

DEVI AHILYA VISHWAVIDYALAYA, INDORE
INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES



CURRICULUM (SCHEMES)
&
COURSE OF CONTENTS

2020

MCA 5 YEAR (BCA 3Yrs + MCA 2Yrs)

PROGRAMME

Scheme for MCA 5 year (BCA 3 Yr + MCA 2 Yr)

**INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES DEVI AHILYA
VISHWAVIDYALAYA, INDORE SCHEMES OF MCA 5 Yrs
PROGRAMME**

Semester II

Code	Subject	L	T	P	C
IC-201	Mathematics II	3	1	0	4
IC-205C	Object Oriented Programming Using C++	3	1	0	4
IC-202C	Internet and Web Programming	3	1	0	4
IC-206D	Hindi	3	1	0	4
IC-204B	Digital Computer Organization	3	1	4	4
IC-209D	Object Oriented Programming Using C++ Lab	0	0	4	2
IC-210E	Internet and Web Programming Lab	0	0	4	2
IC-208	Comprehensive Viva	0	0	0	4
Total					28

**INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES
DEVI AHILYA UNIVERSITY, INDORE
MCA (5 Years) II SEMESTER
IC-201: Mathematics-II**

Aim of Course: To familiarize the students with advanced mathematical concepts and techniques.

Objectives:

- Understand basic concepts of curve tracing, rectification, groups, cosets, homomorphism and isomorphism.
- Solve mathematical problems based on the course material.
- To develop mathematical skills and methods appropriate for students in the computer science.

Course Contents:

UNIT I

Curve tracing: Introduction, pre-requisites, for the curve tracing, maxima & minima, concavity and convexity of the curve, Singular points, asymptotes, symmetry, tangents, Main points of tracing the curve in Cartesian and polar form, some problems on curve tracing. Improper integral: Improper Integral definition, types of the improper integral, their convergence, Beta Gamma function and their properties, some important deductions followed by some numerical problems

UNIT II

Rectification: Methods and formula for finding out the length of curve in Cartesian and polar form, numerical, intrinsic equation. Derivation of formula for finding the area under plane curve, followed by some problem solving.

Multiple integrals: Integration of function of two and three variables. Double and triple integral. Drichlet integral. Change of order of integration. Use of double and triple integral in finding the area and volumes of Cartesian curves.

UNIT III

Groups and their general properties : Binary Operation, algebraic structure, definition and example of groups, examples. Order of an element in a group. General properties of a group. Modulo System. Subgroup, complex subgroup, definition and examples, algebra of complexes. Criterion for a complex to be a subset of a group. Union and intersection of subgroups. Cyclic group and subgroups generated by a subset of a group. Theorems generating system of a group

UNIT IV

Coset and coset decomposition : Coset definition, properties of cosets. Cosets decomposition. Partitioning of a group. Relation of congruency modulo in subgroups. Lagrange theorem with its corollaries. Index of a subgroup in a group. Fermat and eular theorems. Multiplication of two subgroups. Order of the product of subgroup of finite order.

Normal subgroup & quotient group: Definition, example and theorems on normal subgroup quotient groups. Cener and normalize of a group. Conjugate, self-conjugate elements of different groups.

UNIT V

Homomorphism and isomorphism of groups : Definition of homomorphism of groups, examples, various types of homomorphism, auto-homomorphism, inner automorphism, theorem, maximal normal subgroup. Permutation, Transformation groups and Cayley's thermo.

Matrix : Meaning of matrices, addition, scalar multiplication, product of matrix, adjoint and inverse. Elementary Transformations. Rank of matrix, Normal forms. Application of matrix for solving system of Linear equations.

Text Books:

1. Gorakh Prasad, Integral Calculus.

Reference Books:

1. Shanti Narayan, Differential Calculus.
2. R.B. Thakur, Advanced Calculus.
3. H.K. Pathak, Calculus For IInd Yr.

**INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES
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MCA (5 Years) II SEMESTER**

IC-202: Object Oriented Programming Using C++

Aim of Course: The aim of course is to help students to gain a better understanding of OO design and program implementation by using OO language features.

Objectives:

- Understand object-oriented programming features in C++,
- Apply these features to program design and implementation,
- Understand object-oriented concepts and how they are supported by C++,
- Gain some practical experience of C++,
- Understand implementation issues related to object-oriented techniques,
- Build good quality software using object-oriented techniques

Course Contents:

UNIT I

Principle of Object Oriented Programming, Object-Oriented Terminology, OOP Paradigm, Basic concept of OOP, Benefits of OOP, Application of OOP.

Introduction of C++: Tokens, Keywords, Identifier and constants, Operator, Data Type, Variable Manipulator, Expression and Control structure.

UNIT II

Classes and Function in C++ :

Class: Defining Classes in C++, Classes and Encapsulation, Member functions, Instantiating and Using Classes, Access specifiers, Static Class Members.

Constructor and Destructor: Use of Constructors, Multiple Constructors, Types of constructor, Using Destructors to Destroy Instances.

Function: Function Introduction, Main function, Function Prototyping, inline function, friend function.

UNIT III

Inheritance & Polymorphism: Overview of Inheritance, Defining Base and Derived Classes, Constructor and Destructor Calls, Virtual base classes, Abstract classes.

Overview of Polymorphism

Operator & Function Overloading: Operator Overloading, Working with Overloaded Operator Methods, Introduction to Function overloading.

UNIT IV

Pointer and Virtual Function: Introduction of Pointer, Dynamic memory allocation, Pointers to object, this pointer, Pointers to derived classes, Virtual Functions, Pure virtual function.

UNIT V

Working with files in C++, Exceptions Handling and Templates:

Files: Standard Streams, Manipulators, Unformatted Input and Output, File Input and Output.

Exceptions: Basics of Exception handling, Exception handling mechanism.

Templates: Template Overview, Customizing a Template Method, Standard Template Library Containers.

Text Books:

1. The Complete Reference - C++, Tata Mcgraw Hill

Reference Books:

1. E. Balagurusamy, Object-Oriented Programming with C++
2. Yashwant Kanitkar ,Let us C++.

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MCA (5 Years) II SEMESTER

IC-203: Internet and Web Programming

Aim of Course: The aim of the course is to provide knowledge of internet tools and to introduce some of the basic technologies for creating and processing content on Internet web sites.

Objectives:

The course is designed to make students:

- Understand the fundamental concepts of working of internet.
- Design, format and link web pages.
- Write dynamic interfaces using JavaScript.
- Link databases to web sites.

Course Contents:

UNIT I

Introduction to computer networks: Introduction, Components, Standards, Transmission types, Topologies, Transmission mode.

UNIT II

Internet Basics: Introduction, Internet Service Provider (ISP), Search Engines, Web Browse Architecture, Internet Addressing: IP Address IPv4 and IPv6, e-mail address, Domain address, Uniform Resource Locator (URL), Internet Services: FTP, Telnet, E-mail (SMTP), WWW (HTTP), DNS.

UNIT III

Hypertext Markup Language (HTML): Web Terminologies, Web Characteristics, Effective web programming, Web Documents: Static, Dynamic, Active, Browser Architecture, Characteristics of HTML, Types of Tags, Basic Tags, List, Table. Introduction to HTML 5.

Dynamic Hypertext Markup Language (DHTML): Introduction, Cascading Style Sheet (CSS): Introduction, Attributes, Types (Inline style, Style element, External Style Sheet), Class, Introduction to CSS-3.

UNIT IV

Java Script: Introduction, Document Object Model (DOM), Variables, functions and events, Data Types and operators, Decision making with control structure and statements, Forms, Cookies, Use of Java Script library *JQuery*.

UNIT V

Introduction to PHP, creating Server-side Applications with PHP, Introduction to Extensible Markup Language (XML). Client side Vs Server side scripting.

Required Text(s) :

1. Data Communication and Networking By Behrouz A. Forouzan (Tata McGraw Hill)
2. Web enabled commercial application By Ivan Bayross (BPB)

Reference Books:

1. HTML By Herbert Schildt
2. Web Programming By Chris Bates.
3. HTML 5 and CSS 3: Develop with Tomorrow's Standard Today(Pragmatic Programmers) By Brian P. Hogan

4. Learning jQuery By Jonathan Chaffer & Karl Swedberg (PACKT Publishing)

Electronic Materials, Web Sites etc:

1. <http://www.youtube.com/user/basant1978>
2. <http://www.w3schools.com/html/>
3. <http://www.w3schools.com/css/>
4. <http://www.w3schools.com/js/>
5. <http://www.w3schools.com/css3/>
6. <http://www.jquery.com>

INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES, DAVV,
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MCA (5 Years) II SEMESTER

IC-204: Hindi

कारण इकाई 1 हिंदी भाषा का परिचय हिंदी भाषा की विशेषताएं मानक हिंदी भाषा स्वरूप और
लक्षण अशुद्धि संशोधन उच्चारण गत

हिन्दी आई.सी : 206C

इकाई 1 :- हिन्दी भाषा का परिचय
हिन्दी भाषा की विशेषताएँ
मानक हिन्दी भाषा: स्वरूप और लक्षण
अशुद्धि संशोधन
उच्चारणगत
वर्तनीगत
शब्द एवं शब्दार्थगत
व्याकरणगत

इकाई 2:- पारिभाषिक शब्दावली : अर्थ, स्वरूप एवं प्रकार (सूची संलग्न)
पारिभाषिक शब्द के लक्षण एवं विशेषताएँ ।
पारिभाषिक शब्दावली निर्माण के सिद्धान्त ।
प्रशासन, वाणिज्य, न्याय, विज्ञान एवं तकनिक से संबंधित पारिभाषिक
शब्दों का अध्ययन (हर क्षेत्र से कम से कम 50 शब्दों का अध्ययन
जिसमें अंग्रेजी परिभाषित शब्दों में लिये हिन्दी में समानार्थक
पारिभाषिक शब्द दिये गये हों)

इकाई 3 :- हिन्दी में पल्लवन, संक्षेपण, निर्देशित निबंध लेखन (निबंध कम से
कम 600 शब्दों का होगा) परीक्षा में निबंध किसी सूक्ती कहावत,
सामाजिक विज्ञान, वाणिज्य या सामयिक विषय पर लिखवाया
जाएगा ।

इकाई 4:- रचनात्मक लेखन (व्यावसायिक)
समाचार लेखन :- समाचार: अर्थ एवं लेखन परिभाषा ।
समाचार में स्रोत, प्रकार एवं उनका गठन ।
विज्ञापन लेखन :- विज्ञापन की परिभाषा और स्वरूप,
विज्ञापन के प्रकार व विशेषताएँ । रेडियो और टी.वी. के लिए
विज्ञापन लेखन ।

इकाई 5 :- अनुवाद : सिद्धान्त एवं व्यवहार ।
अनुवाद: अर्थ, परिभाषा, महत्व व प्रकार ।
कार्यालयीय टिप्पड़ियों के अनुवाद जिसमें प्रशासनिक पत्रों में प्रयोग
होने वाले वाक्यांश शामिल हैं । मुहावरों व कहावतों के अनुवाद
(अंग्रेजी हिन्दी) । अंग्रेजी से हिन्दी में अनुवाद

इकाई 6:- पत्र लेखन - परिचय, पत्र के प्रकार, प्रतिवेदन, आदेश, अधिसूचना, ज्ञापन, सरकारी पत्र, अर्धसरकारी पत्र, व्यवसायीक पत्र ।

इकाई 7:- भारतीय संस्कृती

1. भारत देश और उसके निवासी
2. समाज की संरचना
3. सामाजिक गतिशीलता
4. धर्म एवं दर्शन

इकाई 8:- 1. भारतीय संस्कृति पर विश्व का प्रभाव ।

2. मध्य प्रदेश का सांस्कृतिक वैभव
अ कलाएँ
ब धरोहर
स तीर्थ

संदर्भ ग्रंथ :- 1. आधुनिक हिन्दी व्याकरण व रचना:- डॉ. वासुदेव नन्दन प्रसाद ।

2. प्रयोजन मूलक हिन्दी- माधव संत सोनटक्के, (लोक भारतीय प्रकाशन इलाहाबाद)

3. हिन्दी संक्षेपण पल्लव और पाठ बोधन : डॉ. हरदेव बाहरी (अभिव्यक्ति प्रकाशन इलाहाबाद)

4. अनुवाद: सिद्धान्त एवं व्यवहार- डॉ संजीव कुमार जैन (कैलाश पुस्तक सदन भोपाल)

5. मीडिया लेखन एवं जनसंचार :- डॉ संजीव कुमार जैन (कैलाश पुस्तक सदन भोपाल)

6. प्रशासनिक शब्दावली-हिन्दी-अंग्रेजी-वैज्ञानिक तथा तकनीकी शब्दावली आयोग ।

7. भारतीय के अमर स्वर - म.प्र.हिन्दी ग्रन्थ अकादमी भोपाल

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**MCA (5 Years) II SEMESTER
IC-205: Digital Computer Organization**

Aim of Course: To make students understand the organization of the computer, and the way the hardware components are connected together to form a computer system, and the development of the hardware for the computer taking into consideration a given set of specifications.

Objectives:

The course is designed to make students:

- Understand the various functional units of CPU.
- Study various units of ALU.
- Understand instruction formats and addressing modes.
- Understand interconnection and interfacing of various units of computer system.

Course Contents:

UNIT I

Introduction to computer organization, Von Neumann Architecture, Computer components, interconnection structures, Bus interconnection.

UNIT II

Input output organization: I/O interface models of transfer, interrupt driven I/O, Priority interrupt, DMA, I/O processor and serial communication, Synchronous, Asynchronous data transfer, strobe control, handshaking, PCI, working mechanism of Peripherals: Keyboard, Mouse, Scanners , Video Display, Touch Screen panel etc.(features and principles)

UNIT III

Control Unit: Instruction word format, fetch and execution cycle, sequence of operation of control registers, control of arithmetic operations, microprogramming concepts.

UNIT IV

Memory Organization: Memory hierarchy, internal and external memory. Types of memory: ROM, PROM, EPROM, EEPROM, RAM: SRAM, DRAM

High speed memories: Cache memory, organization and mapping techniques, virtual memory, secondary storage: Magnetic disk, tape, optical memory, CDROM, DVD

UNIT V

CPU Organization: General register organization, stack organization and accumulator type organization. Instruction formats – three address instruction, two addresses, one address and zero address instructions, Instruction set selection. Addressing modes:- Immediate, direct, indirect, register, indexed etc.

Text Books:

- 1 Computer Organization and Architecture, William Stalling
- 2 M. Morris Mano , Computer System Architecture, 3rd edition, Prentice Hall of India

Reference Books:

- 1 Computer Organization by D A Godse and A P Godse