s Macrofinance , Corporate finance and other disciplines , The financial manager , The goal of corporate finance , profit maximization and traditional goal , Improving open tradition through value maximization.

FINANCIAL MARKETS

The other form of organization Capital, cash money and Govt. securities, Financial market overview , How new securities are issued , Public issue : General cash offer, Public issue : Rights offering , Private placement.

Types of financial markets

The common stock market , the bond market , The money market , International financial market , Efficiency of financial market, interest rates , the term structure of interest rates , The risk structures of interest rates.

2. AN OVERVIEW OF INVESTMENT APPRAISAL METHODS

Time value of money, The accounting rate of return method , The net present value method , The internal rate of return method , a comparison of NPV and RR method, Discounted payback method, Annual capital charge.

3. SOURCES OF LONG TERM FINANCE

Equity finance , The new issues market , Right issues , Script issues , Preference shares , DEBT finance , Hybrid finance , Sources of intermediate term finance, term loans and leases , Short term financial markets , Managing corporate liquidity , The concept of circulating resources , The impact on risk and return , Managing current assets , Manage financial structure.

4. WORKING CAPITAL MANAGEMENT

Objectives , Working capital policies , Working capital and cash conversion cycle , Overtrading , The management of stock , Management of costs.

5. MERGERS AND TAKEOVERS.

Terminology , Justification for acquisition , Trends in takeover activities , Valuation of the target company , The financing of acquisition , Strategies and tactical issues.

6. INTERNATIONAL FINANCIAL MANAGEMENT

Exchange rates , Fixed verses floating exchange rates , Spot rates , forward rates , Future rates, Factor affecting exchange rates , Foreign exchange exposure managing foreign exchange , Exposure Recent trends.

TERM WORK.

1. Class test
2. At least five assignment on concepts, Case studies and analysis based on the topics mentioned above.

TEXT BOOKS.

1. E- Commerce A management perspective
P.T.Joseph , Prentive Hall of India Pvt. Ltd.
2. E- Commerce strategies
Charles Trepper , Prentive Hall of India Pvt. Ltd.
3. E- Business and ERP , Transforminf the Enterprise
Grant Norris , James R. Hurley, John Willey & Sons. Inc.
4. Fundamentals of financial management
Prasanna Chandra , 3rd Edition , Tata Mcgraw Hill Publishing Company Ltd.
5. Introduction to Corporate finance
Terry's Maness , Mc Graw Hill series in Finance

REFERENCE BOOKS.

1. Corporate Finance Principles And Practises, Denzil Watson & Tong Heads , Financial Time Pitman Publisher
2. handbook Of Corporate Finance, Edward I. Altmass , Willy Professional Banking & Finance Services
3. Introductio to Financial Management, Bidil Dickerson , Eudere F. B. , The Dryden Press

CLASS: MCA		Semester – VI	
SUB: IT Laws and Patents			
Periods per week 1 Period of 60 min.	Lecture	4	
	Practical	4	
	Tutorial	-	
Evaluation System		Hours	Marks
	Theory Examination	3	100
	Practical	--	--
	Oral Examination	--	--
	Term Work	--	25
Detailed Syllabus			

- 1) Copyright Basics
- 2) Basic Patent Information
- 3) Basic Facts About Trademarks
- 4) Fair Use Harbor
- 5) Software Piracy -- Don't Copy That Floppy
- 6) How To Intellectual Property Rights, Copyright, Trademark, Patent ...
- 7) Intellectual Property MANAGEMENT - Net Links
- 8) Patent and Trademark Office Home Page
- 9) Intellectual Property Issues Affect Entrepreneurs
- 10) Government Law: Intellectual Property
- 11) Lists of Links to Intellectual Property Law Sites
- 12) Basic Business Research Methods
- 13) Creativity and Innovation
- 14) Legal Information
- 15) Naming and Branding
- 16) Non-Compete Agreements
- 17) Nonprofits (additional information for nonprofit organizations)
- 18) Product Selection and Development

References

How To Register Your Own Copyright by Marx Warda, Sphinx Publishing

Licensing Art & Design by Caryn R. Leland, Allworth Press

A Professional's Guide to Licensing and Royalty Agreements by Caryn R. Leland
Allworth Press

IT2000 Bill

Case Study: Present a report of 10 – 15 pages on any topics from syllabus.

Assignments

Should contain 4 assignment

Project II

Body of Project

Introduction

Literature Survey

Objective

Methodology

Feasibility study

Design/synthesis/Analysis

Fabrication and Details

Drawings

Test Rig and Tests

Results

Case Study

Results / Discussion

Conclusion

Future work

References

Appendix

This should contain Drawings, Graphs, coding used etc.