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**SHIVAJI UNIVERSITY, KOLHAPUR-416 004. MAHARASHTRA**
PHONE : EPABX-2609000 GRAM : UNISHIVAJI
FAX 0091-0231-2691533 & 0091-0231-2692333 – BOS - 2609094
शिवाजी विद्यापीठ, कोल्हापूर ४१६ ००४. महाराष्ट्र
दुरध्वनी" : (ईपीएबीएक्स) २६०९००० (अभ्यास मंडळे विभाग- २६०९०९४) तार : युनिशिवाजी
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e-mail bos@unishivaji.ac.in Web-site www.unishivaji.ac.in



SU/BOS/Commerce /3754 Date : 24 AUG 2011

The Head,
Department of Commerce & Management
Shivaji University,
Kolhapur.

Subject: Regarding revised syllabi of M.C.A. Part-III (Commerce) (Semester -V) (Under Academic Flexibility and Credit System) under the Faculty of Commerce.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi of M.C.A. (Commerce) Part-III (Semester -V) (Under Academic Flexibility & Credit system) under the Faculty of Commerce.

This syllabi will be implemented from the academic year 2011-2012, (i.e. from June 2011) onwards. A soft copy (C.D.) containing the syllabus is enclosed herewith. This syllabus is also available on university website www.unishivaji.ac.in.

The question papers on the pre-revised syllabi of above mentioned course will be set for the examinations to be held in October/November-2011 and March /April -2012. These two chances are available for repeater students, if any.

You are therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,

Sd/-
Dy. Registrar

Encl:- As above
Copy to:-
1 Dean, Faculty of Commerce
2 Chairman, Board of Studies in Business Management
3 Appointment Section
4 O.E-I Section
5 Affiliation Section (P.G.)
6 Computer Centre

For information and necessary action.

# SHIVAJI UNIVERSITY, KOLHAPUR.

Accredited By NAAC
(2009)

Faculty of Commerce
Revised Syllabus For

# MCA

## Master of Computer Application

**(Under Academic Flexibility and Credit System)**

**Part – III (Sem- V )**

(Subject to the modifications that will be made from time to time)

**Syllabus to be implemented from June 2011 onwards.**

# MCA Commerce
# Proposal for Credit System

**1. Introduction: -**

MCA (Commerce) is a six-semester course spread over the period of three years. The Department of Commerce, Shivaji University, Kolhapur, offers this course on its campus. It is designed to offer in depth knowledge of recent technologies in use today. Students are also provided extensive laboratory training on the course content and the current requirements of industries and R & D. In the final semester every student has to undertake a project, which is an industrial project.

In addition, the course caters to the requirements of providing complete exposure to NET/SET syllabus for Commerce framed by the U.G.C.

**2. Advantages of the course: -**

The course provides exposure to the students to the technologies in-vogue and trains them to take up projects relevant to the industrial needs, the R& D activities and self –employment opportunities.

The student after passing the MCA course has many opportunities of employment, self-employment and higher studies.

**Employment Opportunities: -**

- I.T. Industries (India and Abroad).
- Research and Development Laboratories.
- Employment as a teacher and Other Govt. Organizations.
- Electronics and Telecommunication Industries.
- Process and Manufacturing Industries.

**Educational Opportunities: -**

- Higher studies in I.I.T, I.I.Sc, and CERE Pilani. (Ph.D.)
- Research in Shivaji University or any other University. (Ph.D.)
- Research abroad.

**3. Objectives of the Courses: -**

The course is designed with a view to cater to the present day requirements in Industries, R & D fields, higher studies and Self-employment. Moreover the course structure intends to inculcate strong practical skills, so that the student can take up independent projects which will help them to be a successful software engineer as well as entrepreneur. The students passed out from the course will serve as quality human resource to take up the state of art research work of the Department.

**4. Title of the Course:**

Master Of Computer Application [M.C.A.] (Under Commerce Faculty)

**5. Eligibility of the Course:**

- Any graduate with 50% of marks, 5% relaxation for category students
- Knowledge of mathematics at XII standard level is desirable.

**6. Fees for the Course**

As per University norms.

**7. Strength of the Students:**

The intake capacity is 60 + 10 % of the intake.

**8. Admission/Selection procedure:**

The admission to the MCA (Commerce) course is by entrance examination only. Admissions are given on the basis of merit of entrance examination and following the University rules of admission.

] The admission will be by round and the information regarding entrance examination result and the round of admission will be put up on the Shivaji University website www.unishivaji.ac.in.

**9. Duration of the Course:**

MCA (Under Commerce Faculty) is a three years, six semesters full time course.

**10. Period of the Course:**

From June to April End as specified in the University Calendar from time to time.

**11.Teachers Qualification:**

a) Good academic record
b) MCA with minimum 55% (MCA under any faculty)
c) NET/SET if candidate has Ph.D. in the subject, he will be exempted from NET/SET as per UGC and university rules.

**12. Credit system implementation**

MCA (Under Commerce Faculty) is a six semester course. For I course consists of six theory courses, one laboratory (Practical) course (4 credits) each. For II to V semesters course consists of five theory courses and two laboratory (practical +project) courses each carrying weightage of 100 marks (4 credits) each. However, in the final semester, there will be one project. In order to qualify for three-year master's degree a student must acquire minimum of 60 credits (10 credits each semester) which are distributed as given below.

i. 20 credits in compulsory courses
ii. 04 credits in practical course.
iii. 04 credits in project

Credit as defined is the workload of a student in

1. Lectures
2. Practical
3. Project
4. Private work in the library/home
5. Examination
6. Other assessment activities

The credit system permits students to

- learn at their own pace
- choose electives from a wide range of elective courses offered by the University departments
- undergo additional courses and acquire more than the required number of credits
- adopt an inter-disciplinary approach in learning
- make best use of the expertise of available faculty

**How much time a student gives for the examination per semester?**

1) 5 Theory papers per semester each of 3 hours duration. Time required is 15 hours
2) One practical with two lab assignment (for semester I to V)
3) One practical with two lab assignment and one project (for semester II, III,IV, V )
4) One Industrial project for VI Semester.

Total time for a semester (I) examination is
6(theory) + 1(practical) = 7 hours.

Total time for a semester (II, III, IV, V) examination is
20 (theory) + 2(practical) + ½ (Project) = 22 ½ hours.

Total time for a semester (VI) examination is
30 minutes (Industrial project Demo ) = 30 minutes for internal presentation
30 minutes (Industrial project Viva ) = 30 minutes for External presentation

**Time required for the other activities.**

- Projects – synopsis
- Discussions
- Library – Book issue, Journal reference, Internet access. Reading magazines and relevant information
- Private work – Project material, Books purchase, Xerox, availing outside facilities etc
- Home – Study, Notes preparation, Computations, tutorials, assignments etc.

**Types of credits**

1) Credit by examination – Tests (theory , Practical and Projects)
2) Credit by non examination – Proficiency in state National and International sports achievements, Social service (NSS), Military services (NCC), Colloquium & debate, Cultural programs etc

**Credits by lectures and practicals**

- 1 credit is equivalent to 15 contact hours
- Total instructional days as per the UGC norms are 180
- For the M.CA course there are 5 theory papers with 4 hours teaching per week
  so the instructional days for theory papers in a semester are 5 X 15(weeks) = 75 days.
- There are 1 practical per subject each of 4 hrs per week for semester- I to V
- There are 2 practicals (with one project) each of 6 hrs per week for semester-II to V
- The total practical workload is of 24 hours. Thus the instructional days for the practical course of 2 practicals are 6 x 15 = 90 days.
- 60 days are common for theory and practical therefore the time for which a student is busy in a semester is 60(theory + practical) + 30(practical) = 90 days.

- With 4 credits per subjects there will be 4 x 5 = 20 credits for the theory papers and 2 x 4 = 8 credits for the practicals. Every practical (project) of 100 marks carries 4 credits.

Number of credits for the MCA course per semester will be 20+8 = 28.
Total number of credits for the entire MCA course
= 5 x 28+ 8(for 6th semester) = 148.

**The implementation of the credit system:**

- Under the credit system every semester duration will be of at least 15 weeks.
- The examination must be scheduled in one month's time.
- The students must get at least 3 weeks time for the examination preparations.
- Every theory paper syllabus should consist of 4 units (sub units allowed) each carrying 1 credit.
- In order to have uniformity in the credit transfer internal examination in all the P. G. departments shall have equal weightage 80 external +20 internal.

| Theory paper | Contact hours | credits |
|---|---|---|
| Unit –I (sub units if any) | 15 | 1 |
| Unit –II (sub units if any) | 15 | 1 |
| Unit –IIII (sub units if any) | 15 | 1 |
| Unit –IV (sub units if any) | 15 | 1 |

- The practical course credit distribution

a) Practical paper contact hours
Paper-I 6

Total credits for practical papers= 6 hrs for the semester (I)

b) Practical paper contact hours
Paper-I 6
Project 6
Total credits for practical papers= 12 hrs for the semester (II to V)

A project of 100 marks will carry 4 credits. Where a project of 100 marks is offered to the student, the student will have to perform 1 project and 1 practical paper for that semester. Time for the explanation for the practical course (contact hours) will be one week (12 hrs).

**Grades, grade point and average grade point's calculations**

Table showing the grades, grade points and marks scored by a student

| **Grades** | **Grade points** | **marks out of 100** |
|---|---|---|
| A+ | 9 | 91 to 100 |
| A | 8 | 81 to 90 |
| A- | 7 | 71 to 80 |
| B+ | 6 | 61 to 70 |
| B | 5 | 51 to 60 |
| B- | 4 | 41 to 50 |
| C+ | 3 | 31 to 40 |
| C | 2 | 21 to 30 |
| C- | 1 | 11 to 20 |
| F | 0 | 0 to 10 |

Semester Grade Point Average (SGPA):-It is a semester index grade of a student.

1. SGPA = $(g_1xc_1) + (g_2xc_2) +----- + (g_6xc_6)$/ Total credits offered by the student in a semester.
2. Cumulative Grade Point Average (CGPA) :- It is a cumulative index grade point average of a student
   CGPA = $(g_1xc_1) + (g_2xc_2) +----- + (g_6xc_6)$/ Total number of credits offered by a student upto and including the semester for which the cumulative average is required.
3. Final Grade Point Average (FGPA):- It is a final index of a student in the course
   FGPA = $(n / \sum ci \times gi) / (n/ cl)$
   Where $c_i$ – credit of the course (paper) (4)
   $g_i$ – grade pints secured (see the table for conversion)
   n - number of courses (number of papers offered)
   cl – Total number of credits for the entire M.Sc course (96)

**Rules for opting for the credits**

**1.** Admission to the students from the other departments for the credits will be restricted to the core papers or practicals only.

**2.** A student from the other department will be offered credits of his choice in multiples of 4. A theory paper or the practical course can be offered as the credit. However number of such admissions will depend upon the seats available, classroom seating capacity and the laboratory facilities.

**3.** Core Courses
Core courses are those, knowledge of which is deemed essential for students registered for a particular Master's programme. As such all core courses shall be mandatory and a student must pass in all the core courses prescribed for the programme. Core courses shall be spread over all the four semesters.

**4.** Any student can have credits from the Management course.

**5.** Attendance: As per the university rule the attendance of the student must be at least 75 %. For attendance in the classroom or laboratory student will have to sign the attendance sheet. Merely 'P' for present or 'A' for absent will not be considered valid.

**6.** A teacher offering the course will be responsible for maintaining the attendance and the performance sheets of all the students offering that course. The attendance sheet will have to be deposited to the department office by every teacher bearing his signature at the end of every semester.

**Nature of the internal examination:-**

- For every theory paper there will be two internal examination(s) carrying 10 marks each. The total of the marks scored in these two examinations will be taken for the final score out of 20.
- The nature of this examination will be as follows.
- There will be 10 questions of objective type only in the internal examination.
- No student will be allowed to take reexamination if he/she remains absent unless the reason is genuine.
- The decision regarding such cases will be taken in a department committee meeting.
- The result of the internal assessment will be declared after one week from the date of examination. The student will be shown the answer papers by the concerned teachers.

**The assessment of the practicals (examination): -**

1) Every practical a student performs day to day in the laboratory shall be of two hours durations. A student will have to carry out practical assignments in Lab.

Marks for the (practical) for semester (I) will be 100.

Marks for the (practical + Project) for semester ( II to V) shall be 200.

2) There will be no external examination for the practical. These examinations will be Internally conducted. In every semester there will be two internal practical examinations each carrying 50 marks. For 50 marks examination a student will have to perform three Experiments.

3) For the assessment of the project specialization wise panel of expert will be appointed.

The panel of expert will be as follows.

i) Project guide
ii) One expert from the industry/academic institute in the subject
iii) 1 teacher from the department.

The distribution of the project marks shall be as follows.

| | |
|---|---|
| i) Project presentation | (20%) |
| ii) Demonstration of the project | (30%) |
| iii) Orals | (30%) |
| iv) Report | (20%) |

3. The workload of a teacher will be as per the UGC norms as far as the theory and practicals are concerned.

13. **Nature of the Question Paper**:

The model question paper is as follows:

TITLE OF THE PAPER

Paper- X Marks: 80
Time- 3 Hrs. Day and Date

**Instructions:**

1. All questions carry equal marks.
2. Attempt any 5 questions
3. Each question carries 16 marks.

- Total number of questions in theory question paper are- 7
- Questions can have sub questions in them.

Structure and titles of the semester courses
For an example the marks obtained and the grade is given using the above rules.

**MCA-Semester-I**

| Sr. No. | Course | Credits | Letter Grade | Marks Obtain. | Grade Value | Credit value | Grade Points |
|---|---|---|---|---|---|---|---|
| 1 | Fundamentals of Information Technology | 4 | B- | 45 | 4 | 4*4 | 16 |
| 2 | Procedure Oriented Programming with C | 4 | A | 85 | 8 | 4*8 | 32 |
| 3 | Discrete Mathematics | 4 | B+ | 70 | 6 | 4*6 | 16 |
| 4 | Computer Organization and Architecture | 4 | B | 56 | 5 | 4*5 | 20 |
| 5 | Introduction to Management Function | 4 | C+ | 32 | 3 | 4*3 | 12 |
| 6 | Business Communication | 4 | B | 59 | 5 | 4*5 | 20 |
| 7 | Practical I ( Procedure Oriented Programming with C ) | 4 | B- | 48 | 4 | 4*4 | 16 |
| | Total | 28 | | | | Total | 132 |

$$GPA = \frac{\text{Total no. of Grade Points}}{\text{Total no. of Credit points}} = \frac{132}{28} = 4.71$$

**Practical Lab Assignments** (On Procedure Oriented Programming with C) **:**

1) Write a program to print or display "Hello C".
2) Input and output your name, address and age to an appropriate structure.
3) Write a C program for addition, subtraction, multiplication and division of two numbers.
4) Write a program that works out the largest and smallest values from a set of 10 inputted numbers.
5) Write a program to read in 10 numbers and compute the average, maximum and minimum values.
6) Write a program that displays-
   - "Hi" when the user enters input value as 1.
   - " Hello" when the user enters input value as 2.
   - "Hey" when the user enters input value as 3.
   - "Excuse me" when the user enters input value other than 1,2 or 3
7) Calculate the sum of the numbers starting from 0 to 12.
8) Write a program that calculate LCM and GCD of 2 input numbers.
9) Write a recursive function factorial that calculate factorial of given number.
10) Write a program that find maximum number from the following set of numbers (34,23,22) (314,123,122).
11) Write a program that changes the value of variable I from 10 to 60 through pointer.
12) Write a program that stores integer value 10 on heap and frees it.
13) Write a program that accepts roll number , PCM percentage of 10 students and stores in a file. Access the roll number of $7^{th}$ student and display PCM average of that student.

**MCA-Semester-II**

| Sr. No. | Course | Credits | Letter Grade | Marks Obtain. | Grade Value | Credit value | Grade Points |
|---|---|---|---|---|---|---|---|
| 1 | Software Engineering | 4 | A- | 77 | 7 | 4*7 | 28 |
| 2 | Data Structure | 4 | B- | 45 | 4 | 4*4 | 16 |
| 3 | Statistical Computing | 4 | B | 53 | 5 | 4*5 | 20 |
| 4 | Database Management System | 4 | C+ | 40 | 3 | 4*3 | 12 |
| 5 | Accounting and Financial Management | 4 | C- | 19 | 1 | 4*1 | 04 |
| 6 | Practical – II (Data Structure, DBMS) | 4 | C+ | 33 | 3 | 4*3 | 12 |
| 7 | Project & Viva | 4 | B- | 50 | 4 | 4*4 | 16 |
| | Total | 28 | | | | Total | 108 |

$$GPA = \frac{\text{Total no. of Grade Points}}{\text{Total no. of Credit points}} = \frac{108}{28} = 3.85$$

CGPA = (132/28 ) + (108/28) =

**Practical Lab Assignments** (Data structure and SQL) **:**

1) Write a program to implement Queue
2) Write a program to convert an infix expression into postfix expression
3) Write a program to implement doubly linked list
4) Write a program for Tower of Honoi problem
5) Write a program to implement tree with insert ,delete and search
6) Write a program to for inorder, postorder and preorder traversal of tree
7) Write a program for binary and sequential search
8) Write a program for bubble sort ,insertion sort & quick sort
9) Write a program for shortest path finding
10) Write a program to implement linked list with inset ,delete,search,view function
11) Create a table 'student' which store information about student & display the information
12) Alter table student by adding a primary key on the column roll. no
13) Write a PL/SQL block to accept an employee number & the branch number followed by Updating branch number of that employee to which he belongs appropriately.
14) Write a PL/SQL block that will display the customer name, fixed deposit no. the fixed deposit amount of the five customer holding the highest amount in fixed deposit
14) Write a stored procedure to calculate addition of two no.

**MCA-Semester-III**

| Sr. No. | Course | Credits | Letter Grade | Marks Obtain. | Grade Value | Credit value | Grade Points |
|---|---|---|---|---|---|---|---|
| 3.1 | Operating System | 4 | B- | 44 | 4 | 4*4 | 16 |
| 3.2 | Object Oriented Programming C++ | 4 | A | 81 | 8 | 4*8 | 32 |
| 3.3 | Visual Programming With VB | 4 | C | 27 | 2 | 4*2 | 08 |
| 3.4 | Computer Oriented Optimization Techniques | 4 | A+ | 93 | 9 | 4*9 | 36 |
| 3.5 | Organization Behavior | 4 | B | 57 | 5 | 4*5 | 20 |
| 3.6 | Practical – III (Based on paper no.3.2 and 3.3) | 4 | B- | 47 | 4 | 4*4 | 16 |
| 3.7 | Project & Viva | 4 | C+ | 33 | 3 | 4*3 | 12 |
| | Total | 28 | | | | Total | 140 |

$$GPA = \frac{\text{Total no. of Grade Points}}{\text{Total no. of Credit points}} = \frac{140}{28} = 5.0$$

CGPA = (132/28 ) + (108/28) + (140/28) =

**MCA-Semester-IV**

| Sr. No. | Course | Credits | Letter Grade | Marks Obtain. | Grade Value | Credit value | Grade Points |
|---|---|---|---|---|---|---|---|
| 4.1 | Computer Network | 4 | B- | 46 | 4 | 4*4 | 16 |
| 4.2 | Java Programming | 4 | C+ | 39 | 3 | 4*3 | 12 |
| 4.3 | Software Project Management | 4 | A- | 75 | 7 | 4*7 | 28 |
| 4.4 | IT Elective I-<br>4.4.1- Linux Operating System<br>4.4.2-Enterprise Resource Planning<br>4.4.3- Distributed Database Management | 4 | A+ | 90 | 9 | 4*9 | 36 |
| 4.5 | BM Elective II-<br>4.5.1-Business Innovation<br>4.5.2-Management Support System<br>4.5.3- Information System Audit | 4 | B+ | 65 | 6 | 4*6 | 24 |
| 4.6 | Practical – IV (Based on paper no.4.2) | 4 | B | 55 | 5 | 4*5 | 20 |
| 4.7 | Project & Viva | 4 | C | 27 | 2 | 4*2 | 08 |
| | Total | 28 | | | | Total | 144 |

$$GPA = \frac{\text{Total no. of Grade Points}}{\text{Total no. of Credit points}} = \frac{144}{28} = 5.14$$

CGPA = (132/28 ) + (108/28) + (140/28) + (144/28) =

**MCA-Semester-V**

| Sr. No. | Course | Credits | Letter Grade | Marks Obtain. | Grade Value | Credit value | Grade Points |
|---|---|---|---|---|---|---|---|
| 5.1 | Data Warehousing and data mining | 4 | C+ | 35 | 3 | 4*3 | 12 |
| 5.2 | Advanced Java programming | 4 | A- | 77 | 7 | 4*7 | 28 |
| 5.3 | Artificial Intelligence and It's Application | 4 | A+ | 94 | 9 | 4*9 | 36 |
| 5.4 | IT Elective II-<br>5.4.1-Dot Net<br>5.4.2-Mobile Computing<br>5.4.3-XML and Web Services | 4 | B+ | 68 | 6 | 4*6 | 24 |
| 5.5 | BM Elective II-<br>5.5.1-Knowledge Management<br>5.5.2-E-Commerce and Its Application<br>5.5.3-Cyber Law | 4 | B- | 46 | 4 | 4*4 | 16 |
| 5.6 | Practical – V (Based on paper no. 5.2 , 5.3 and 5.4 ) | 4 | B | 55 | 5 | 4*5 | 20 |
| 5.7 | Project And Viva | 4 | B- | 42 | 4 | 4*4 | 16 |
| | Total | 28 | | | | Total | 152 |

$$GPA = \frac{\text{Total no. of Grade Points}}{\text{Total no. of Credit points}} = \frac{152}{28} = 5.428$$

CGPA = (132/28 ) + (108/28) + (140/28) + (144/28) + (152/28) =

**MCA-Semester-VI**

Industrial Project and Viva-Voce
Total marks 250
Total credits - 10
(internal mark + external examiner mark)
= (50 + 200 )

Grade for Semester-VI

**Final Grade Point Average is calculated by using the formula**

{n/(c1*g1)} / {n/ci}

Where

c = Credit of the $i^{th}$ course (paper)
g = Grade point secured in each paper
n = No. of Courses (No. of papers offered)
ci = Total number of the credits for whole examination

**Instructions for candidate opting subjects in Commerce departments**
MCA (Under Commerce)

1) Semester-I - Procedure Oriented Programming with C
2) Semester-II - Object-Oriented Programming with C++
3) Semester-III -RDBMS using ORACLE/Organizational Behavior & Business communication
4) Semester-IV - IT-Elective-I / BM-Elective-I/ Enterprise Resource Management
5) Semester-V - IT-Elective-I / BM-Elective-II/ IT Management

- Projects and practical cannot be opted.
- Students have to pay some extra fee for each subject.

The rules for taking admissions for second year and third year of MCA (Commerce) under credit system as per follows:-

- **Admission to second year MCA (Commerce) Part – II :-**

    1) If a student of MCA (Commerce) Part – I is failed in Sem.– I and Sem.– II, he will be allow to take admission to second year MCA (Commerce) Part – II sem - III

- **Admission to third year MCA (Commerce) Part – III :-**

    1) Before taking admission to third year MCA (Commerce) Part – III, a student has to clear all subjects, Practical's and Project of MCA (Commerce) Part – I .

    2) If a student has cleared all subjects, Practical's and Project of MCA (Commerce) Part – I but he is failed at Sem. – III and Sem. – IV of MCA (Commerce) Part – II, he is able to take admission to third year of MCA (Commerce) Part – III

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper-XXV- (MCA-5.1): Data ware housing and Data mining**

**Unit-I** **(15)**

Introduction: concept, data mining functionalities, classification of data mining systems, integration of a data mining system with a database, major issues in data mining,
Data Preprocessing: descriptive data summarization, data cleaning, data integration and transformation, data reduction.

**Unit-II** **(15)**

Data warehouse and OLAP technology: concept of data warehouse, a multidimensional data model, data warehouse architecture, data warehouse implementation, data warehousing to data mining. Mining frequent patterns, Associations and correlations: Basic concepts and a road map, efficient and scalable frequent itemset mining methods, mining various kinds of association rules.

**Unit-III** **(15)**

Classification and prediction: Concept, issues regarding classification and prediction, classification by decision tree induction, Baysian classification and rule-based classification, classification by Backpropogation, prediction.

**Unit-IV** **(15)**

Cluster analysis: concept, types of data in cluster analysis, a categorization of major clustering methods, partitioning methods, hierarchical methods, density-based methods, Outlier analysis, Applications of the Data Mining.

**References:**

1) Data Mining concepts and techniques--- Jiawei IIan and Micheline Kamber Morgan Kaufmann publishers
2) Data Warehousing--- Amitesh Sinha
3) Data Mining Methods---Rajan Chattamvelli
4) Pieter Adriaans, Dolf Zantinge, “Data Mining”, Pearson Education Asia
5) Paulraj Ponniah, “Data Warchousing Fundamentals”, John Wiley.
6) Data Ware housing in real world--- Sam Anahory, dennis murray
7) Data Mining: Modeling Data for Marketing, Risk and CRM Olivia Parr Rud

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper-XXVI- (MCA-5.2): Advanced Java Programming**

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**Unit -I** **(15)**

**Java Database Connectivity:** JDBC overview, Architecture, Drivers, database Connection statements, Introducing JDBC API, Communicating with database By using JDBC API, Creating simple application, working with statements interface, Using statements, callable statements. Working with result set interface, Resultset metadata interface, transaction, Aggregate Functions,

**Unit -II** **(15)**

**RMI** –A model RMI Transaction, writing RMI Server, Designing remote interface, Implementing remote interface, Passing objects to RMI, Creating client program, Compiling and running the example, Unicast remote object, achievable objects.
**CORBA--** concepts, object bus, distributed objects, interoperability of distributed objects, concept of open object bus, a java interface to CORBA, creating a basic CORBA server, creating CORBA clients with Java IDL.

**Unit-III** **(15)**

**Servlet**—Introducing CGI, Introducing Java Servlet, Introducing the servlet API, Implementing Servlet object, Understanding servlet life cycle, developing the first servlet application, Working with GenericServlet class.

**JSP—**Advantages of JSP over Servlet, Describing the JSP architecture, Describing JSP life cycle, Creating simple JSP pages, Exploring scripting tags, Exploring Implicit objects, Exploring directive tags.

**Unit-IV** **(15)**

**Java Beans-** Understanding java beans, Designing programs using java beans Creating applet that use java bean, creating bean, creating manifest file, creating bean jar file, simple bean, creating bound properties,, Giving method, The java bean API, Event Basics, Using java beans with JSP pages.

**EJB-** Enterprise Java Beans- basics of EJB, implementing session beans , implementing Entity Beans , Deploying an Enterprise Java Beans.

**Refernces:**


1) JDBC, Servlet and JSP includes JSF and Design Patterns- Santosh Kumar, Wiley Publication
1) JAVA 6 programming Black Book-Kogent solution- Wiley Publication
2) J2EE Complete reference-
3) J2EE 5 –Shroff publication

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper-XXVII- (MCA-5.3): Artificial Intelligence and Its Application**

**Unit-I** **(15)**

AI Problem solving: Introduction to AI, **heuristic techniques**- Generate-and-test, Hill climbing, Best-First Search problem reduction, constraint satisfaction, Mean-Ends analysis

Knowledge representation – mapping between facts and representations, Approaches to knowledge representation, Issues in knowledge representations, Expert system

**Unit-II** **(15)**

Fuzzy Systems and ANN:, Predicate logic, Fact-table, Rule base, Fuzzy logic, Case based reasoning, Design of fuzzy rule base, Construction and implementation of knowledgebase systems, Artificial Neural Networks — concept and ANN architectures, Perceptron learning, Training and implementation of a neural network.

**Unit-III** **(15)**

Introduction to genetic algorithm, GA life cycle, components of GA, fitness function, convergence of GA, Benefits of GA, use of GA, different applications of GA.

**Unit- IV** **(15)**

**AI research**: Natural Language Processing—Text categorization, text summarization and Text elaboration, Vision and perception, image analysis and pattern matching, Robotics

**Books and references**

1. Neural networks, fuzzy logic and genetic algorithms, synthesis and applications by S. Rajsekaran, G.A. Vijayalaxmi Pai (EEE)
2. Genetic algorithms by David Goldberg (Addison and Wesley)
3. Principles of AI and Expert system development by David Rolston (MGH)
4. Artificial Intelligence by E. Ritch and K. Knight (MGH)

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper-XXVIII- (MCA-5.4): IT Elective II-5.4.1-Dot Net**

**Unit-I** **(15)**

Problems with the earlier languages and .NET solution. Overview of .NET binaries. The role of Microsoft Intermediate Language and Metadata. Understanding Common Language Runtime, Common Type System and Common Language Specification. .NET base classes, overview of .NET assemblies, .NET memory management. Architecture of .NET framework 3.5, components of .NET Framework 3.5, Programming with Windows Presentation Foundation (WPF) – Architecture of WPF 3.5, Types of WPF applications, WPF 3.5 Designer, XAML and WPF, common controls in WPF 3.5. Introduction to Silverlight. Silverlight versions, Getting Silverlight pluginand SDK.

**Unit-II** **(15)**

Building Visual Basic .NET application. VB.NET language fundamentals, object oriented programming with VB.NET, cross language inheritance, Namespaces, accessing the registry. Interfaces and collections – Understanding interface-based programming, building a custom enumerator, building a cloneable object, comparable objects. Type reflections and attribute based programming, review of traditional Win32 thread programming, System.Threading namespace. Deployment of VB.NET application.

**Unit-III** **(15)**

Data access with ADO.NET – The need for ADO.NET, ADO.NET namespaces, ADO.NET managed providers, OLEDB managed providers, SQL managed providers, data binding in ADO.NET, typed dataset, master-detail relationships, transaction control, concurrency control, connecting to different backends, executing stored procedures and functions, Accessing XML through ADO.NET. Databinding in Windows Presentation Foundation, Data Flow Directions, declaring of data binding in WPF, binding sources in WPF. Language Integrated Query, Executing s simple LINQ query,standard query operators, LINQ to ADO.NET, LINQ to SQL, LINQ to dataset, anonymous types and Lambda expressions.

**Unit-IV** **(15)**

Web development and ASP.NET – Problems with classic ASP. Benefits of ASP.NET, ASP.NET namespaces, architecture of ASP.NET web application. Security in ASP.NET.
Profiling – setting up aspnetdb database, configuration settings, machine.config, web.config, ASP.NET configuration tool. Developing ASP.NET AJAX applications, traditional and ASP.NET AJAX web allocations, AJAX server controls, ASP.NET AJAX control Toolkit..

***Text books:-***

1. Visual Basic .NET and the .NET platform – An Advanced Guide – Andrew Troelsen.

***References:***

1. Microsoft Visual Basic .NET – Programmer's Cookbook – Matthrew MacDonald.
2. Programming Visual Basic .NET – Dave Grundgiger.
3. Teach Yourself Visual Basic .NET in 21 days – Duncan Mackenzie and Kent Sharkey
4. Introducing Microsoft .NET – David S. Platt
5. Database Access with Visual Basic .NET – Jeffrey P. McManus, Jackie goldstein and Kevin T. Price.
6. ASP.NET Projects – Building 10 Enterprise Projects – Eric A. Smith
7.Silverlight 1.0 – Devin Rader, Jason Beres, Ambrose Little, Grant Hinkson – Wrox pub.

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper- XXVIII - (MCA-5.4):IT Elective II-5.4.2-Mobile Communication**

**Unit- I** **(15)**

Introduction: Applications, history of wireless communication, market for mobile communications, Wireless transmission: Frequencies for radio transmission, regulations, signals, antennas, signal propagation, multiplexing, modulation, spread spectrum, cellular systems.

**Unit- II** **(15)**

Medium access control: motivation for a specialized MAC, SDMA, FDMA, TDMA,CDMA, Telecommunication system: GSM, DECT.

**Unit- III** **(15)**

Wireless LAN: infra red vs radio transmission, infrastructure and ad-hoc network, IEEE 802.11, HIPERLAN, Bluetooth.

**Unit- IV** **(15)**

Mobile network layer: Mobile IP, dynamic host configuration protocol, mobile ad-hoc networks, classical TCP improvements, Wireless application protocol.

**References:**

1) Mobile communications--- Jochen schiller(Pearson education) Wireless and Mobile communications---By Palanivelu T G NaKKeeran R (PHI)

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper- XXVIII - (MCA-5.4):IT Elective II-5.4.3-XML and Web Services**

**Unit- I** **(15)**

Introduction to XML: Representing data in XML, Element Content Model, Document Type Definition, XML schemas Presentation of XML documents on the web: HTML, XHTML, CSS, XSLT, XSLFO, Transformation – XML Infrastructure. XLinks, XPointers, XForms, Xpath Role Of XML – XML and The Web – XML Language Basics – SOAP – Web Services – Revolutions Of XML – Service Oriented Architecture (SOA).

**Unit- II** **(15)**

Overview Of SOAP – HTTP – XML-RPC – SOAP: Protocol – Message Structure – Intermediaries – Actors – Design Patterns And Faults – SOAP With Attachments.
WEB SERVICES:Overview – Architecture – Key Technologies - UDDI – WSDL – ebXML – SOAP And Web Services In E-Com – Overview Of .NET And J2EE.

**Unit-III** **(15)**

XML SECURITY : Security Overview – Canonicalization – XML Security Framework – XML Encryption – XML Digital Signature – XKMS Structure – Guidelines For Signing XML Documents – XML In Practice.

**Unit-IV** **(15)**

Native XML databases: Native XML Database Architectures, Storing Data in a NativeXML Database, Retrieving Data from Native databases, Security, Transactions, Locking and Concurrency, Round-tripping
Applications of XML & Databases: Case Studies

***Text Book:***

1. Frank. P. Coyle, XML, Web Services And The Data Revolution, Pearson Education, 2002.

***References***

1. Mark Greaves, Designing XML Databases, Prentice Hall, 2002.
2. Serge Abiteboul, Peter Buneman , Dan Suciu, Data on the Web: From Relations to
3. Semistructured Data and XML, Morgan Kaufmann, 1999.
4. Akmal B. Chaudhri, Awais Rashid, Roberto Zicari , XML Data Management: Native XML and XML-Enabled Database Systems, Addison Wesley, 2005.
5. Kevin Williams, Professional XML databases, Wrox Publications, 2000.
6. Sandeep Chatterjee, James Webber, “Developing Enterprise Web Services”, Pearson Education, 2004.
7. McGovern, et al., “Java Web Services Architecture”, Morgan Kaufmann Publishers,2005.

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper-XXIX- (MCA-5.5):BM Elective II-5.5.1-Knowledge Management**

**Unit - I** **(15)**

**Introduction and evolution of Information Systems** – evolution of IS hardware, Data Explosion, storage and Management. Key IS software components, Implementation of Organizational IS, traditional organizational information systems, modern organizational information systems, Deployment of information system.

**Unit – II** **(15)**

Essentials of Knowledge Management and its organization Introduction to knowledge, Basic types of knowledge, **Organizational Knowledge Management** - It's types, capital, Classification. Knowledge Life Cycle, Organizational Knowledge Sources and processes, **Knowledge Conversion** – Organizational Knowledge Progression , its management –technology Enablers, Organizational Meta Knowledge.

**Organizational knowledge Acquisition / Capture** – Implementation Methodology, knowledge acquisition tools, organizational knowledge indexing, organizational knowledge processing.

**Unit – III** **(15)**

KM Evolution, Need and limitations of KM, KM – Imperatives, Organizational Knowledge Management – Drivers :- Knowledge Based Drivers, Technology Drivers, Intra-Organizational Drivers, Human Resource Drivers, Process Drivers Global Knowledge Economy – Characteristics, Policy Implications , Organizational Knowledge Management - Approaches , Strategies, components and function , Learning Organizations – Knowledge Sources, Focus on products and Processes, Knowledge Dissemination, Organizational Learning, Value chaining, Skill-development.

**Unit – IV** **(15)**

KM Architecture and Implementation Strategies: **- Developing a KM Framework** – Implementation phases, architectural components, KM system requirements, KM System components, Implementation strategies – Awakening phase, actionable phase, maintenance and measurement phase, Organizational Organic Capabilities Architecture – Business Architecture, Information Architecture, Data Architecture, System Architecture, Computer Architecture, Layered knowledge Architecture, KM Application – Integrative, Interactive and Composite applications.

**References:**

1. Knowledge Management – Sudhir Warier Vikas Publications
2. Knowledge Management Systems – Stuart Barncs, Thomson Learning
3. Key Issues in the New Knowledge Management – J.M.Firestone, M.W. Mcelroy.
4. Developing Expert system for Business – Chandier / Liang
5. Knowledge Management – Pankaj Sharma APH Pub.

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper- XXIX - (MCA-5.5):BM Elective II-5.5.2- E-Commerce and Its Application**

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**Unit – I E-Commerce and Business Models** **(15)**

Introduction to E-Commerce, difference between E- Commerce and E-Business, need of E-Commerce, Features of E-Commerce. **Introduction to Types of E-Commerce** – Business-to – consumer(B2C), Business-to-Business(B2B), Consumer-to-Consumer, Peer-toPeer (P2P) , Mibile Commerce (M-Commerce). **E-Commerce Organizing themes** – Infrastructure, Academic Disciplines concerned with E-Commerce.

**Unit – II E-Commerce Business Models and Concepts.** **(15)**

E-Commerce Business Models – Key Elements of Business Models. **Major Business-to-Consumer Business Models** – Portal, E-tailer, Content Provider, Transaction Broker, Market Creator, Service Provider, Community Provider. **Major Business-to-Business Business Model** – Marketplace / Exchange, E-distributor, B2B service provider, Matchmaker, Infomediary. **Business Models in emerging E-Commerce areas -** Consumer-to-Consumer Business Models, Peer-to Peer Business Models. **How Internet and Web change Business** – Industry structure and value chains, Firm value chains, Business strategy.

**Unit –III E-Commerce Infrastructure** **(15)**

**Today's Internet infrastructure with its limitations and web features** – E-Mail, Search Engine, Intelligent Agents, Instant Messaging, Music, video, streaming media, cookies. Future infrastructure for internet and its benefits, Web services and clients. **Future Internet and E-Commerce features** – Internet Telephony, Digital Libraries, Distributed Storage, Digital Video, Video Teleconferencing. M-Commerce Applications, Building an E-Commerce Web Site : A Systematic Approach, choosing Server Software and Hardware for an E-Commerce site.

**Unit – IV Security and Encryption** **(15)**

**The E-Commerce Security Environment** – Introduction to E-Commerce security and Dimensions of it. **Security threats E-Commerce Environment** – Malicious code, Hacking and Cyber vandalism, Credit Card Fraud, Spoofing, Denial of Service Attacks, Sniffing, Insider Jobs. **Technology Solutions** – Protecting Internet Communication, Encryption, Secure Socket Layers and Virtual private networks. **Policies, Procedure and Laws** - A Security Plan, CERT, The role of laws and Public Policy, Government Policies and controls on Encryption Software.

**Reference Books:**


1. E- Commerce by Kenneth C. Laudon, Carol Guercio Traver.
2. E- Commerce – An Indian Prespective by P. T. Joseph, S. J. PHI Publication.
3. E-Commerce by C.S.V. Murthy, Himalaya Publishing house
4. E- commerce by Kamblesh Bajaj and Debjani Nag.

**Credit System Syllabus**
**Master of Computer Application (Commerce)**
**Semester -V**
**Paper- XXIX - (MCA-5.4):BM Elective II-5.5.3- Cyber Law**

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**Unit-I** **(15)**

**Object and scope of IT Act:** Genesis, Object, Scope of the act **Encryption** : Symmetric Cryptography Asymmetric Cryptography, RSA Algorithm, Public key Encryption.

**Unit-II** **(15)**

**Digital signature:** Technology behind digital signature**,** Creating digital signature, Verifying a digital signature**,** Digital signature and PKI Digital signature and Law **. E-Governance and IT Act 2000**: Legal recognition of electronic records Legal recognition of digital signature Use of electronic records and digital signature in Government and Its agencies

**Unit-III** **(15)**

**Certifying Authorities**: Need of certifying Authority and power Appointment, function of controller, who can be a certifying Authority? Digital signature Certifications, Generations, Suspension and Revocation of digital Certificate

**Unit- IV** **(15)**

**Cyber Regulations Appellate Tribunal**: Establishment and Composition of appellate Tribunal, Power of Adjudicating officer to Award Compensation, Powers of Adjudicating officer to Impose Penalty. **The cyber Offences**: Tampering with computer source Documents(s-65) Hacking with computer System(S-66) Publishing of Information which is Obscene in Electronic Forms (s-67) Offences: Branch of Confidentiality and Privacy (s-72) Offences: Related to Digital Signature Certificate(s-73 and s-74)

**Reference:**


1. Cyber law in India by Farooq Ahmad – Pioneer Books
2. Information Technology Law and Practice by Vakul Sharma -Universal Law
3. The Indian Cyber Law by Suresh T Vishwanathan - Bharat Law House New Delhi.
4. Hand book Of Cyber and E-Commerce Laws by P.M. Bakshi and R.K. Suri –Bharat Law house New Delhi.
5. Guide to Cyber Laws by Rodney D.Ryder- Wadhawa and company Nagpur.