MCA DEGREE
COMPUTER APPLICATIONS

SYLLABUS
FOR
CREDIT BASED CURRICULUM

DEPARTMENT OF COMPUTER APPLICATIONS
NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 620 015, INDIA.
### SEMESTER I

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 711</td>
<td>Programming in C</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 713</td>
<td>Discrete Mathematics</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 715</td>
<td>Computer Organization and Architecture</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 717</td>
<td>Accounting and Financial Management</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MA 621</td>
<td>Numerical and Statistical Methods</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 701</td>
<td>Numerical Computation and C Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>CA 703</td>
<td>Business Communication</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

### SEMESTER II

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 710</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 712</td>
<td>Database Management System</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 714</td>
<td>Principles of Programming Languages</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 716</td>
<td>Operating Systems</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MA 604</td>
<td>Operations Research</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 702</td>
<td>Data Structures Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>CA 704</td>
<td>OS Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

### SEMESTER III

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 721</td>
<td>Data Warehousing and Data Mining</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 723</td>
<td>Graphics and Multimedia</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 725</td>
<td>Software Engineering</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 727</td>
<td>Principles of Compiler Design</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 729</td>
<td>Object Oriented Programming Analysis and Design</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 705</td>
<td>DBMS Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>CA 707</td>
<td>Graphics &amp; Multimedia Lab Using C++</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

### SEMESTER IV

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 720</td>
<td>Internet and Java Programming</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 722</td>
<td>Computer Networks</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 724</td>
<td>Software Architecture and Software Testing</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 726</td>
<td>Management Information System</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 728</td>
<td>Visual Programming</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 706</td>
<td>Java Programming Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>CA 708</td>
<td>Visual Programming Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>
**SEMESTER V**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 731</td>
<td>Web Technology</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 733</td>
<td>Client/Server Technology</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA ---</td>
<td>Elective I</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA ---</td>
<td>Elective II</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA ---</td>
<td>Elective III</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 709</td>
<td>Web Technology Lab</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

**SEMESTER VI**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 749</td>
<td>Project(Industrial) &amp; Viva-Voce Examination</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

**ELECTIVES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course of Study</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 735</td>
<td>Organizational Behavior</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 736</td>
<td>High Performance Computing</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 737</td>
<td>Neural Networks</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 738</td>
<td>Modelling and Computer Simulation</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 739</td>
<td>Systems Programming</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 740</td>
<td>Image Processing</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 741</td>
<td>Cryptography</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 742</td>
<td>Software Agents</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 743</td>
<td>AI and Expert Systems</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 744</td>
<td>Marketing Management</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>CA 745</td>
<td>Microprocessors and Interfacing Techniques</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
SEMESTER I

CA711 PROGRAMMING IN C

Introduction to Computers-Classification and Applications, H/W and S/W components, Programming paradigm, Program Development Cycle, Generation of Programming languages.


Arrays - Functions – Storage Classes – Pointers.

Structures and Unions – Dynamic Memory Allocation

File Allocation – Command Line Arguments Preprocessor Directives.

Reference Books

CA713 DISCRETE MATHEMATICS

Sets - Relations – Posets - Functions - Math Inductions (Simple and strong) – Combinatorics.


Trees, Spanning trees, Minimal Spanning tree Algorithms - Euler graphs - Hamiltonian directed graphs - Strongly connectedness.


Finite Automata – Context-Free Grammars – Chomsky’s Normal form -Griebach Normal Form - Push-down Automata - Equivalence of CFL’s and PDA’s - Non-context free languages.

Reference Books
2. Narsingh Deo, “Graph theory and application to Engineering and computer Science”, 1986, PHI

CA715 COMPUTER ORGANIZATION AND ARCHITECTURE

Objective: To introduce the nature and characteristics of modern day computers.

Pre-requisites: Knowledge of fundamentals of Digital Computers.
Number Systems, Binary Arithmetic, Boolean Algebra, Map Simplifications, Gates -
Combinational Circuits - Sequential Circuits.

Memory, Internal Memory, External Memory, Memory Organization, Associative
Memory, Virtual Memory, Cache Memory.

CPU, Arithmetic and Logic Unit, Instruction Sets, Instruction cycle, Addressing Modes and
formats, Instruction Pipeline, Processor organization, Register organization, Control Unit
Operation.

External Devices, I/O modules, Programmed I/O, Interrupt Driven I/O, Direct Memory
Access, I/O Channels and processors, Asynchronous Data Transfer.

Reduced Instruction Set Computers, Complex Instruction Set Computers, Super
Scalars, Vector, Parallel Cluster, Distributed, Embedded and MultiCore Processors.

Reference Books

CA717 ACCOUNTING AND FINANCIAL MANAGEMENT

Assets – Liabilities – Their various types - Trading account – Accounting records and

Depreciation – Methods - Inventory methods, Sources of working capital, Fund flows, Cash
flows – Financial Statement analysis.

Ratio analysis - Use of ratios in interpreting Trading Accounts and Financial Statements,
Limitations – Management Accounting.

Variable costs – Fixed costs – Cost Volume Profit Analysis – Break even marginal and full
costing contribution, Standard costing - Analysis of variance computer accounting and
algorithms.

Characteristics of Budgets - Forecasting – Long term, Short term – Methods of capital
investment decision making, Sensitivity Analysis, Cost of capital.

Reference Books
Bhawan, Agra.

MA621 NUMERICAL AND STATISTICAL METHODS

Sources and various types of errors – Chopping and Rounding in different number systems –
stability of numerical algorithms – transcendental and polynomial equation - Iterative method
- Regula-Falsi method – Newton-Raphson method - Roots of polynomials – Graeffe’s and Bairstow methods.


Binomial, Poisson and Normal Distributions – Fitting of probability distributions – Correlation and regression - Linear regression - Correlation coefficient - Multiple linear regression.

Tests of Hypothesis – Testing for Attributes – Mean of Normal Population – One-tailed and Two-tailed tests – Student t-test, F-test and Chi-Square test – ANOVA – One way and Two way Classifications.

Reference Books

CA701 NUMERICAL COMPUTATION AND C LAB

Exercises for learning basic features of C and exercises to solve various numerical methods

CA703 BUSINESS COMMUNICATION

Communication: concepts and Goals – Theories of communication – Organizational and personal goals.

Psychology of communication – Channels and Networks – Barriers to and cost of communication – Message Planning – Purposive Listening – types – Familiarity to different accents and tones.


Business Correspondence – Different kinds of written communication in business organizations.


Reference Books
1. Simon Sweeney, “English for Communication”, CUP.
2. Leo Jones and Richard Alexander, “New International Business English”, CUP.
SEMESTER II

CA710 DATA STRUCTURES AND ALGORITHMS

**Pre-requisites**: Introduction to theory of functions and knowledge on primitive data types


Graphs - Representations, BFS and DFS - Disjoint Sets - Representation and operations.


Basic Concepts of NP-Hard and NP-Complete Problems – Cook’s Theorem (Without Proof) – Reduction – Clique Decision Problem.

**Reference Books**

CA712 DATABASE MANAGEMENT SYSTEMS

**Pre-requisites**: Programming Languages – File Concepts


Relational Model – Constraints – Querying – Views - Relational Algebra and Relational Calculus - SQL & QBE.

Organization and Indexes - B+ Trees – Query Optimization.

Database Design - Functional Dependencies, Normalization – I to V Normal Forms.


**Reference Books**
CA714 PRINCIPLES OF PROGRAMMING LANGUAGES

Pre-requisites: Computer Programming hands-on with any one language


Data Types - Primitive and Non-primitive Data Types - Type Checking, Scopes, Life-time and Statements - Modular and Object-oriented Programming - Subprograms - Parameter-Passing Methods, Overloaded Subprograms. Abstract Data Types – Encapsulation - Data Abstraction - Design Issues - Parameterized Abstract Data Types - Design Issues for Object-Oriented Languages.

Functional Programming - Mathematical Functions Fundamentals – LISP, Scheme and Haskell - Applications of Functional Languages.


Reference Books

CA716 OPERATING SYSTEMS

PRE-REQUISITES: Computer Organization and Architecture and Data Structures


Storage Management - Virtual Memory — Page replacement algorithms - Design issues - Files and Directories Files System implementation — Deadlocks.

I/O systems - Device drivers - Disk scheduling algorithms- Modeling - Disk Caching - Design issue protocols.

Client — Server model remote Procedure call — Group Communication - Synchronization on distributed system — Clock synchronization — mutual deadlocks in distributed systems.

Parallel Hardware - OS for two Processor system - Atomic action - Multiprocessor OS - Threads — system model — processor allocation — distribution file system design — implementation and trends on distributed file systems.
Reference Books

**MA604 OPERATIONS RESEARCH**


Functions of inventories – Economic lot size quantity with or without shortage cost – Multiitem deterministic inventory problem – Inventory problem with price breaks – probabilistic models with uniform demand (discrete and continuous cases).

Queuing theory - notation and assumptions – characteristics of queue – Poisson input process – exponential service times – Queuing models – M/M/1 – M/M/C – M/M/1/N – M/M/C/N – Simple problems.

***Reference Books***

**CA702 DATA STRUCTURES LAB**

Pre-requisites: CA 710
Outline: Exercises to implement various data structures and algorithms using C and C++

**CA704 OPERATING SYSTEMS LAB**

Pre-requisites: CA 716
Outline: Exercises to learn various commands in prevailing OSs and implement scheduling and the like algorithms.
SEMESTER III

CA721 DATA WAREHOUSING AND DATA MINING

Pre-requisites: CA 710, CA 712

Introduction - motivation, importance, Functionalities, Basic DM Vs KDD, DM Metrics, DM Applications.

Data Warehousing: Difference between Operational Database and Data warehouse - Multidimensional Data Model - DW Architecture Efficient Processing of OLAP queries, Metadata repository.

Data Preprocessing: Data cleaning, Data Integration and Transformation, Data Reduction, Discretization and concept Hierarchy Generation.

Data Mining Query Language- Association Rule Mining - Classification and Prediction - Cluster Analysis - Outlier Analysis.

Web content Mining, Web Structure Mining, Web usage Mining. Spatial Mining - Temporal Mining.

Reference Books
1. Jiawei Han and Micheline Kamber, "Data Mining : Concepts and Techniques", Harcourt India Private Limited, First Indian Reprint, 2001

CA723 GRAPHICS AND MULTIMEDIA

Prerequisites: Matrix Theory, Analytical Geometry, Trigonometry


Three-dimensional Transformations – Hidden Surface Elimination Algorithms.


Reference Books
CA725 SOFTWARE ENGINEERING

Introductory concepts – The evolving role of software – Its characteristics, components and applications - A layered technology – the software process – Software process models - Software process and project metrics – Measures, Metrics and Indicators.


Reference Books

CA727 PRINCIPLES OF COMPILER DESIGN

Pre – requisites: CA 713, CA 714

Lexical Analysis, Regular Expression, Nondeterministic Automata, Deterministic Automata equivalent to NFA’s - Minimizing the states of DFA, Implementation of Lexical Analyzer.

Syntax Analysis – Top-down Parsing Concepts – Bottom-up Parsing , LR Parsers , Parser Generators.

Syntax directed Definitions, Construction of Syntax trees – Top down Translation, Bottom up Evaluation of Inherited Attributes, Recursive Evaluators, Assigning Space at Compiler Construction time.

Type checking – Overloading of functions and operators, polymorphic function - Intermediate Languages - Representation of Declarations, Assignment statement , Boolean Expression, Back Patching, Procedure calls.

Design of the code generators - DAG representation of Basic blocks, Peephole optimization, Code optimization – Global data flow Analysis, Loop optimizations.

Reference Books
CA79 OBJECT ORIENTED PROGRAMMING ANALYSIS AND DESIGN

Pre – requisites: C or Any Procedure Oriented Programming Language


Classification – Identification of classes and objects – Key abstractions and mechanisms – Basic and Advanced Modeling techniques.

Notation elements — Class, State Transition object, Interaction, module and process diagrams.

UML — OMT analysis (James & Rumbaugh) - Comparison of various OO Analysis of Design Methodologies — Case Studies.

Reference Books

CA05 DBMS LAB

Pre – requisites: CA 712
Outline: Exercises / case studies that require table design, normalization and query building.

CA07 GRAPHICS AND MULTIMEDIA LAB (using C++)

Pre – requisites: CA 723
Outline: Exercises to learn implementing various graphics algorithms using C++ and Exercises to learn multimedia concepts.
SEMESTER IV

CA720 INTERNET AND JAVA PROGRAMMING

Prerequisites: Object Oriented Analysis and Design, C++

Introduction— History of Internet and Evolution (LAN, WAN, etc.) — Basics of Communications-Accessing the Internet— Connection Services— Internet Resources— Internet Addressing — Elements associated with internet - hardware, media, etc.


Services, Searchers, Browsers: Directory Services, Finger, WAIS, Whois, DNS, Net Find, X 500 — Mosaic. Image, Binary Files via Newsgroups, Browsing and Searching — Web indexes — Search Engines and their types with design (e.g. Google, Yahoo, etc.).


Reference Books

CA722 COMPUTER NETWORKS

Pre-requisites: Computer Organization and Architecture, Operating Systems


Transport-Layer Services - Multiplexing and Demultiplexing - Principles of Reliable Data Transfer - Congestion Control – TCP’s Congestion Control.


Reference Books

CA724 SOFTWARE ARCHITECTURE AND SOFTWARE TESTING

Prerequisites: CA 725

Software components - COTS and infrastructure - Software variability management.

Software architecture design methods - Architecture evaluation and assessment methods - architectural styles.

Design Patterns - Evolution patterns - Software artifact evolution processes - Case studies - Java Beans.


Reference Books

CA726 MANAGEMENT INFORMATION SYSTEM


Reference Books

CA728 VISUAL PROGRAMMING


VB.NET – basic features - Inheritance, Value Types, Operator Overloading, Exception Handling, Arrays and Collections, Properties, Delegates and Events, Windows Forms, Dialog Boxes and Controls, Graphical Output, Files, Data access.

C#.NET – basic features, Arrays and Collections, parameter arrays, Inheritance, Garbage collection and Resource management.

ASP.NET – Validation controls – Accessing Data with web forms – Building ASP.NET applications – Building and XML web service handling XML.

Reference Books
1. Jeff Prosise, Programming Microsoft .NET, Microsoft Press

CA706 JAVA PROGRAMMING LAB

Pre-requisites: CA 720
Outline: Exercises / case studies that require object-oriented programming in JAVA

CA708 VISUAL PROGRAMMING LAB

Pre-requisites: CA 728
Outline: Exercises to learn programming in C#, ASP, VB - .NET languages (etc.)
SEMESTER V

CA731 WEB TECHNOLOGY

Prerequisites: CA 729, CA 720

Introduction to Client Server Architecture/Computing — Various Components of Internet and Web — Web Related Protocols — HTML — List, Table, Frame, Form Tags with their usage — Creation and Design of Static and Dynamic Web Pages — Web Design characteristics.


Introduction to ASP: Objects — Components; JSP : Objects — Components; PHP - Database Management — Java Beans as Components - Applications.


Reference Books

CA733 CLIENT/SERVER TECHNOLOGY


Server Hardware and Environment, Categories of Servers, SQL DB Servers, Network management and Network Computing Environment, Network operating systems, Loadable Module, Middleware, Data warehousing.


Reference Books

CA709 WEB TECHNOLOGY LAB
Pre-requisites: CA 731
Outline: Exercises / case studies on HTML, XML, PHP, JSP etc.

ELECTIVES

CA735 ORGANIZATIONAL BEHAVIOR


Motivation – Primary motives, General motives, secondary motives, and Work motivation approaches – Job design, Performance appraisal, Goal setting.

Interpersonal and group behavior - The nature of Groups – Dynamic of informal groups Individual conflict, Interpersonal conflict, Inter-group behavior and conflict - Leadership – Theories of leadership, leadership style.


Reference Books

CA736 HIGH PERFORMANCE COMPUTING
Prerequisites: CA 710, CA 715

Parallel algorithms on various models with complexity analyses for selection, merging sorting and searching problems - Parallel Programming Languages – C* and Sequent C - Comparison of Parallel Computing with Supercomputing and Distributed Computing.


Reference Books

CA737 NEURAL NETWORKS

Prerequisites: CA 722


Storage, Clustering and mapping - Pattern storage(STM) – Pattern Clustering – Competitive Learning – feature mapping – Kohonen’s Self organising networks - Architecture, memory and applications - Neural Architecture for complex pattern recognition task – Associative memory.

Data and Image compression – Pattern Classification – Spatio temporal patterns(Avalanche) – Pattern variability(Neocognitron) – Other Applications.

Reference Books
CA738 MODELING AND COMPUTER SIMULATION

**Prerequisites:** Probability Distributions, Any Programming Language.

Simulation and Simulation Software - Systems – Models – Types, Components, Steps in Modeling – Simulation of statistical queuing, manufacturing and material handling.


**Reference Books**

CA739 SYSTEMS PROGRAMMING

**Prerequisites:** CA 715, CA 716


Basic Macro Processor functions – Machine-independent Macro Processor features – Design options and Examples.


CA740 IMAGE PROCESSING

Prerequisites: CA 710, CA 707


Redundancy – Compression models – Coding Theorems – Different types of Coding – Lossy and Lossless compression - Compression Standards - Image segmentation.


Reference Books

CA741 CRYPTOGRAPHY


Stream Ciphers : Information Theoretic considerations – Linear Feed back Shift Registers and associated results – Geffe generator – One way functions and trapdoor – Diffe-Hellman Key exchange – Bit commitment using symmetric key.

Pollard p-heuristic – Pollard p – I Algorithm, Continued Fraction Factoring Algorithm, Quadratic Sieve Algorithm, Number Field Sieve, Zero – Knowledge Proof Idea – Recent Developments

Reference Books


CA742 SOFTWARE AGENTS

Prerequisites: CA 710


Reference Books

CA743 AI AND EXPERT SYSTEMS

Problem formulation, Problem Definition – Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics – Specialized production systems.

Problem solving methods – Problem graphs, Matching, Indexing and Heuristic functions – Measure of performance and analysis of search algorithms - Game playing.

Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic.

Knowledge Acquisition – Meta knowledge, Heuristics - Knowledge representation – Production based system, Frame based system.


Reference Books

CA744 MARKETING MANAGEMENT

Needs, wants and demands, product, value, satisfaction, marketing and markets - Evolution of marketing.


Product: Classification, mix decisions and line decisions, branding decisions and packaging - Channel: Nature, function, dynamics, design and management decisions.


Marketing control: Annual plan control, Profitability control, Efficiency control and strategies control. Marketing strategies: for leaders, followers, challengers, niche players and global markets.

Reference Books

CA745 MICROPROCESSORS AND INTERFACING TECHNIQUES

Prerequisites: CA 715


Simple Programs, Machine Coding the programs, Programming with Assembler, Example Programs - Stack, STACK Structure, Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-maskable Interrupt, Maskable Interrupt, Interrupt Programming, Macros. Semiconductor Interfacing, Dynamic Ram Interfacing, Interfacing I/O Ports, PIO 8255 - Interfacing Analog to Digital and Digital to Analog Converters.
Programmable Interval Timer 8253, Programmable Interrupt Controller 8259A, Keyboard/Display Controller 8279, Programmable Communication Interface 8251 USART, DMA Controller 8257. DMA Transfers and Operations.


Reference Books


SEMESTER VI

CA 746 Project (Industrial) & Viva-Voce Examination