MAHARISHI UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

MAHARISHI ROAD, MANGLA, BILASPUR(C.G.)

BOARD OF STUDIES

Date: 24/05 **/ 2024**

Department of Computer Science and Information Technology

(CSIT)

Venue

Seminar Hall

Chairman/HOD

Prof. (Dr.) Vikas Mathur

(Dean Academic)

MAHARISHI UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

MAHARISHI ROAD, MANGLA, BILASPUR (C.G.)

Department of Computer Science & Information Technology

Agenda

Date: 24/05/2024

Proposed agenda items for BoS Meeting scheduled to be held on..../.../.....

The proposed agenda items for BoS meetings are following, is to be discuss-

1.	NEP based Syllabus of BCA for 1st Year session 2024-25.
2.	NEP based Syllabus of B.Sc. for 1st Year session 2024-25.
3.	NEP based Final Syllabus of M.Sc.(I.T.).
4.	Updation on Syllabus of PGDCA.
5.	Updation on Syllabus of DCA.
6.	Each program has intake at 60 seats, multiples of unit/intake in particular course is subject to the approval at BoM.
7.	Suggested to provide Student oriented program – Internship, Summer Training .

H.O.D./Chairman

MAHARISHI UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

MAHARISHI ROAD, MANGLA, BILASPUR (C.G.)

Department of Computer Science & Information Technology

Board of Studies Meeting

Date: 24/05/2024

Welcome Address	:	**Ms. Rama Soni** **Assistant Professor** **Department of CSIT** **MUMT, Bilaspur (C.G)**
Introduction of the Members	:	**External Members and Internal Members**
Presentation of Syllabus and Curriculum	:	**Prof. (Dr.) Vikas Mathur (Dean academic)** **Chairman, Dep. of Computer Science& IT** **MUMT, Bilaspur (C.G)**
Programme Name	:	**BCA, B.Sc.(IT), DCA, DMA, PGDCA, M.Sc.(I.T.)**
Full Course Name	:	**Bachelor of Computer Application,** **Bachelor of Science in Information Technology,** **Diploma in Computer Application,** **Diploma in Multimedia & Animation,** **Post-Graduation Diploma in Computer Application,** **Master of Science in Information Technology,**
Vote of Thanks	:	**Mr. Devendra Mahilange** **Assistant Professor** **Department of CSIT** **MUMT, Bilaspur (C.G)**

MAHARISHI UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

MAHARISHI ROAD, MANGLA, BILASPUR (C.G.)

Minutes of the Meeting

Date: / / 2024

The Board of studies meeting of **Department of Computer Science & Information Technology** held on ...../May../..2024...at conference Hall of Maharishi University of Management and Technology, Maharishi Road, Mangla, Bilaspur (C.G.)

Members Presented:

Prof.(Dr.) Vikas Mathur - **Chairman**
Dean Academic
MUMT, Bilaspur (C.G)

Dr. Sumati Pathak - **External Member**
Assistant Professor, Computer Science
Government E. Raghavendra Rao
Postgraduate Science College,
Bilaspur, 495001, C.G.

Ms. Monika Yadav - **External Member.**
Assistant Professor, Computer Science
Chouksey College of Science & Commerce,
B Lalkhadan, Masturi Road
Bilaspur, 495001, C.G.

Ms. Rama Soni - **Internal Member**

Assistant Professor
Department of Computer Science & IT
MUMT, Bilaspur (C.G)

Mr. Devendra Mahilange - **Internal Member**

Assistant Professor
Department of Computer Science & IT
MUMT, Bilaspur (C.G)

Minutes of the Meeting

1.	**To be discuss on NEP based Syllabus of BCA for 1st Year session 2024-25.** **Resolution:** Approved the NEP based syllabus of BCA 1st Year 2024-25. **Annexure-1**
2.	**To be discuss on NEP based Syllabus of B.Sc. for 1st Year session 2024-25.** **Resolution:** Approved the NEP based syllabus of B.Sc.(I.T.) 1st Year 2024-25. **Annexure-2**
3.	**To be discuss on Final Syllabus of M.Sc.(I.T.).** **Resolution:** Approved the Final Syllabus of M.Sc.(I.T.). **Annexure-3**
4.	**To be discuss on to update in Syllabus of PGDCA.** **Resolution:** Approved the updated syllabus of PGDCA. **Annexure-4**
5.	**Resolution:** Approved the updated syllabus of DCA. **Annexure-5**
6.	To be discuss on the point" Each program has intake at 60 seats, multiples of unit/intake in particular course is subject to the approval at BoM". **Resolution:** Confirmed Each program has intake at 60 seats, multiples of unit/intake in particular course is subject to the approval at BoM.
7.	**Suggested to provide Student oriented program – Internship, Summer Training.** **Resolution:** The Board approved that department can increase seat on course as required.

MAHARISHI UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

MAHARISHI ROAD, MANGLA, BILASPUR (C.G.)

Minutes of the Meeting

Prof.(Dr.) Vikas Mathur - Chairman
Dean Academic
MUMT, Bilaspur (C.G)

Dr. Sumati Pathak - External Member
Assistant Professor, Computer Science
Government E. Raghavendra Rao
Postgraduate Science College,
Bilaspur (C.G)

Ms. Monika Yadav - External Member
Assistant Professor, Computer Science
Chouksey College of Science & Commerce,
B Lalkhadan, Masturi Road
Bilaspur (C.G)

Ms. Rama Soni - Internal Member
Assistant Professor
Department of Computer Science & IT
MUMT, Bilaspur (C.G)

Mr. Devendra Mahilange - Internal Member
Assistant Professor
Department of Computer Science & IT
MUMT, Bilaspur (C.G)

The members had a valuable discussion and interaction among themselves. Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

1. NEP based syllabus of BCA 1st Year 2024-25 and B.SC.(IT) 1st Year 2024-25.
2. Final Syllabus of Syllabus of M.Sc. (I.T) 2024-25.
3. Update on syllabus of DCA and PGDCA 2024-25.
4. Each program has intake at 60 seats, multiples of unit/intake in particular course is subject to the approval at BoM.

Prof.(Dr.) Vikas Mathur

Dr. Sumati Pathak

Ms. Monika Yadav

Ms. Rama Soni

Mr. Devendra Mahilange

MAHARISHI UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

MAHARISHI ROAD, MANGLA, BILASPUR(C.G.)

BOARD OF STUDIES

Date: 24/05 / 2024

Department of Computer Science and Information Technology

(CSIT)

Annexure

Annexure 1: BCA 2024-25

Annexure 2: BSC IT 2024-25

Annexure 3: DCA 2024-25

Annexure 4: M. SC. IT 2024-25

Annexure 5: PGDCA 2024-25

Annexure 1: BCA 2024-25

Maharishi University of Management and Technology

Mangla, Bilaspur

FACULTY OF

COMPUTER SCIENCE & INFORMATION TECHNOLOGY
(CSIT)

SYLLABUS

2024-25

Bachelor of Computer Application
(BCA)

Introduction of the Programme

Name of the Programme: - BCA

The broad **objectives** of the programme are:

- To train students in the latest trends of Application Development, Programming Languages, Database Management& Networking.
- To enhance their career opportunities in the software development and maintenance sector nationwide.
- To expose the students to Open-Source Technologies so that they become familiar with it and can seek appropriate opportunity in trade and industry.
- To give hands on experience to students while developing real life IT application as part of the study.
- To augment the knowledge base of the students, through various activities which will be complementary to the theoretical studies.

Aim of the Programme: BCA programme has been designed to prepare 10+2 students and who are interestedin taking software/IT as a career or further study in MCA/ Master's program for attaining the following specific **outcomes**:

- Anability to apply knowledge of computer applications and office automation in practice.
- An ability to enhance not only comprehensive understanding of the theory but its application too in diverse field.
- The ability to work in an environment where a range of computer applications or techniques are being applied in form of Networking, Software Engineering, Web development, Database management etc.
- An ability to design a computing system to meet desired needs within realistic constraints such as safety, security, and applicability n multidisciplinary teams with positive attitude.
- Anability to communicate effectively in relevant fields.
- In order to enhance programming skills of the young IT professionals, the program has introduced the concept of project development in each language/technology learnt during semester.

Seats: 60 (sixty)
Eligibility: 10+2 from Recognized Board
Medium of Instruction: English

Scheme of Examination:
For Theory/ Practical Papers:
Internal Assessment/ Assignment: 30 Marks
External Evaluation/ Term End Examination: 70 Marks

SYLLABUS FOR FOUR YEAR BACHELOR OF COMPUTER APPLICATION

SEMESTER-I

S no.	Category of course	Course code	subject	credit
1.	C-1	BCA-101	Fundamental of Programming with C	3
2.	C-2	BCA-102	Computer Fundamentals and M S Office	3
3.	C-3	BCA-103	Web Technology	4
4.	AEC-1	BCA-104	Fundamental course in English	2
5.	VAC-1	BCA-105	Maharishi Vedic Science-I	2
6	GE-1	BCA-106	Principle of Management	4
7.	C-1-LAB-I	BCA-107	Lab-I Programming with C	1
8.	C-2, C-3-LAB-II	BCA-108	Lab-II MS Office & Web Technology	1
			TOTAL CREDIT	**20**

SEMESTER-II

S no.	Category of course	Course code	subject	credit
1.	C-4	BCA-201	Engineering Mathematics	4
2.	C-5	BCA-202	Data Structure	3
3.	C-6	BCA-203	Operating System / Unix Os and Shell Programming	3
4.	AEC-2	BCA-204	Environmental Science	2
5.	SEC-1	BCA-205	HTML & CSS	1
6.	GE-2	BCA-206	Business Mathematics	4
7.	C-5-LAB-I	BCA-207	Lab-I , Data Structure	1
8.	C-5, SEC-1-LAB-II	BCA-208	LAB-II HTML & CSS	2
			TOTAL CREDIT	**20**

Fundamental of Programming with C

Objective: The objectives of this course are to make the student understand basics of programming language, programming style, concepts of Loops, reading a set of Data, stepwise refinement, Functions, Control structure, Arrays. After completion of this course the student is expected to analyze the /real-life problem and write a program in "C" language to solve the problem. The main emphasis of the course will be on problem solving aspect i.e., developing proper algorithms.

Course Outcomes:

Students will be able to understand and the use of

- the procedural language with fundamental concepts.
- control structures and decisional statements in programs
- user defined data types in programs
- functions &dynamic memory management techniques using pointers
- reading &writing data files and handling I/O in programs.

Unit-I: Programming Concepts

Understanding of a computer system, Concept of Software Language, C compiler, C Language Character set, Tokens, Constant, Keywords and Identifiers, Variables Data Types Declaration and Assignment of Variables, Type Casting, Defining Symbolic Constants, Operators and Expressions: Types of Operators- Arithmetic, Relational and Logical Operators, Assignment and Conditional Operators Increment & Decrement Operators, Bitwise and Special Operators, Arithmetic Expression and its evaluation, Hierarchy of Arithmetic Operations- Evaluations, Precedence and Associatively- Mathematical Functions, Library functions: Getchar (), putchar (), printf (), scanf (), puts (), gets ().

Unit-II: Branch and Control Handling

Flow of control - if, if-else, while, do-while, for loop, Nested control structures - Switch, break and continue go to statements, Comma operator, Ternary ? : Operator, Functions -Definition - prototypes - Passing arguments - Recursion- Storage Classes - Automatic, External, Static, Register Variables, Storage Classes and Character Strings: Automatic, Register, Static, External (Local and Global), Scope rules.

Unit-III: Array, Structure& Union

Arrays, String, Structures and Unions in C

Arrays - Defining and Processing, Single, Two Dimensional and Multi-dimensional arrays. Passing arrays to functions, Arrays and Strings, Handling of Character Set: Declaration & Initialization of String Variables, Structures and Unions: Definitions, Initialization and Assigning Values to Members, Arrays of Structures and Arrays Within Structures, Unions- Size of Structures.

Unit-IV: Functions and Pointers

User Defined Functions: Form of "C" functions- Calling a Function - Nesting of Functions - Recursion - Functions with Arrays, Pointers: Declaration and Initialisation of Pointers, Pointer Expression, Operation on Pointers, Pointer and Arrays, Arrays of Pointers, Pointer and Character Strings, Pointers and Functions, Pointers and Structures, Pointer on Pointers.

Unit-V: File Handling in C

File Input/Output: Introduction, Defining, Opening and closing a file, Study of file I/O Operations: fopen(), fclose(), fputs(), fgets(), fread (), fwrite() Input / Output Operations on a file, Random access to file, Command line arguments, Time, Date and Localization Functions, Dynamic Allocation Functions.

Reference Books:

1. LET US C, Yashwant Kanetkar, BPB PUBLICATIONS
2. The Complete Reference C, Herbert Schildt, Tata McGraw HILL
3. PROGRAMMING IN ANSI C - by E. Balgurusamy - Tata McGraw HILL
4. PROGRAMMINGWITH C. Byron S. Gottfried, Tata McGraw HILL
5. The "C" Programming Language, Briain W. Kenigham& Dennis Ritchie, Pearson

Computer Fundamentals and M S Office

Objective: The objectives of this course are to make the student understand basics of computer fundamental. , concepts of basic input/output device reading a parts of computer , storage devices After completion of this course the student is expected to analyze the working of computer system The main emphasis of the course will be on familiar with the computer system .

Course Outcomes:
Students will be able to

1. Aware of parts of computer
2. Understand the input and output devices.
3. Gain the basic ideas of storage devices, computer Networks and Operating System.

UNIT - I

Introduction to Computer and information technology: Brief history of development of computer and generations of computer. Computer system characteristics, Advantages and disadvantages of a computer, Block diagram of computer, Types of computer - Analog, Hybrid, digital, Micro, Mini, Mainframe, Super computer, Personal Computer, Types of PCs desktop, Laptop, Notebook, Palmtop, etc., Number systems (Binary, Octal, Decimal, Hexadecimal)

UNIT - II

Input devices & Memory : Keyboard, Mouse, Monitor, Trackball, Joystick, Electronic Pen, Touch Screen, Image Scanner, MICR, OCR, OMR, Bar Code reader, Digitizer, Electronic Card Reader, Voice Recognition, **Output Devices:** Monitors, Printers, Plotters, Screen Image Projector, voice response system. Main Memory, Secondary storage devices.

Unit- III:

Introduction to MS Word

Menus, Shortcuts, Document types; Working with Documents: Opening Files - New & Existing, Saving Files, Formatting page and Setting Margins, Converting files to different formats- Importing, Exporting, Sending files to others, Editing text documents- Inserting, Deleting, Cut, Copy, paste, Undo, Redo, Find, Search, Replace, Using Tool bars, Ruler- Using Icons, Using help; Formatting Documents: Setting Font Styles, Setting Paragraph style, Setting Page Style, Setting Document Styles, Creating Tables, Drawing, Tools, Printing Documents, Mail Merge.

Unit-IV:

Introduction to MS Excel

Introduction: Spreadsheet & its Applications, Opening spreadsheet, Menus & Toolbars & icons, Shortcuts, Working with Spreadsheets-Opening, Saving Files, Setting Margins, Converting files to different formats- Importing, Exporting and Sending files to others. Entering and Editing Data, Computing data: Formula. Formatting Spreadsheets- Cell, row, column & Sheet, Alignment, Font, Border & shading. Highlighting values, Hiding/Locking Cells: Worksheet- Sheet Name, Row & Column Headers, Row Height, Column Width and Worksheet Sheet Formatting & style background, Graphs, Printing worksheet.

Unit-V:

Introduction to MS Power Point

Creating new Presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts, Formatting a presentation-Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout, Inserting pictures, movies, tables etc. into the presentation, Drawing Pictures using Draw, Setting Animation & transition effect, Adding audio and video, Printing Handouts. Generating standalone presentation viewer.

Reference Books:

1. Windows 8.1 Plain & Simple by Joli Ballew, Nancy Muir, PHI
2. Learning Microsoft Office 2013 by Ramesh Bangia, Khanna Book Publishing.
3. Comdex Computer Course Kit (windows 7 with office 2010), Gupta Vikas. Dreamtech Publication
4. Mastering MS Office 2000, Professional Edition by Courier, BPB Publication

Web Technology

Objective: Students will have idea of internet protocols and its applications. They will be able to analyze a web page and identify its elements and attributes; create web pages using HTML.

Course Out Comes–

CO- 1. Making acquainted with evolution and history of Internet.
CO- 2. To make aware of history and function of web browser.
CO- 3. Understanding concept of hypertext, different version of HTML and building HTML documents.

UNIT – 1

Internet: Evolution, Protocols, Concept, Internet Vs Intranet, growth of Internet, ISP Connectivity, Dial-up, leased line, VSAT etc, URIs, Domain names, Portals, Application. E-Mail: Concept, address basics of sending & Receiving, E-mail protocols, mailing list and free E-mail services.

UNIT – 2

File transfer Protocols, Telnet & chatting: Data Transmission Protocols, Client/ Server Architecture & its Characteristics, FTP & Its usages telnet Concept, Remote Logging, Protocols, Internet chatting – voice chat, text chat.

UNIT – 3

World Wide Web (WWW): History, Working, Web Browser, its function, Concept of Search Engine, Searching the web HTTP, URLS, Web Server, Web Protocols.

UNIT - 4

Web Publishing: Concept, Domain name Registration, space on Host Server for web site, Image editor, issues in web site creation & maintenance, FTP software for upload web site.

UNIT – 5

HTML: Concept of Hypertext, Version of HTML, Element of HTTML, syntax, head & body section Building HTML document, Inserting Text, Image, Hyperlinks, Background and color controls, different HTML tag, Tables, Tables layout and presentation use of size & Attributes, List types and its tags, HTML, Design tools, HTML editor

REFERENCE & TEXT BOOKS

1. Level Madul M. 1.2 Internet & Web page Designing by Y.K. Jain, BPB Publication.
2. Internet for Dummies – Pustak Mahal, New Delhi
3. Internet & E-Commerce A. Mansoor&Anrag Seetha, Pragya Publication.

Maharishi Vedic Science-I

Objective:

- To specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times.
- To explore the strength and scope of Vedic Education study through interdisciplinary learning

Course Outcomes:

The subject entitled 'Maharishi Vedic Science' has the following CO:

CO1: The study of Maharishi Vedic Science develops the full potential of the knower and lays the foundation for complete knowledge of any discipline, while it fosters evolution to higher states of consciousness and progressive and fulfilling action and accomplishment in life.

CO2: Maharishi Vedic Science is the systematic study, experience, and development of the full range of life, both individual and cosmic, and its applications to create a better world.

CO3: Its principles and technologies are based on the direct experience and understanding of the most vital element in life – the unbounded field of consciousness that is the inner intelligence at the basis of every individual and the entire universe.

Unit-1: Guru Worship and importance of Guru, meditation, mind, intellect, mind, ego, thought, Maharishi Transcendental Meditation, benefits of Transcendental Meditation, Siddhi program, yogic flight etc.

Unit- 2: Vedas and Vedic literature, form of Vedic literature, description of forty regions like Rigveda, consciousness and levels of consciousness, states of consciousness.

Unit- 3: Maharishi Yoga, definition and characteristics of Ashtanga Yoga, types of Yogasanas, usefulness of Yogasanas in human life, benefits from Yogasanas.

Unit-4: Maharishi Astrology, Origin of Astrology, Introduction to Triskandha Astrology, (Siddhanta, Sanhita and Hora), Definition and Introduction of Panchang (Tithi, Vaar, Nakshatra, Yoga and Karana), Human Life and Astrology, External and Internal Personality, Planets and Introduction to expressions etc.

Unit-5: Introduction of Maharishi Sthapatyaveda, purpose of the book, origin of Vastu Purush, tradition of Vastu Shastra, natural development from Vastu, progress from Vastu, symptoms of auspicious Vastu, inauspicious Vastu symptoms, usefulness of home, when to do Vastu Puja etc.

Reference Books:

1. Maharishi Sandesh Part I and II.
2. Chetna Vigyan by His Holiness Maharishi Mahesh Yogi Ji.
3. Dhyan Shailey by Brahmachari Dr.Girish Chandra Verma Ji

AEC-1

HINDI / ENGLISH / ENVIRONMENT / LOCAL LANGUAGE

Principles of Management

Objective: The objectives of this course are to make the student understand the management perspective of an organization and its elements, nature, and divisions. This course will provide the concept of the professional view, functional activities, and workflow mechanism of their future working place also helps to acquire leadership skills.

Course Outcomes:

The subject entitled 'Principles of Management' has the following CO :

CO1: Understand the concept of Management, its levels and functions.

CO2: Determine the managerial roles and skills, with special attention to managerial responsibility for effective and efficient achievement of goals.

CO3: Understand the planning process, its types and various decision making models.

CO4: Ascertain the nature of organization structure, and its different types explaining Span of Control.

UNIT I

Introduction:

Management-definition, importance, functions, nature-as profession, science and art, universality of management; levels of management; managerial tasks and skills.

Different Schools of Thoughts: Classical School-contributions of Taylor and Henri Fayol; Neo-classical school-Human Relations approach and Behavioral Science Approach; Modern School; System approach and Contingency approach.

UNIT II

Planning:

Concept, importance, steps, types, premises, barriers to effective planning and remedial measures; strategic planning-concept forecasting–concept, techniques.

Organizing:

Concept, importance, principles,differentorganizationmodels-lineandstaff;Functional;Departmentation-need,basis,principles,DelegationofAuthority-elements,stepsbarriers;CentralizationandDecentralizationofAuthority;SpanofManagement;conceptanddeterminingfactors.

UNIT III

Directing and Staffing:

Directing: concepts, importance of directing,

Leadership: Concept, importance, types, leadership traits, Tannenbaum & Schmidt's Model and Blake& Mouton's Model.

Staffing: Concepts, importance.

UNIT IV

Motivation:

Concept importance, importance of need theory and contributions of Mc Gregor, Maslow, Herzberg.

UNIT V

Coordination: concepts, importance, principles and implementation techniques.

Control: concepts, importance and tools of control.

REFERENCE &TEXT BOOKS

1. Prasad, L. M., Principles and Practice of Management, Sultan Chand
2. Sharma Gupta, Management: Principles and application, Kalyani Publishers
3. R.K. Singhal, Management Principle and application, V.K. Global Pub. Pvt. Ltd, New Delhi.
4. ManagementPrinciplesandApplications-JhunjhunwalaJMohanty-HimalayaPublishingHouse
5. Principles of Management: Mitra, Oxford University Press.
6. Griffin R.W.–Management: Principles & Practices, Cengage Learning

LAB-I PROGRAMMING WITH C
LAB-II MS OFFICE & WEB TECHNOLOGY

LAB-II MS OFFICE & WEB TECHNOLOGY

1. Create a news-paper document with at least 200 words,

a. Use margins as, top:1.5, bottom:2, left:2, right:1 inches.

b. Use heading "Gandhi Jayanti", font size: 16, font color: red, font face: Arial Black.

c. With first letter "dropped" (use drop cap option) of the first paragraph containing a picture at the right side

2. Create a table using table menu with,

a. At least 5 columns and 10 rows

b. Use proper table border and color.

c. Insert proper content into the table with proper text formatting.

3. Create two letters with the following conditions in Ms Word and find the difference.

a. Write a personal letter to your friend using at least 100 words and two paragraphs. The date must be in top-right corner. Use „justify" text alignment and 1.5 line spacing for the body of the letter. Letter must contain proper salutation and closing. step by◊

b. Use step by step mail-merge wizard to design a letter. (Mailing select◊start from a template◊letters◊step mail merge wizard OK)◊ create new document◊select proper template◊ letters◊template

4. Create a table "Student result" with following conditions.

a. The heading must contain, Sl. No., Name, Mark1, Mark2, Mark3, Total, average and result with manual entry.

b. Use formulas for total and average.

c. Find the name of the students who has secured the highest and lowest marks.

d. Round the average to the nearest highest integer and lowest integer (use ceiling and floor function respectively).

5. Do as directed

a. Create a notepad file as per the following fields Slno name th1 th2 th3 th4 th5 total % grade from text" option.◊

b. Import this notepad file into excel sheet using „data

c. Grade is calculated as, i. If %>=90, then grade A

ii. If %>=80 and <=70 then then grade B

iii. otherwise grade C

6. Create a power-point presentation with minimum 5 slides.

a. The first slide must contain the topic of the presentation and name of the presentation.

b. Must contain at least one table.

c. Must contain at least 5 bullets, 5 numbers.

d. The heading must be, font size:32, font-face: Arial Rounded MT Bold, font-color: blue.

e. The body must be, font size: 24, font-face: Comic Sans MS, font-color: green.

f. Last slide must contain „thank you".

7. Write and execute any 5 HTML tags.

8. Write and execute any 5 table tags.

LAB-1 PROGRAMMING WITH C

1. Programs using I/O statements and expressions.
2. Programs using decision-making constructs.
3. Write a program to find whether the given year is leap year or Not? (Hint: not every centurion year is a leap. For example 1700, 1800 and 1900 is not a leap year)
4. Write a program to perform the Calculator operations, namely, addition, subtraction, multiplication, division and square of a number.
5. Check whether a given number is Armstrong number or not?
6. Check whether a given number is odd or even?
7. Write a program to perform factorial of a number.
8. Write a C program to find out the average of 4 integers.
9. Show how to display array elements using two dimensional arrays.
10. Write a C program to perform swapping using function.
11. Display all prime numbers between two intervals using functions.
12. Reverse a sentence using recursion.
13. Write a program in C to get the largest element of an array using the function.
14. Write a C program to concatenate two strings.
15. Write a C program to find the length of String.
16. Find the frequency of a character in a string.
17. Write a C program to Store Student Information in Structure and Display it.

SEMESTER-II

ENGINEERING MATHEMATICS

Objective: In order to give the students a solid foundation in set, relation, matrix, Permutation and combination, Probability for application in their respective disciplines.

Course Outcomes:
Upon successful completion of the course, a student will be able to:
CO-1. In order to conceive and visualize the engineering issues.
CO-2. To use matrices, Permutation and combination calculus theory to mathematically model the engineering problem.
CO-3. To ascertain the engineering problem's solution from an application perspective

Unit I: Set Theory: - Set Theory Definition, History of Set Theory, Examples of Sets, Important Terms Related to Set Theory, Elements of a Set, Cardinal Number of a Set Representation of Sets, Roster Form, Set Builder Form, Types of Sets, Set Theory Symbols, Set Theory Operations, Properties of Set Operations, Set Theory Formulas, De Morgan's Laws, De Morgan's Law of Union, De Morgan's Law of Intersection, Visual Representation of Sets Using Venn Diagram.

Unit II: Relation: - Definition, Binary Relation, Representation, Domain, Range, Universal Relation, Void Relation, Union, Intersection, and Complement Operations on Relations, Properties of Binary Relations in a Set: Reflexive, Symmetric, Transitive, Anti-symmetric Relations, Equivalence Relation, Equivalence Classes, Transitive Closure of a Relation.
Function: Introduction &definition, Co-domain, range, image, value of a function; Examples, surjective, injective, bijective; examples; Composition of functions, examples; Inverse function, Identity map, condition of a function to be invertible, examples; Inverse of composite functions, Properties of Composition of functions.

Unit III: Matrix and determinant: - Definition, Minors, Cofactors, Properties of Determinants MATRICES: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramer's Rule, Rank of Matrix Dependence of Vectors, Eigen Vectors of a Matrix, Caley-Hamilton Theorem (without proof).

Unit IV: Permutation and combination: - Permutations and Combinations - Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, derivation of Formula for nPr and nCr and their connections, simple applications.

Unit v: Probability: - What is Probability And Statistics?, Probability Definition, Statistics Definition, Terms Related to Probability and Statistics, Probability Formulas, Statistics Formulas, Topics under Probability and Statistics, Rules of Probability, Types of Event in Probability.

REFERENCE & TEXT BOOKS

1. Boolean Algebra and Its Applications, J. Eldon Whitesitt, Addison-Wesley.
2. A Textbook of Discrete Mathematics,Swapan Kumar Sarkar, S. Chand.
3. Discrete Maths, C.L.Liu, T McGraw Hill
4. "Engineering Mathematics Vol. II" by Kandasamy P and Gunavathy
5. "Higher Engineering Mathematics" by Grewal B
6. "Advanced Engineering Mathematics" by Kreyzig E
7. "Advanced Engineering Mathematics" by Erwin Kreyszig

Data Structure

Objective: The objectives of this course are to make the student understand basics of data structure, programming style, concepts of algorithms, flow chart, Functions, Control structure, Arrays, stack, queue. After completion of this course the student is expected to analyze the real-life problem, to solve the problem. The main emphasis of the course will be on problem solving aspect i.e., developing proper algorithms.

Course Outcomes:
Upon successful completion of the course, a student will be able to:
CO-1. To access how the choices of data structure & algorithm methods impact the performance of program.
CO-2. To Solve problems based upon different data structure & also write programs.
CO-3. Choose an appropriate data structure for a particular problem

Unit-I: Introduction and Array
Data Types, Data Structure and its Classification, Arrays: Array concept (one dimension, two dimension), Operations for one dimension array (insertion, deletion, traversal), Examples.

Unit-II: Linked Lists
Concept of a linked list, Circular & Doubly linked list, Operations on linked lists, List Manipulation with Pointers, Insertion & Deletion of elements, Applications of linked lists.

Unit-III: Stacks-Queues and Binary Tree
Definitions and Structure, Representation using Array & Linked List, Application of Stack and Queues, Postfix and Prefix Conversion, Evolution of Arithmetic Expressions, Binary Trees: Definition, Memory Representation, Trees traversal algorithms (recursive and non-recursive), threaded trees, BFS, DFS.

Unit-IV: Searching and Sorting
Linear and Binary Search Algorithms, Complexity, Binary Search Trees (construction, insertion, deletion & search), Sorting Algorithms: Bubble Sort, Insertion Sort, Selection Sort, Tree sort, Heap Sort, Quick Sort, Merge Sort & Radix sort, External Sorting.

Unit-V: Analysis of Algorithm
Time and Space Complexity of Algorithms, Average Case & Worst Case Analysis, Asymptotic Notation, Big O notations, Analysis of sorting algorithms -Selection sort, Bubble sort, Insertion sort, Heap sort, Quick sort and Analysis of searching algorithms -Linear Search & Binary Search.

Reference Books:

1. Data Structures using C, A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.
2. Data Structures using C by A. K. Sharma, Pearson Education
3. Data Structures and Algorithms, A.V. Aho, J.E Hopcroft and T.D. Ullman, Addison- Wesley, Low Priced Edition.
4. Fundamentals of Data structures, Ellis Horowitz & Sartaj Sahni, AW Pub.
5. Fundamentals of computer algorithms, Horowitz Sahni and Rajasekaran, Pearson Edu.
6. Data Structures and Program Design in C, Robert Kruse, PHI of Data Structures, Jr. Symour Lipschetz, Schaum's outline by TMH.

Unix Fundamentals and Shell Programming

Objective: Students will equip with the basic skills of using Unix/Linux as a user and system administrator on a free and open-source system. The course teaches learners how to navigate the file system, manage files and directories, use the VI editor, and work with permissions and ownership.

Course Outcomes:

CO- 1. Making acquainted with the concept of Unix/ Linux as a FOSS used or admin.
CO- 2. To make aware of different commands to operate the OS and handle the files & directories on it.
CO- 3. To make them able to understand about the shell script and relevant editors to handle script.

UNIT - I

Operating system and Architecture, Main functions of operating system.
Types of operating system: Batch, Multitasking, Multiprogramming, Multi processing, Time sharing, Real Time.

UNIT - II

History of Unix, Structure of Unix, kernel, shell, Features and Benefit of Unix. Unix basic commands (clear, main, banner, who am i) Time and Date commands (Date, cal, sleep) Unix file system commands (cat, cp, mv, ls, comm, cmp. diff) Unix directory management commands (pwd, cd, mkdir, rmdir)

UNIT- III

Pipes and Filters in Unix: Need of piping, Unix Filters: uniq, tr, grep
Sort (Sort by lines, Sort by fields) Viewing long files (pg, more, head, tail) Process Utilities (ps, kill) Find Command

UNIT - IV:

Environment variables (HOME, PATH, PSI and LONGAME)
Types of users, Types of files (Ordinary Files, Directory Files, Device Files)
Files Access Permission, Types of Permissions, changing file permission, changing ownership, chomd.
Redirection, Standard input, output and error files, input, output and error redirection.

UNIT - V

Vi editor, Shell scripts: Simple shell scripts using expr shell input & output (echo, read)
Operators (Arithmetic Operators, Relational Operators, Boolean Operators, String Operator s, File Test Operators)
Conditional statements (If-else-elif, Test command, case-esac) Loops (While, For, Until, Break & continue)

Reference Books:

1. Introduction To Unix And Shell Programming by Venkateshmurthy, PEARSON INDIA
2. Unix and Shell Programming by Archna Verma, Laxmi Publications
3. UNIX & Shell Programming by Bintu Harwani, Oxford University Press.

Operating System

Course Outcomes–

On completion of the course, the student will be able to:
CO-1 Learn about operating systems, functions of operating systems, systemcalls.
CO-2. Learn about process coordination and process scheduling algorithms.
CO-3. Learn about memory management, critical section and deadlock handling algorithms.
CO-4. Learn about file management and disk scheduling algorithms.

Unit - I: Introduction to Operating System

What is an Operating System, Operating Systems Architecture, , Process Model, Process States and Transitions, Types of System, Calls, System Boot, Multi-Programming, Multi-Tasking, Multi-Threading; Operating Systems, Classification: Simple Batch Systems, Multi-programmed Batches systems, Time-Sharing Systems, Parallel & Distributed Operating Systems.

Unit –II: Process Management

Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, Threads, CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Multiple- Processor Scheduling, Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Recovery from Deadlock.

Unit-III: Memory Management

Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging, Page Replacement, Performance of Demand Paging, Allocation of Frames, Thrashing, Demand Segmentation.

Unit-IV: Device and StorageManagement

File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management.

Unit-V: File-System Implementation

A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

REFERENCE & TEXT BOOKS

Operating System Concepts, Silbersachatz and Galvin, Pearson Education Pub.
Operating Systems, Madnick E., Donovan J., Tata McGraw Hill,
Operating Systems, A. S. Tannenbaum, PHI
Operating Systems Internals and Design Principle, William Stallings, Prentice Hall Publishers
Operating Systems- AConcept-Based Approach, Dhananjay M. Dhamdhere, McGraw-Hill

HTML & CSS

Objective: The objectives of this course are to make the student understand basics of html & css, programming style, concepts of html, style sheet, coloring, designing. After completion of this course the student is expected to design web page. The main emphasis of the course will be designing web page, creating the web page on i.e., web developing

Course Outcomes:
Upon successful completion of the course, a student will be able:
CO 1. To make acquainted with evolution and history of Internet.
CO 2. To make aware of history and function of web browser.
CO 3. Understanding concept of hypertext, different version of HTML and building HTML documents.
CO 4: To put style for webpage.

UNIT - I
Introduction to Internet:
History of internet, what is the internet, advantages of internet, Minimum requirements for internet, ISP, Internet protocols, Internet Tools (FTP, Gopher, E-mail, Telnet, Newsgroup, www etc.), Bridges, Hub, Routers, Repeaters and Gateways, Modem, Types of connections - Dial up, leased ISDN, Broadband, WWW, Browsers, Search Engines, URL

UNIT - II
Introduction to HTML:
Origin, evolution and importance of HTML, elements of HTML, Head, Title Body : background, bgcolor, link, vlink, alink, bgproperties, margin.
Anchor: href. Name, title.
Block formatting elements: font, heading, blockquote, line break, centre, marquee, list elements.

UNIT - III:
Forms in HTML:
Input elements: Textbox, password box, check box, radio button, combo box, select elements, option element.
Information types elements: code, emphasis, keyboard, strong, boldface, italics, strike and subscript.

UNIT-IV
Advanced HTML:
Table elements: border, cell spacing, width, height, align, bgcolor, border color, TR element, TD element, TH element, Col Element.
Frames: frame and frameset elements.

UNIT -V
CSS:
Benefits of CSS, CSS Versions History, CSS Syntax, External Style Sheet using <link>, Multiple Style Sheets, Value Lengths and Percentages, CSS Syntax, single Style Sheets, Multiple Style Sheets, ID Selectors, Class Selectors, Grouping Selectors, Universal Selector, Descendant / Child Selectors, Attribute Selectors, CSS – Pseudo Classes,

Reference Books:

1. Internet for Everyone by Alexis Leon and M.Leon, Vikas Publishing.
2. Internet for Dummies, Pustak Mahal, New Delhi.
3. HTML For Beginners the Easy Way available at html.com.
4. W3Schools for study &hands on training.

BUSINESS MATHEMATICS

Objective::

To acquaint students with fundamental mathematical concepts and how to use them in real-world business and economic scenarios.

Course Outcomes:

1. The students will be able to comprehend the mathematical terms and concepts used in determinants and matrices, logarithms, Vedic math, profit and loss, commission, and discount after completing the program.
2. The pupils will be competent in deciphering and resolving business-related issues.

UNIT – I:

Average, Ratio and Proportion, Percentage

UNIT – II:

Simultaneous Equation: Meaning, Characteristics, Types and Calculation, Preparation of Invoice

UNIT – III:

Determinants and Matrices, Matrix – Definition, Type, Basic operation on Matrices, Determinants- Cofactor and Minor, Adjoint and Inverse.

UNIT – IV:

Vedic Math, Logarithms and Antilogarithms, Simple Interest, Compound Interest.

UNIT – V:

Profit and Loss, Commission, Discount, Broke of Matrixrage

Reference Books:

Business Mathematics: Theory and Applications, by J. K. Sharma, Ane Publishing House, Delhi,
Kapoor V.K., Business Mathematics, Sultan Chand & Sons, Delhi;
Soni R.S., Business Mathematics, Pitamber Publishing House.

AEC-2

HINDI / ENGLISH / ENVIROMENT / LOCAL LANGUAGE

LAB-I UNIX

LAB-II HTML & CSS, DATA STRUCTURE

ANNEXURE 2: BSC IT 2024-25

Maharishi University of Management and Technology

Mangla, Bilaspur

FACULTY OF

COMPUTER SCIENCE & INFORMATION TECHNOLOGY (CSIT)

SYLLABUS

2024-25

Bachelor of Computer Science (Information Technology) BSc(IT)

Introduction of the Programme

Name of the Programme: - BSc(IT)

The broad **objectives** of the programme are:

- To train students in the latest trends of Application Development, Programming Languages, Database Management& Networking.
- To enhance their career opportunities in the software development and maintenance sector nationwide/ to enter the relevant master's programme.
- To expose the students to Open-Source Technologies so that they become familiar with it and can seek appropriate opportunity in trade and industry.
- To give hands on experience to students while developing real life IT application as part of the study.
- To augment the knowledge base of the students, through various activities which will be complementary to the theoretical studies.

Aim of the Programme: BSc (IT) programme has been designed to prepare 10+2 science/ Bio students and who are interestedin taking software/IT as a career or further study in MCA/ Master's program for attaining the following specific **outcomes**:

- Anability to apply knowledge of computer applications and office automation in practice.
- An ability to enhance not only comprehensive understanding of the theory but its application too in diverse field.
- The ability to work in an environment where a range of computer applications or techniques are being applied in form of Networking, Software Engineering, Web development, Database managementetc.
- An ability to design a computing system to meet desired needs within realistic constraints such as safety, security, and applicability n multidisciplinary teams with positive attitude.
- Anability to communicate effectively in relevant fields.
- In order to enhance programming skills of the young IT professionals, the program has introduced the concept of project development in each language/technology learnt during semester.

Seats: 60 (sixty)

Eligibility: 10+2 Science/ Bio from Recognized Board with Math/ Bio

Medium of Instruction: English

Scheme of Examination:
For Theory/ Practical Papers:
Internal Assessment/ Assignment: 30 Marks
External Evaluation/ Term End Examination: 70 Marks

SYLLABUS FOR FOUR YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

SEMESTER-I				
S no.	Category of course	Course code	subject	credit
1.	C-1	BSCIT-101	Fundamental of Programming with C	3
2.	C-2	BSCIT-102	Computer Fundamentals and M S Office	3
3.	C-3	BSCIT-103	Web Technology	4
4.	AEC-1	BSCIT-104	Fundamental course in English	2
5.	VAC-1	BSCIT-105	Maharishi Vedic Science-I	2
6	GE-1	BSCIT-106	Principle of Management	4
7.	C-1-LAB-I	BSCIT-107	Lab-I Programming with C	1
8.	C-2, C-3-LAB-II	BSCIT-108	Lab-II MS Office & Web Technology	1
			TOTAL CREDIT	**20**

SEMESTER-II				
S no.	Category of course	Course code	subject	credit
1.	C-4	BSCIT-201	Engineering Mathematics	4
2.	C-5	BSCIT-202	Data Structure	3
3.	C-6	BSCIT-203	Operating System / Unix Os and Shell Programming	3
4.	AEC-2	BSCIT-204	Environmental Science	2
5.	SEC-1	BSCIT-205	HTML & CSS	1
6.	GE-2	BSCIT-206	Business Mathematics	4
7.	C-6-LAB-I	BSCIT-207	Lab-I Data Structure	1
8.	C-5, SEC-1-LAB-II	BSCIT-208	LAB-II HTML & CSS	2
			TOTAL CREDIT	**20**

Fundamental of Programming with C

Objective: The objectives of this course are to make the student understand basics of programming language, programming style, concepts of Loops, reading a set of Data, stepwise refinement, Functions, Control structure, Arrays. After completion of this course the student is expected to analyze the /real-life problem and write a program in 'C' language to solve the problem. The main emphasis of the course will be on problem solving aspect i.e., developing proper algorithms.

Course Outcomes:

Students will be able to understand and the use of

- the procedural language with fundamental concepts.
- control structures and decisional statements in programs
- user defined data types in programs
- functions &dynamic memory management techniques using pointers
- reading &writing data files and handling I/O in programs.

Unit-I: Programming Concepts

Understanding of a computer system, Concept of Software Language, C compiler, C Language Character set. Tokens, Constant, Keywords and Identifiers, Variables Data Types Declaration and Assignment of Variables, Type Casting, Defining Symbolic Constants, Operators and Expressions: Types of Operators- Arithmetic, Relational and Logical Operators, Assignment and Conditional Operators Increment & Decrement Operators, Bitwise and Special Operators, Arithmetic Expression and its evaluation, Hierarchy of Arithmetic Operations- Evaluations, Precedence and Associatively- Mathematical Functions, Library functions: Getchar (), putchar (), printf (), scanf (), puts (), gets ().

Unit-II: Branch and Control Handling

Flow of control - if, if-else, while, do-while, for loop, Nested control structures - Switch, break and continue go to statements, Comma operator, Ternary ? : Operator, Functions -Definition - prototypes - Passing arguments - Recursion- Storage Classes - Automatic, External, Static, Register Variables, Storage Classes and Character Strings: Automatic, Register, Static, External (Local and Global), Scope rules.

Unit-III: Array, Structure& Union

Arrays, String, Structures and Unions in C

Arrays - Defining and Processing, Single, Two Dimensional and Multi-dimensional arrays. Passing arrays to functions, Arrays and Strings, Handling of Character Set: Declaration & Initialization of String Variables, Structures and Unions: Definitions, Initialization and Assigning Values to Members, Arrays of Structures and Arrays Within Structures, Unions- Size of Structures.

Unit-IV: Functions and Pointers

User Defined Functions: Form of "C" functions- Calling a Function - Nesting of Functions - Recursion - Functions with Arrays, Pointers: Declaration and Initialisation of Pointers, Pointer Expression, Operation on Pointers, Pointer and Arrays, Arrays of Pointers, Pointer and Character Strings, Pointers and Functions, Pointers and Structures, Pointer on Pointers.

Unit-V: File Handling in C

File Input/Output: Introduction, Defining, Opening and closing a file, Study of file I/O Operations: fopen(), fclose(), fputs(), fgets(), fread (), fwrite() Input / Output Operations on a file, Random access to file, Command line arguments, Time, Date and Localization Functions, Dynamic Allocation Functions.

Reference Books:

1. LET US C, Yashwant Kanetkar, BPB PUBLICATIONS
2. The Complete Reference C, Herbert Schildt, Tata McGraw HILL
3. PROGRAMMING IN ANSI C - by E. Balgurusamy - Tata McGraw HILL
4. PROGRAMMINGWITH C. Byron S. Gottfried, Tata McGraw HILL
5. The "C" Programming Language, Briain W. Kenigham& Dennis Ritchie, Pearson

Computer Fundamentals and M S Office

Objective: The objectives of this course are to make the student understand basics of computer fundamental. , concepts of basic input/output device reading a parts of computer , storage devices After completion of this course the student is expected to analyze the working of computer system The main emphasis of the course will be on familiar with the computer system .

Course Outcomes:

Students will be able to

1. Aware of parts of computer
2. Understand the input and output devices.
3. Gain the basic ideas of storage devices, computer Networks and Operating System.

UNIT - I

Introduction to Computer and information technology: Brief history of development of computer and generations of computer. Computer system characteristics, Advantages and disadvantages of a computer, Block diagram of computer, Types of computer - Analog, Hybrid, digital, Micro, Mini, Mainframe, Super computer, Personal Computer, Types of PCs desktop, Laptop, Notebook, Palmtop, etc., Number systems (Binary, Octal, Decimal, Hexadecimal)

UNIT - II

Input devices & Memory : Keyboard, Mouse, Monitor, Trackball, Joystick, Electronic Pen, Touch Screen, Image Scanner, MICR, OCR, OMR, Bar Code reader, Digitizer, Electronic Card Reader, Voice Recognition, **Output Devices:** Monitors, Printers, Plotters, Screen Image Projector, voice response system. Main Memory, Secondary storage devices.

Unit- III:

Introduction to MS Word

Menus, Shortcuts, Document types; Working with Documents: Opening Files - New & Existing, Saving Files, Formatting page and Setting Margins, Converting files to different formats- Importing, Exporting, Sending files to others, Editing text documents- Inserting, Deleting, Cut, Copy, paste, Undo, Redo, Find, Search, Replace, Using Tool bars, Ruler- Using Icons, Using help; Formatting Documents: Setting Font Styles, Setting Paragraph style, Setting Page Style, Setting Document Styles, Creating Tables, Drawing, Tools, Printing Documents, Mail Merge.

Unit-IV:

Introduction to MS Excel

Introduction: Spreadsheet & its Applications, Opening spreadsheet, Menus & Toolbars & icons, Shortcuts, Working with Spreadsheets-Opening, Saving Files, Setting Margins, Converting files to different formats- Importing, Exporting and Sending files to others. Entering and Editing Data, Computing data: Formula. Formatting Spreadsheets- Cell, row, column & Sheet, Alignment, Font, Border & shading. Highlighting values, Hiding/Locking Cells: Worksheet- Sheet Name, Row & Column Headers, Row Height, Column Width and Worksheet Sheet Formatting & style background, Graphs, Printing worksheet.

Unit-V:

Introduction to MS Power Point

Creating new Presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts, Formatting a presentation-Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout, Inserting pictures, movies, tables etc. into the presentation, Drawing Pictures using Draw, Setting Animation & transition effect, Adding audio and video, Printing Handouts. Generating standalone presentation viewer.

Reference Books:

1. Windows 8.1 Plain & Simple by Joli Ballew, Nancy Muir, PHI
2. Learning Microsoft Office 2013 by Ramesh Bangia, Khanna Book Publishing.
3. Comdex Computer Course Kit (windows 7 with office 2010), Gupta Vikas. Dreamtech Publication
4. Mastering MS Office 2000, Professional Edition by Courier, BPB Publication

Web Technology

Objective: Students will have idea of internet protocols and its applications. They will be able to analyze a web page and identify its elements and attributes; create web pages using HTML.

Course Out Comes–

CO- 1. Making acquainted with evolution and history of Internet.
CO- 2. To make aware of history and function of web browser.
CO- 3. Understanding concept of hypertext, different version of HTML and building HTML documents.

UNIT – 1

Internet: Evolution, Protocols, Concept, Internet Vs Intranet, growth of Internet, ISP Connectivity, Dial-up, leased line, VSAT etc, URIs, Domain names, Portals, Application. E-Mail: Concept, address basics of sending & Receiving, E-mail protocols, mailing list and free E-mail services.

UNIT – 2

File transfer Protocols, Telnet & chatting: Data Transmission Protocols, Client/ Server Architecture & its Characteristics, FTP & Its usages telnet Concept, Remote Logging, Protocols, Internet chatting – voice chat, text chat.

UNIT – 3

World Wide Web (WWW): History, Working, Web Browser, its function, Concept of Search Engine, Searching the web HTTP, URLS, Web Server, Web Protocols.

UNIT - 4

Web Publishing: Concept, Domain name Registration, space on Host Server for web site, Image editor, issues in web site creation & maintenance, FTP software for upload web site.

UNIT – 5

HTML: Concept of Hypertext, Version of HTML, Element of HTTML, syntax, head & body section Building HTML document, Inserting Text, Image, Hyperlinks, Background and color controls, different HTML tag, Tables, Tables layout and presentation use of size & Attributes, List types and its tags, HTML, Design tools, HTML editor

REFERENCE & TEXT BOOKS

1. Level Madul M. 1.2 Internet & Web page Designing by Y.K. Jain, BPB Publication.
2. Internet for Dummies – Pustak Mahal, New Delhi
3. Internet & E-Commerce A. Mansoor&Anrag Seetha, Pragya Publication.

Principles of Management

Objective: The objectives of this course are to make the student understand the management perspective of an organization and its elements, nature, and divisions. This course will provide the concept of the professional view, functional activities, and workflow mechanism of their future working place also helps to acquire leadership skills.

Course Outcomes:

The subject entitled 'Principles of Management' has the following CO :

CO1: Understand the concept of Management, its levels and functions.

CO2: Determine the managerial roles and skills, with special attention to managerial responsibility for effective and efficient achievement of goals.

CO3: Understand the planning process, its types and various decision making models.

CO4: Ascertain the nature of organization structure, and its different types explaining Span of Control.

UNIT I

Introduction:

Management-definition, importance, functions,nature-as profession,scienceandart,universalityofmanagement;levelsofmanagement;managerialtasksandskills.

Different Schools of Thoughts: Classical School-contributions of Taylor and Henri Fayol; Neo-classical school-Human Relations approach and Behavioural Science Approach; Modern School; System approachandContingencyapproach.

UNIT II

Planning:

Concept, importance, steps, types, premises, barriers to effective planning and remedial measures; strategic planning-concept forecasting–concept, techniques.

Organizing:

Concept, importance, principles,differentorganizationmodels-lineandstaff;Functional;Departmentation-need,basis,principles,DelegationofAuthority-elements,stepsbarriers;CentralizationandDecentralizationofAuthority;SpanofManagement;conceptanddeterminingfactors.

UNIT III

Directing and Staffing:

Directing: concepts, importance of directing,

Leadership: Concept, importance, types, leadership traits, Tannenbaum& Schmidt's Model and Blake& Mouton's Model.

Staffing: Concepts, importance.

UNIT IV

Motivation:

Concept importance, importance of need theory and contributions of Mc Gregor, Maslow, Herzberg.

UNIT V

Coordination: concepts, importance, principles and implementation techniques.

Control: concepts, importance and tools of control.

REFERENCE &TEXT BOOKS

1. Prasad, L. M., Principles and Practice of Management, Sultan Chand
2. Sharma Gupta, Management: Principles and application, Kalyani Publishers
3. R.K. Singhal, Management Principle and application, V.K. Global Pub. Pvt. Ltd, New Delhi.
4. ManagementPrinciplesandApplications-JhunjhunwalaJMohanty-HimalayaPublishingHouse
5. Principles of Management: Mitra, Oxford University Press.
6. Griffin R.W.–Management: Principles & Practices, Cengage Learning

Maharishi Vedic Science-I

Objective:

- To specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times.
- To explore the strength and scope of Vedic Education study through interdisciplinary learning

Course Outcomes:

The subject entitled 'Maharishi Vedic Science' has the following CO:

CO1: The study of Maharishi Vedic Science develops the full potential of the knower and lays the foundation for complete knowledge of any discipline, while it fosters evolution to higher states of consciousness and progressive and fulfilling action and accomplishment in life.

CO2: Maharishi Vedic Science is the systematic study, experience, and development of the full range of life, both individual and cosmic, and its applications to create a better world.

CO3: Its principles and technologies are based on the direct experience and understanding of the most vital element in life – the unbounded field of consciousness that is the inner intelligence at the basis of every individual and the entire universe.

Unit-1: Guru Worship and importance of Guru, meditation, mind, intellect, mind, ego, thought, Maharishi Transcendental Meditation, benefits of Transcendental Meditation, Siddhi program, yogic flight etc.

Unit- 2: Vedas and Vedic literature, form of Vedic literature, description of forty regions like Rigveda, consciousness and levels of consciousness, states of consciousness.

Unit- 3: Maharishi Yoga, definition and characteristics of Ashtanga Yoga, types of Yogasanas, usefulness of Yogasanas in human life, benefits from Yogasanas.

Unit-4: Maharishi Astrology, Origin of Astrology, Introduction to Triskandha Astrology, (Siddhanta, Sanhita and Hora), Definition and Introduction of Panchang (Tithi, Vaar, Nakshatra, Yoga and Karana), Human Life and Astrology, External and Internal Personality, Planets and Introduction to expressions etc.

Unit-5: Introduction of Maharishi Sthapatyaveda, purpose of the book, origin of Vastu Purush, tradition of Vastu Shastra, natural development from Vastu, progress from Vastu, symptoms of auspicious Vastu, inauspicious Vastu symptoms, usefulness of home, when to do Vastu Puja etc.

Reference Books:

1. Maharishi Sandesh Part I and II.
2. Chetna Vigyan by His Holiness Maharishi Mahesh Yogi Ji.
3. Dhyan Shailey by Brahmachari Dr.Girish Chandra Verma Ji

AEC-1

HINDI / ENGLISH / ENVIRONMENT / LOCAL LANGUAGE

LAB-I PROGRAMMING WITH C
LAB-II MS OFFICE & WEB TECHNOLOGY

SEMESTER-II

ENGINEERING MATHEMATICS

Objective: In order to give the students a solid foundation in set, relation, matrix, Permutation and combination, Probability for application in their respective disciplines.

Course Outcomes:
Upon successful completion of the course, a student will be able to:
CO-1. In order to conceive and visualize the engineering issues.
CO-2. To use matrices, Permutation and combination calculus theory to mathematically model the engineering problem.
CO-3. To ascertain the engineering problem's solution from an application perspective

Unit I: Set Theory: - Set Theory Definition, History of Set Theory, Examples of Sets, Important Terms Related to Set Theory, Elements of a Set, Cardinal Number of a Set Representation of Sets, Roster Form, Set Builder Form, Types of Sets, Set Theory Symbols, Set Theory Operations, Properties of Set Operations, Set Theory Formulas, De Morgan's Laws, De Morgan's Law of Union, De Morgan's Law of Intersection, Visual Representation of Sets Using Venn Diagram.

Unit II: Relation: - Definition, Binary Relation, Representation, Domain, Range, Universal Relation, Void Relation, Union, Intersection, and Complement Operations on Relations, Properties of Binary Relations in a Set: Reflexive, Symmetric, Transitive, Anti-symmetric Relations, Equivalence Relation, Equivalence Classes, Transitive Closure of a Relation.
Function: Introduction &definition, Co-domain, range, image, value of a function; Examples, surjective, injective, bijective; examples; Composition of functions, examples; Inverse function, Identity map, condition of a function to be invertible, examples; Inverse of composite functions, Properties of Composition of functions.

Unit III: Matrix and determinant: - Definition, Minors, Cofactors, Properties of Determinants MATRICES: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramer's Rule, Rank of Matrix Dependence of Vectors, Eigen Vectors of a Matrix, Caley-Hamilton Theorem (without proof).

Unit IV: Permutation and combination: - Permutations and Combinations - Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, derivation of Formula for nPr and nCr and their connections, simple applications.

Unit v: Probability: - What is Probability And Statistics?, Probability Definition, Statistics Definition, Terms Related to Probability and Statistics, Probability Formulas, Statistics Formulas, Topics under Probability and Statistics, Rules of Probability, Types of Event in Probability.

REFERENCE & TEXT BOOKS

1. Boolean Algebra and Its Applications, J. Eldon Whitesitt, Addison-Wesley.
2. A Textbook of Discrete Mathematics,Swapan Kumar Sarkar, S. Chand.
3. Discrete Maths, C.L.Liu, T McGraw Hill
4. "Engineering Mathematics Vol. II" by Kandasamy P and Gunavathy
5. "Higher Engineering Mathematics" by Grewal B
6. "Advanced Engineering Mathematics" by Kreyzig E
7. "Advanced Engineering Mathematics" by Erwin Kreyszig

Data Structure

Objective: The objectives of this course are to make the student understand basics of data structure, programming style, concepts of algorithms, flow chart, Functions, Control structure, Arrays, stack, queue. After completion of this course the student is expected to analyze the real-life problem, to solve the problem. The main emphasis of the course will be on problem solving aspect i.e., developing proper algorithms.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

CO-1. To access how the choices of data structure & algorithm methods impact the performance of program.

CO-2. To Solve problems based upon different data structure & also write programs.

CO-3. Choose an appropriate data structure for a particular problem

Unit-I: Introduction and Array

Data Types, Data Structure and its Classification, Arrays: Array concept (one dimension, two dimension), Operations for one dimension array (insertion, deletion, traversal), Examples.

Unit-II: Linked Lists

Concept of a linked list, Circular & Doubly linked list, Operations on linked lists, List Manipulation with Pointers, Insertion & Deletion of elements, Applications of linked lists.

Unit-III: Stacks-Queues and Binary Tree

Definitions and Structure, Representation using Array & Linked List, Application of Stack and Queues, Postfix and Prefix Conversion, Evolution of Arithmetic Expressions, Binary Trees: Definition, Memory Representation, Trees traversal algorithms (recursive and non-recursive), threaded trees, BFS, DFS.

Unit-IV: Searching and Sorting

Linear and Binary Search Algorithms, Complexity, Binary Search Trees (construction, insertion, deletion & search), Sorting Algorithms: Bubble Sort, Insertion Sort, Selection Sort, Tree sort, Heap Sort, Quick Sort, Merge Sort & Radix sort, External Sorting.

Unit-V: Analysis of Algorithm

Time and Space Complexity of Algorithms, Average Case & Worst Case Analysis, Asymptotic Notation, Big O notations, Analysis of sorting algorithms -Selection sort, Bubble sort, Insertion sort, Heap sort, Quick sort and Analysis of searching algorithms -Linear Search & Binary Search.

Reference Books:

1. Data Structures using C, A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.
2. Data Structures using C by A. K. Sharma, Pearson Education
3. Data Structures and Algorithms, A.V. Aho, J.E Hopcroft and T.D. Ullman, Addison- Wesley, Low Priced Edition.
4. Fundamentals of Data structures, Ellis Horowitz & Sartaj Sahni, AW Pub.
5. Fundamentals of computer algorithms, Horowitz Sahni and Rajasekaran, Pearson Edu.
6. Data Structures and Program Design in C, Robert Kruse, PHI of Data Structures, Jr. Symour Lipschetz, Schaum's outline by TMH.

HTML & CSS

Objective: The objectives of this course are to make the student understand basics of html & css, programming style, concepts of html, style sheet, coloring, designing. After completion of this course the student is expected to design web page. The main emphasis of the course will be designing web page, creating the web page on i.e., web developing

Course Outcomes:
Upon successful completion of the course, a student will be able:
CO 1. To make acquainted with evolution and history of Internet.
CO 2. To make aware of history and function of web browser.
CO 3. Understanding concept of hypertext, different version of HTML and building HTML documents.
CO 4: To put style for webpage.

UNIT - I
Introduction to Internet:
History of internet, what is the internet, advantages of internet, Minimum requirements for internet, ISP, Internet protocols, Internet Tools (FTP, Gopher, E-mail, Telnet, Newsgroup, www etc.), Bridges, Hub, Routers, Repeaters and Gateways, Modem, Types of connections - Dial up, leased ISDN, Broadband, WWW, Browsers, Search Engines, URL

UNIT - II
Introduction to HTML:
Origin, evolution and importance of HTML, elements of HTML, Head, Title Body : background, bgcolor, link, vlink, alink, bgproperties, margin.
Anchor: href. Name, title.
Block formatting elements: font, heading, blockquote, line break, centre, marquee, list elements.

UNIT - III:
Forms in HTML:
Input elements: Textbox, password box, check box, radio button, combo box, select elements, option element.
Information types elements: code, emphasis, keyboard, strong, boldface, italics, strike and subscript.

UNIT-IV
Advanced HTML:
Table elements: border, cell spacing, width, height, align, bgcolor, border color, TR element, TD element, TH element, Col Element.
Frames: frame and frameset elements.

UNIT -V
CSS:
Benefits of CSS, CSS Versions History, CSS Syntax, External Style Sheet using <link>, Multiple Style Sheets, Value Lengths and Percentages, CSS Syntax, single Style Sheets, Multiple Style Sheets, ID Selectors, Class Selectors, Grouping Selectors, Universal Selector, Descendant / Child Selectors, Attribute Selectors, CSS – Pseudo Classes,

Reference Books:

1. Internet for Everyone by Alexis Leon and M.Leon, Vikas Publishing.
2. Internet for Dummies, Pustak Mahal, New Delhi.
3. HTML For Beginners the Easy Way available at html.com.
4. W3Schools for study &hands on training.

Unix Fundamentals and Shell Programming

Objective: Students will equip with the basic skills of using Unix/Linux as a user and system administrator on a free and open-source system. The course teaches learners how to navigate the file system, manage files and directories, use the VI editor, and work with permissions and ownership.

Course Outcomes:

CO- 1. Making acquainted with the concept of Unix/ Linux as a FOSS used or admin.
CO- 2. To make aware of different commands to operate the OS and handle the files & directories on it.
CO- 3. To make them able to understand about the shell script and relevant editors to handle script.

UNIT - I

Operating system and Architecture, Main functions of operating system.
Types of operating system: Batch, Multitasking, Multiprogramming, Multi processing, Time sharing, Real Time.

UNIT - II

History of Unix, Structure of Unix, kernel, shell, Features and Benefit of Unix. Unix basic commands (clear, main, banner, who am i) Time and Date commands (Date, cal, sleep) Unix file system commands (cat, cp, mv, ls, comm, cmp. diff) Unix directory management commands (pwd, cd, mkdir, rmdir)

UNIT- III

Pipes and Filters in Unix: Need of piping, Unix Filters: uniq, tr, grep
Sort (Sort by lines, Sort by fields) Viewing long files (pg, more, head, tail) Process Utilities (ps, kill) Find Command

UNIT - IV:

Environment variables (HOME, PATH, PSI and LONGAME)
Types of users, Types of files (Ordinary Files, Directory Files, Device Files)
Files Access Permission, Types of Permissions, changing file permission, changing ownership, chomd.
Redirection, Standard input, output and error files, input, output and error redirection.

UNIT - V

Vi editor, Shell scripts: Simple shell scripts using expr shell input & output (echo, read)
Operators (Arithmetic Operators, Relational Operators, Boolean Operators, String Operator s, File Test Operators)
Conditional statements (If-else-elif, Test command, case-esac) Loops (While, For, Until, Break & continue)

Reference Books:

1. Introduction To Unix And Shell Programming by Venkateshmurthy, PEARSON INDIA
2. Unix and Shell Programming by Archna Verma, Laxmi Publications
3. UNIX & Shell Programming by Bintu Harwani, Oxford University Press.

Operating System

Course Outcomes–

On completion of the course, the student will be able to:
CO-1 Learn about operating systems, functions of operating systems, systemcalls.
CO-2. Learn about process coordination and process scheduling algorithms.
CO-3. Learn about memory management, critical section and deadlock handling algorithms.
CO-4. Learn about file management and disk scheduling algorithms.

Unit - I: Introduction to Operating System

What is an Operating System, Operating Systems Architecture, , Process Model, Process States and Transitions, Types of System, Calls, System Boot, Multi-Programming, Multi-Tasking, Multi-Threading; Operating Systems, Classification: Simple Batch Systems, Multi-programmed Batches systems, Time-Sharing Systems, Parallel & Distributed Operating Systems.

Unit –II: Process Management

Processes: Process Scheduling, Cooperàting Processes, Inter-process Communication, Threads, CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Multiple- Processor Scheduling, Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Recovery from Deadlock.

Unit-III: Memory Management

Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging, Page Replacement, Performance of Demand Paging, Allocation of Frames, Thrashing, Demand Segmentation.

Unit-IV: Device and StorageManagement

File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management.

Unit-V: File-System Implementation

A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

REFERENCE & TEXT BOOKS

Operating System Concepts, Silbersachatz and Galvin, Pearson Education Pub.
Operating Systems, Madnick E., Donovan J., Tata McGraw Hill,
Operating Systems, A. S. Tannenbaum, PHI
Operating Systems Internals and Design Principle, William Stallings, Prentice Hall Publishers
Operating Systems- AConcept-Based Approach, Dhananjay M. Dhamdhere, McGraw-Hill

BUSINESS MATHEMATICS

Objective::

To acquaint students with fundamental mathematical concepts and how to use them in real-world business and economic scenarios.

Course Outcomes:

1. The students will be able to comprehend the mathematical terms and concepts used in determinants and matrices, logarithms, Vedic math, profit and loss, commission, and discount after completing the program.
2. The pupils will be competent in deciphering and resolving business-related issues.

UNIT – I:

Average, Ratio and Proportion, Percentage

UNIT – II:

Simultaneous Equation: Meaning, Characteristics, Types and Calculation, Preparation of Invoice

UNIT – III:

Determinants and Matrices, Matrix – Definition, Type, Basic operation on Matrices, Determinants- Cofactor and Minor, Adjoint and Inverse.

UNIT – IV:

Vedic Math, Logarithms and Antilogarithms, Simple Interest, Compound Interest.

UNIT – V:

Profit and Loss, Commission, Discount, Broke of Matrixrage

Reference Books:

Business Mathematics: Theory and Applications, by J. K. Sharma, Ane Publishing House, Delhi,
Kapoor V.K., Business Mathematics, Sultan Chand & Sons, Delhi;
Soni R.S., Business Mathematics, Pitamber Publishing House.

AEC-2
HINDI / ENGLISH / ENVIROMENT / LOCAL LANGUAGE

LAB-I UNIX

LAB-II HTML & CSS, DATA STRUCTURE

ANNEXURE 4: M.SC. IT 2024-25

Maharishi University of Management and Technology

Mangla, Bilaspur

FACULTY OF

COMPUTER SCIENCE & INFORMATION TECHNOLOGY (CSIT)

SYLLABUS

2024-25

Master of Computer Science (Information Technology)
M. Sc. (IT)

Maharishi University of Management and Technology

Mangla, Bilaspur

FACULTY OF

COMPUTER SCIENCE & INFORMATION TECHNOLOGY (CSIT)

SYLLABUS

2024-25

Master of Computer Science (Information Technology)
M. Sc. (IT)

SYLLABUS
2024-2025
MSCIT

SEMESTER-I

S no.	Category of course	Course code	Subject	Credit
1.	C-1	1MSCIT01	Discrete Mathematics	4
2.	C-2	1MSCIT02	RDBMS	4
3.	C-3	1MSCIT03	Data Communication & Computer Network	4
4.	SEC-1	1MSCIT04	OOPs using C++	4
5.	Lab1	1MSCIT LAB1	Lab1- C++	2
6.	Lab2	1MSCIT LAB2	Lab2- RDBMS	2
			TOTAL CREDIT	**20**

SEMESTER-II

S no.	Category of course	Course code	Subject	Credit
1.	C-5	2MSCIT01	Computer Organization and Architecture	4
2.	C-6	2MSCIT02	Network Security and Cryptography	4
3.	C-7	2MSCIT03	Computer Graphics	4
4.	SEC-2	2MSCIT04	Core Java	4
5.	Lab1	2MSCIT LAB1	Lab 1- Computer Graphics	2
6.	Lab2	2MSCIT LAB2	Lab 2 - Java Programming	2
			TOTAL CREDIT	**20**

Discrete Mathematics

Unit I :
Set Theory: Introduction, Size of sets and cardinals, Venn diagrams, Combination of sets, Multisets, Ordered pairs and set identities.

Relations & Functions: Relation - Definition, Operation on relations, Composite relations, Properties of relations, Equality of relation, Partial order relation, Functions - Definition, Classification of function, Operation on functions, Recursively defined functions.

Notion of Proof: Introduction, Mathematical Induction, Strong Induction and Induction with Nonzero base case.

Unit II :
Lattices: Introduction, Partial order sets, Combination of partial order sets, Hasse diagram, Introduction of lattices, Properties of lattices - Bounded, Complemented, Modular and Complete lattice

Unit III :
Boolean Algebra: Introduction, Axioms and Theorems of Boolean algebra, Boolean functions, Simplification of Boolean Functions, Karnaugh maps, Logic gates, Digital circuits and Boolean algebra.

Unit IV :
Propositional & Predicate Logic: Propositions, Truth tables, Tautology, Contradiction, Algebra of propositions, Theory of Inference and Natural Deduction. Theory of predicates, First order predicate, Predicate formulas, quantifiers, Inference theory of predicate logic.

Unit V :
Recurrence Relations: Introduction, Growth of functions, Recurrences from algorithms, Method of solving recurrences.
Combinatorics: Introduction, Counting techniques, Pigeonhole Principle, Pólya's Counting Theory.

BOOK REFERENCE:-

1. Discrete Mathematics and Its Applications, Kenneth H. Rosen, McGraw- Hill, 2006.
2. Discrete Mathematical Structures, B. Kolman, R. C. Busby, and S. C. Ross, Prentice Hall, 2004.
3. Discrete and Combinatorial Mathematics, R. P. Grimaldi, Addision Wesley, 2004
4. Discrete Mathematical Structures, Y N Singh, Wiley-India, First Edition, 2010.

Data Communication & Computer Network

Unit I :

Basics of Data Communication

Introduction to Computer Networks, Network Hardware and Software, OSI and TCP/IPReferenceModels,Networktopology,DataCommunications,CommunicatonSystem,trapsmissionmodes.

Unit II :

Physical layer and Media

Data and Signal, Transmission Impairment, Digital and Analog Transmission, Transmission media: Guided media, Wireless transmission: Electromagnetic spectrum, Radio and Micro Waves, Infrared, Lightwave, Spread Spectrum Systems, Multiplexing, and Switching: Circuit Switched Network, Datagram Network, and Virtual Circuit Network.

Unit III :

Data Link Layer

Data Link layer design issues: Services, Framing, Error detection and correction, Error and flow control, Stop-and-Wait protocol, Sliding Window protocol, HDLC, Channel allocation: Static and Dynamic allocation, Multiple Access Protocols: ALOHA,CSMA, Collision-free and limited contention protocols, Virtual, Virtual LAN, LAN and MANs, IEEE Standards for LAN and MAN, High Speed LAN, Bluetooth, Cellular telephony, Broadband wireless technologies, Wireless LAN, Transmission in ISDN, Broadband ISDN, ATM Networks.

Unit IV :

Upper Layers

Network Layer: Design Issues in Networks, Routing Algorithms. Congestion Control Algorithms, Internet Protocol(IP), ICMP, IGMP, Delivery, Forwarding and routing, IP Address, Need of Subnetting, and internetworking, Transport Layer: Services of transport layer, TCP, UDP and SCTP Protocols. Quality of Service. Services of presentation layer, Overview of application layer protocol: Telnet, DNS, SNMP, SMTP, FTP, TFTP, BOOTP, HTTP Protocols, Firewalls.

Unit V :

Advanced Concept and Network Security

Over View of Cellular Networks. Adhoc Networks, Mobile Adhoc Networks, Wireless Medium Access Control, Properties of a MANET, Sensor Networks, Virtual Private Networks, Mobile Network Layer: Mobile IP. Network Security: Cryptography, Symmetric key and Asymmetric key cryptography, Security services: Confidentiality, Integrity and authentication, Digital signature, IP security.

Reference Books:

1. Data and computer Communication, William Stallings. Pearson Education.
2. Computer and Communication Networks, Nader F. Mir, Pearson Education, 2007.
3. Data & Computer Communication, Black, PHI.
4. Communication network, Walrand, TMH.
5. Internetworking with TCP/IP. Douglas E. Comer, and Prentice Hall India.

RDBMS

UNIT-I

Introduction to DBMS & RDBMS - Introduction to database, Introduction DBMS, Different database models, Structure of DBMS, RDBMS an introduction, Cod's law for RDBMS, Components of rdbms (kernel/data dictionary).

Introduction to Oracle RDBMS and Client/Server Computing - Introduction to Oracle, The Features of Oracle 9i, The oracle product details, An introduction to client/server computing, Oracle and client/server computing.

Overview of Oracle Architecture- Oracle Architecture, Oracle Files, System and User Processes, Oracle Memory, System Database Object, Protecting Data.

UNIT-II

Introduction to SQL*PLUS -Introduction to SQL, Features of SQL, Components of SQL, Introduction to SQL*PLUS, Features of SQL*PLUS, Oracle Data-Types.

Working with Tables -Tables - An Introduction, Use of Table In SQL, Viewing The Stored Data In Tables, Filtering Table Data, Updating Data, Deleting Data From Tables, Modifying The Structure Of Tables, Destroying A Table.

Data Constraints - Data Constraints, the Use of Data Constraints, The Types of Data Constraints, Defining Integrity Constraints By 'Alter Table', Removing Integrity Constraints, 'Null' Value Concept.

UNIT-III

Data Manipulation in SQL - Oracle Operators, Range Searching, Pattern Matching, LIKE 'IN' and 'NOT IN' Predicates, An Introduction to 'DUAL' Table, An Introduction to 'SYSDATE'.

Oracle Functions - Oracle Function, Function Types, Group Function, Scalar Function, Working With 'Date' in SQL, Grouping Of Data Of Different Tables In SQL.

Joins, Sub-Queries & Views - Types of joins, use of sub-query, 'union' and clause, 'Intersect' Clause, Minus Clause, Concept of View, Types of View, Use of View.

User Accounts Management & Indexing - Creation of User Account, User Account Management, Granting Privileges, Revoking Privileges, Modifying Password, Closing User Account, Concept of Index, Creation of Index, Types of Index, Use of Index, Deleting Index.

UNIT-IV

Introduction to PL/SQL Programming - Introduction to PL/SQL, Advantages of PL/SQL, Differences between SQL and PL/SQL, PL/SQL Block Structure, PL/SQL Character set, Variable, Constant and Data type, Assignment Operator and the use of 'SELECT....INTO, PL/SQL Program Control Structure, The use of 'IF...THEN...ELSE...ENDIF', Iteration Control (The use of LOOP, WHILE, FOR), The use of 'GOTO Statement.

Cursor - Cursor an Introduction, Types of Cursor, Features of Cursor, Implicit Cursor, Explicit Cursor, Application of for Loop with Cursor.

Exception Handling in PL/SQL - Exception Handling in PL/SQL, Built in Exception Handling, User Defined Exception Handling, The Raise Application-error Procedure.

UNIT-V

Oracle Transaction - Oracle Transaction, Commit Statement, Rollback Statement, save point statement, Concept of lock, Types of locks, Levels of Locks, 'SELECT.....FOR UPDATE' Statement, Removing the Lock.

Procedures and Functions- Concept of Procedures and Functions, Advantages of Procedure and Function, Creation of Procedure and Function, Deleting Procedure and Function.

Database Triggers - Concept of Triggers, Types of Triggers, Creation of Triggers, Application of Triggers, Deleting Triggers.

TEXT BOOK:-

1.Principal Of Database System. J.D Ullman Galgotia New Delhi.
2. Database System Concept By H Korth And A Silberscatz, TMH Pub
3.Database Management By Dr Madhulika Jain, Vineeta Pillai
4.The Theory Of Database Concurrency Control, C. Papadimitriou, Computer Science Press
5 Database Management System Pragya Publication.

OOPs using C++

UNIT-I

Overview of C++ - Object oriented programming paradigm, Basic concepts of OOP, Advantages/Benefits of OOP, Usage/applications of OOP.

C++ Environment- The C++ standard library, Prototype of main() function, I/O operator, manipulator, comments, data types.

Creating and Compiling C++ Programs - Structure of a C++ program, C++ tokens, Type conversion in expressions.

Decision Making and Branching - Introduction, statements, Mathematical Functions, Branching statements, looping Statements, Nested loops, Programming examples.

UNIT-II

Arrays and Functions- Arrays, The meaning of an array, Single-dimensional arrays, Twodimensional arrays (Multi-dimensional arrays), User Defined Functions, Elements of user-defined functions, Return values and their types, Function calls, Categories of functions, Passing parameters to functions, Recursion, Command Line Arguments, Storage Class Specifiers.

Classes and Objects - Classes, Structures and classes, Unions and classes, Friend function, Inline function, Scope resolution operator, Static class members, Static data members, Static member functions, passing object to functions, Returning objects.

UNIT-III

Array, Pointers, References and the Dynamic Allocation Operators - Array of objects, Pointer to object, this pointer, Pointer to Derived Types, Pointer to class members, References, C++'s Dynamic Allocation Operators.

Constructors and Destructors - Introduction, Constructors, Default Constructor, Parameterized constructors, Copy Constructors, Multiple Constructors in a class, Constructors with default arguments, Default Arguments, Special Characteristics of Constructor functions, Destructors.

UNIT-IV

Function and Operator Overloading - Function overloading, Overloading Constructor, Operator Overloading, Creating Prefix and Postfix forms of the increment (++) and decrement (--) operators (Overloading Unary Operator), Overloading the Shorthand Operators (i.e. +=, == etc), Operator Overloading Restriction (Rules), Operator Overloading using friend function, Overloading new and delete operator, Overloading Binary Arithmetic operators, Concatenating String.

Inheritance - Introduction to inheritance, Features or Advantages of Inheritance, Type of Inheritance, Base Classes and Derived Classes, Base Class Access Control, Protected Members, Protected Base class Inheritance, Inheriting Multiple Base Classes, Constructors, Destructors and Inheritance, Passing Parameters to Base Class Constructors, Virtual Base Classes.

UNIT-V

Polymorphism - Polymorphism, Types of Polymorphism, Virtual Functions and Polymorphism, Pure Virtual Functions, Early Vs Late Binding.

The C++ I/O System Basics - The C++ I/O System basics, C++ predefined streams, Formatting using the ios members, file handling function Using width( ), Using precision( ), Using fill( ), Using Manipulators to format I/O, Creating your own Manipulators.

TEXT BOOK:-

1. OOPs with C++:E Balagurusamy
2. Programming in C++ by hemant kumar goyal
3. OOPs with C++ Robort laphore
4. Programming with C++ by D Ravichandran.
5. Let us C++ Yashwant Kanetkar.

Lab1- C++

Lab2- RDBMS

SEMESTER-II

COMPUTER ORGANIZATION AND ARCHITECTURE

UNIT - I

Bus and Memory Transfers, Register Transfer Language, Register Transfer, Shift micro-operations, arithmetic logic shift unit, shift micro-operations, and logical micro-operations. Address sequencing, control memory, microprogramme example, and control unit design.

UNIT - II

Computer registers, instruction cycles, computer instructions, and instruction codes. Input-Output, timing and control, memory-reference instructions, and interrupts. addressing modes, data transfer and manipulation, stack organization, instruction formats, RISC vs. CISC: Complex Instruction Set Computer (CISC) vs. Reduced Instruction Set Computer (RISC) ,Pipeline and Vector Processing: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, Vector Processing Array Processors.

UNIT - III

Language for Register Transfer, Register Transfer, Memory and Bus Transfers, Arithmetic logic shift unit, shift micro-operations, arithmetic micro-operations, and logic micro-operations. Control Unit Design; Address Sequencing; Control Memory; Micro-Program Example.

UNIT - IV

RAM (Random Access Memory), read-only memory (ROM), types of ROM, cache memory, semiconductor memories, memory hierarchy, and performance considerations RAID, Paging, Secondary Storage, and Virtual Memory, cache mapping techniques.

UNIT – V

Interface for I/O, Memory Mapped IO, DMA, Interrupt Driven IO, and Programmed IO.
Multiprocessor attributes, interconnection architectures, Interprocessor Communication and Synchronization, Cache Coherence, and Interprocessor Arbitration.

BOOK REFERENCE:-

1. "Computer System Architecture" by M. Morris Mano
2. "Structured Computer Organization" by Andrew S. Tanenbaum
3. "Computer Organization and Architecture: Designing for Performance" by William Stallings
4. "Computer Architecture: A Quantitative Approach"
5. "Digital Design and Computer Architecture" by David M. Harris and Sarah L. Harris

NETWORK SECURITY AND CRYPTOGRAPHY

UNIT - I:
Introduction to Network Security, Basics of Computer and Network Security
Types of Security, Types of Attacks, Security Services and Mechanisms, Threats and Vulnerabilities, Viruses, Worms, Trojans, Ransomware, Denial of Service (DoS) and Distributed DoS (DDoS) attacks, Phishing and Social Engineering AttacksFirewalls: Types and Configurations

UNIT - II:
Introduction to Cryptography, Cryptographic Basics, Types of Cryptographic Systems, Classical Encryption Techniques, Symmetric Key Cryptography, Asymmetric Key Cryptography

UNIT - III:
Cryptographic Hash Functions, Properties of Hash Functions, Message Digest Algorithms, Cryptographic Applications of Hash Functions, Message Authentication Codes (MAC) and its Usage, HMAC (Hash-based Message Authentication Code)

UNIT - IV:
Authentication Mechanisms, Password-based Authentication, Two-Factor Authentication, Biometric Authentication, Digital Signatures, Concept of Digital Signatures, Digital Signatures Working process, Digital Signature Standards (DSS), Public Key Infrastructure (PKI)- Certificates, Certificate Authorities (CAs), X.509 Certificate Format, Certificate Revocation, Key Management

UNIT - V:
Network Security Protocols- Secure Socket Layer (SSL) and Transport Layer Security (TLS), SSL/TLS Protocols, Handshake Protocol, Record Layer, Alert Protocol,
HTTPS (SSL over HTTP), IPSec - Introduction to IPSec, Authentication Header (AH) and Encapsulation Security Payload (ESP), Security Associations (SAs), Wi-Fi Security - WEP, WPA, WPA2, WPA3, Authentication and Encryption in Wireless Networks

BOOK REFERENCE:-

"Cryptography and Network Security" by William Stallings
"Network Security Essentials" by William Stallings
"Applied Cryptography" by Bruce Schneier
"Introduction to Modern Cryptography" by Jonathan Katz and Yehuda Lindell
Online platforms like Coursera, Udemy, and edX offer relevant courses.

COMPUTER GRAPHICS

Unit I:

Introduction to Computer Graphics, History and Applications of Computer Graphics, Overview of Graphic Systems (Raster and Vector), Components of a Graphics System, Graphics Pipeline, Concept of the Rendering Pipeline, Overview of Stages: Application, Geometry, Rasterization, Display Devices, Cathode Ray Tubes (CRTs), Liquid Crystal Displays (LCDs), Light Emitting Diodes (LEDs), Graphics Cards and GPUs (Introduction)

Unit II:

Basic Drawing Algorithms, Line Drawing Algorithms (DDA, Bresenham's Line Algorithm), Circle Drawing Algorithms (Midpoint Circle Algorithm), 2D Geometric Transformations-Translation, Scaling, Rotation, Reflection and Shearing, Homogeneous Coordinates, Composite Transformations, Matrix Representations of Transformations, Windowing and Clipping, Viewing in 2D, Viewports and Windows, Clipping Algorithms

Unit III:

3D Geometry, Introduction to 3D Coordinate System, Representation of 3D Objects (Points, Lines, Polygons), 3D Geometric Transformations-3D Translation, Scaling, Rotation, 3D Reflection and Shearing, Composite 3D Transformations, Projections- Orthographic and Perspective Projections

Unit IV:

3D Viewing Pipeline - Coordinate Systems in 3D Viewing (World, Camera, Viewport), Camera (Viewing), Transformations, Perspective Division, Viewing Volume (Frustum), Module 5: Lighting and Shading Models, Lighting Models - Light Sources (Ambient, Diffuse, Specular), Phong Reflection Model, Diffuse and Specular Lighting, Shading Techniques - Flat Shading, Gouraud Shading, Phong Shading

UNIT V:

Color Models - RGB, CMY, and HSV Color Models, Conversion Between Color Models, Texture Mapping - Introduction to Texturing, 2D Texture Mapping onto 3D Surfaces, Bump Mapping and Environment Mapping, Curve Representation - Parametric Curves, Bezier Curves, B-Spline Curves, Surface Representation - Polygonal Meshes, Bezier Surfaces, NURBS (Non-Uniform Rational B-Splines)

BOOK REFERENCE:-

Graphics Programming Black Book Michael Abrash.
Graphics Gems II James Arvo.
"Fundamentals of Computer Graphics" by Peter Shirley, Michael Ashikhmin, and Steve Marschner
"Computer Graphics: Principles and Practice" by John F. Hughes, Andries van Dam, Morgan McGuire, et al.
Hearn and Baker, *Computer Graphics,* C Version, 2nd ed. ISBN 0-13-530924-7.

CORE JAVA

Unit I:
Introduction to Java Programming - History and Features of Java, JVM, JDK, JRE
Differences between Java and other languages (C, C++), Writing, Compiling, and Running a Java Program, Basic Syntax - Structure of a Java Program, Understanding the main() Method, Identifiers, Keywords, and Data Types, Variables and Constants, Comments in Java

Unit II:
Control Statements - Decision Making Statements, if, else if, else, switch Statement, Looping Statements, for, while, do-while Loops, Nested Loops, Break and Continue Statements, Java Operators, Object-Oriented Programming (OOP) Concepts, Introduction to OOP, Principles of OOP, Classes and Objects, Constructor and Destructor (Garbage Collection), this Keyword, Methods, Method Definition and Calling, Method Overloading
Static Methods and Variables, The main() Method

Unit III:
Introduction of Inheritance, Types of Inheritance, super Keyword, Method Overriding, Polymorphism, Compile-time Polymorphism (Method Overloading), Runtime, Polymorphism (Method Overriding), Abstraction, Abstract Classes and Methods, Interfaces, Interface Inheritance

Unit IV:
Packages, Access Modifiers, Public, Private, Protected, and Default Access
Access Levels in Different Scenarios (Same Class, Same Package, Subclasses, Different Packages), Exception Handling, Types of Exceptions (Checked and Unchecked), Try-Catch Block, finally Block, Throw and Throws Keyword, Custom Exceptions,

Unit V:
Arrays, Strings, String Class and String Manipulation, String Methods (charAt(), length(), substring(), replace(), etc.), StringBuffer and StringBuilder Classes, Input/Output (I/O) in Java - File Handling, Serialization and Deserialization, Console Input/Output, Multithreading - Introduction to Threads, Thread Synchronization

BOOK REFERENCE:-

1. "Java: A Beginner's Guide" by Herbert Schildt
2. "Java: The Complete Reference" by Herbert Schildt
3. "Core Java Volume I – Fundamentals" by Cay S. Horstmann and Gary Cornell
4. "Java Programming for Beginners" by Mark Lassoff
5. "Think Java: How to Think Like a Computer Scientist" by Allen B. Downey and Chris Mayfield

LAB 1- COMPUTER GRAPHICS

LAB 2 - JAVA PROGRAMMING

Maharishi University of Management & Technology
Mangla, Bilaspur(Chhattisgarh)

FACULTY OF

COMPUTER SCIENCE & INFORMATION TECHNOLOGY (CSIT)

Syllabus
2024-25

Post Graduate Diploma in Computer Applications (PGDCA)

Introduction of the Programme

Name of the Programme: -PGDCA

The broad **objectives** of the programme are:

- To train students in the latest trends of Application Development, Programming Languages and Database Management.
- To enhance their career opportunities in the software development and maintenance sector in the state.
- To expose the students to Open-Source Technologies so that they become familiar with it and can seek appropriate opportunity in trade and industry.
- To give hands on experience to students while developing real life IT application as part of the study.
- To augment the knowledge base of the students, through various activities which will be complementary to the theoretical studies.

Aim of the Programme: PGDCA programme has been designed to prepare graduates for attaining the following specific **outcomes**:

- An ability to apply knowledge of computer applications and office automation in practice.
- An ability to enhance not only comprehensive understanding of the theory but its application too in diverse field.
- The ability to work in an environment where a range of computer applications or techniques are being applied in form of Networking, Software Engineering, Web development, Data base management etc.
- An ability to design a computing system to meet desired needs within realistic constraints such as safety, security, and applicability n multidisciplinary teams with positive attitude.
- Anability to communicate effectively in relevant fields.
- In order to enhance programming skills of the young IT professionals,the program has introduced the concept of project development in each language/technologylearnt during semester.

Seats: 60 (sixty)
Eligibility: Graduation
Medium of Instruction: English

Syllabus

PGDCA SEMESTER–I

S. No	Paper Code	Paper No.	Name of Paper	Marks
1	FC-I(I)	I	Maharishi Vedic Science-I	100
2	PGDCA101	II	Fundamentals of Computer and PC Package	100
4	PGDCA102	III	Programming in C++	100
5	PGDCA103	IV	Internet and HTML	100
7	PGDCA104	V	PracticalPGDCA101,102,103	100
Total Marks				**500**

PGDCASEMESTER–II

S. No	Paper Code	Paper No.	Name of Paper	Marks
1.	FC-I(II)	I	Maharishi Vedic Science-II	100
2.	PGDCA105	II	Data Communication and Computer Network	100
3.	PGDCA106	III	Relational Database Management System(Oracle)	100
5.	PGDCA107	IV	Programming UsingVB.Net	100
6.	PGDCA108	V	Practical PGDCA106 & 107	100
7.	PGDCA109	VI	Project Work Assessment	100
Total Marks				**600**

Scheme of Examinations:
For theory Papers, Internal Assessment/Assignment:30marks.
ExternalEvaluation:70 marks.

Maharishi Vedic Science-I

Code: FC-I(I)

Objective:

To specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times.

To explore the strength and scope of Vedic Education study through interdisciplinary learning

Course Outcomes:

The subject entitled 'Maharishi Vedic Science' has the following CO:

CO1: The study of Maharishi Vedic Science develops the full potential of the knower and lays the foundation for complete knowledge of any discipline, while it fosters evolution to higher states of consciousness and progressive and fulfilling action and accomplishment in life.

CO2: Maharishi Vedic Science is the systematic study, experience, and development of the full range of life, both individual and cosmic, and its applications to create a better world.

CO3: Its principles and technologies are based on the direct experience and understanding of the most vital element in life – the unbounded field of consciousness that is the inner intelligence at the basis of every individual and the entire universe.

Unit-1: Guru Worship and importance of Guru, meditation, mind, intellect, mind, ego, thought, Maharishi Transcendental Meditation, benefits of Transcendental Meditation, Siddhi program, yogic flight etc.

Unit- 2: Vedas and Vedic literature, form of Vedic literature, description of forty regions like Rigveda, consciousness and levels of consciousness, states of consciousness.

Unit- 3: Maharishi Yoga, definition and characteristics of Ashtanga Yoga, types of Yogasanas, usefulness of Yogasanas in human life, benefits from Yogasanas.

Unit-4: Maharishi Astrology, Origin of Astrology, Introduction to Triskandha Astrology, (Siddhanta, Sanhita and Hora), Definition and Introduction of Panchang (Tithi, Vaar, Nakshatra, Yoga and Karana), Human Life and Astrology, External and Internal Personality, Planets and Introduction to expressions etc.

Unit-5: Introduction of Maharishi Sthapatyaveda, purpose of the book, origin of Vastu Purush, tradition of Vastu Shastra, natural development from Vastu, progress from Vastu, symptoms of auspicious Vastu, inauspicious Vastu symptoms, usefulness of home, when to do Vastu Puja etc.

Reference Books:

1. Maharishi Sandesh Part I and II.
2. Chetna Vigyan by His Holiness Maharishi Mahesh Yogi Ji.
3. Dhyan Shailey by BrahmachariDr.Girish Chandra Verma Ji

Fundamentals of Computer and PC Package
Code: PGDCA-101

Objective: The objectives of this course are to make the student understand basics of computer fundamental, concepts of basic input/output device reading parts of computer, storage devices After completion of this course the student is expected to analyze the working of computer system The main emphasis of the course will be on familiar with the computer system.

Course Outcomes:
Students will be able to
1. Aware of parts of computer
2. Understand the input and output devices.
3. Gain the basic ideas of storage devices, computer Networks and Operating System.

UNIT - I
Introduction to Computer and information technology: Brief history of development of computer and generations of computer. Computer system characteristics, Advantages and disadvantages of a computer, Block diagram of computer, Types of computer - Analog, Hybrid, digital, Micro, Mini, Mainframe, Super computer, Personal Computer, Types of PCs desktop, Laptop, Notebook, Palmtop, etc., Number systems (Binary, Octal, Decimal, Hexadecimal), Computer codes - ASCII, EBCDIC. Main Memory (RAM, ROM, EPROM, Cache memory).
Secondary storage devices (Sequential and Direct Access Devices), Magnetic tapes, Magnetic Disk, Optical Disk, CD-ROM, DVD. Input devices : Keyboard, Mouse, Monitor, Trackball, Joystick, Electronic Pen, Touch Screen, Image Scanner, MICR, OCR, OMR, Bar Code reader, Digitizer, Electronic Card Reader, Voice Recognition, Vision Input System, Output Devices: Monitors, Printers, Plotters, Screen Image Projector, voice response system.

UNIT - II
Graphical User Interface, Windows as an operating system, Features of Windows, Version of windows, Components of widows desktop, Working with desktop icons, Changing the properties of desktop, Creating files and Folders in Windows, Performing file and folder operations (Creating, Reaming, Opening and viewing, copying and moving, deleting,)
Windows Accessories (paint, calendar, calculator, notepad, Word Pad)
Introduction to word processing (MS-Word) : Advantages of word processing, Main features of MS-Word, Creating, Opening and saving a word document.
Applying text formatting (Changing Font and font size, Applying bold, Italic and Underline, Strikethrough, Subscript, Superscript, Changing colour text.)
Applying paragraph formatting (Setting Indent for paragraph, Adding a paragraph border, bullets) Printing the documents, Previewing a document, Inserting picture, Find, replace, Using mail merge, Working with tables.

UNIT - III
Introduction to Spreadsheet (MS-Excel) : Definition and advantages of electronic worksheet, Understanding workbook and worksheets, Exploring the Ms-Excel, user interface (Title Bar, Minimize/ Maximize, Close buttons, Formula Bar, Worksheet, Scroll bars, Status Bar etc.), Entering data in worksheet, saving and opening a workbook, managing worksheets in workbook, renaming, deleting worksheet, Inserting and deleting rows and columns, Using Cut, Copy, Paste. Formatting Cell (font, text alignment etc.), auto calculate, auto complete, creating Lists, series, fill handle, Working with charts and Functions like SUM, ROUND, AVERAGE, CONCATENATE, LEN, LOWER, UPPER, FIND, NOW, TODAY, ABS, INT, MOD, SQRT, COUNT MAX, MIN.

UNIT-IV
Introduction to Power Point, Main components of power point interface (Title Bar, Minimize/ Maximize, Close buttons, Working Area, Scroll bars, Status Bar, Slide Pane, etc), creating presentations in different ways, Inserting new slide, Moving and deleting slides, saving presentation, Inserting image, shapes working with animations and transition effects, adding a transition style and sound, working with tables.
Introduction to MS-Access, database objects-Tables, Queries, Forms and Reports. Creating table, working with fields in a table, Inserting a new field, Entering records in a table.

UNIT-V
Computer Network and Security: Types of networks (LAN, MAN, WAN etc.), Network Models, Protocols and Architecture, Topology, OSI reference model, TCP/IP reference model. Virus definition, type, effects, symptoms, Anti-virus program, virus prevention.

Reference Books:
1. Fundamentals of Computers by Reema Thareja, Oxford University Press
2. Computer Fundamentals,6 th edition by Pradeep K.Sinha, Priti Sinha, BPB Publications
3. Computers Today by A.Ravichandran, Khanna Book Publishing.

Programming in C++

Code: **PGDCA-102**

Objective: To be familiar with object-oriented programming language and basic understanding of C++. Students will be ready to code in C++ and aware of the fundamentals of programming with object-oriented techniques.

Course Out Comes:

CO- 1. Making aware of program concept in the Object-Oriented environment, its characteristics and various programming techniques.
CO- 2. Develop ability to understand C++-language, its standards, and features.
CO- 3. Understanding to create and compile C++ programs.

UNIT – I

Basic concepts of Object-OrientedProgramming: Objects, Classes, Data abstraction and Encapsulation, Polymorphism, Dynamic Binding, Message Passing, Procedure Oriented vs. Object Oriented Programming, Benefits and applications of OPP.

UNIT - II

Graduating to C++: Program features and Structure of C++ program, C++ Tokens : Keywords, Identifiers, Constants, Strings, Operators C++ data types : Basic (Built-in) data types, User defined data types, Operators and operator precedence, Control Structures (Sequence, Selection, Loop), switch case, break, continue, arrays, pointers, operators overloading.

UNIT - III:

Classes in C++:

Structure, specifying class, creating objects, accessing class members, Defining member functions, constructors, destructors.

UNIT - IV

Functions:

Function prototyping, call by reference, return by reference, Inline functions, Default arguments, function overload, string handling functions.

UNIT-V

Inheritance:

Forms of inheritance: Single inheritance, Multiple Inheritance, Hierarchical Inheritance, Multilevel Inheritance, Hybrid Inheritance, virtual base class, Polymorphism, static and dynamic binding, Virtual functions, abstract class, void pointer, friend class, friend function.

Reference Books:

1. C++ The Complete Reference by Herbert Schildt, TMH Publication
2. C++ by E.Balaguruswamy, TMH Publication
3. Programming in C++ by Kumar, TMH Publication.

Internet and HTML
Code: PGDCA-103

Objective: Students will have idea of internet protocols and its applications. They will be able to analyze a web page and identify its elements and attributes; create web pages using HTML.

Course Out Comes–
CO- 1. Making acquainted with evolution and history of Internet.
CO- 2. To make aware of history and function of web browser.
CO- 3. Understanding concept of hypertext, different version of HTML and building HTML documents.

UNIT - I
Introduction to Internet:
History of internet, what is the internet, advantages of internet, Minimum requirements for internet, ISP, Internet protocols, Internet Tools (FTP, Gopher, E-mail, Telnet, Newsgroup, www etc.), Bridges, Hub, Routers, Repeaters and Gateways, Modem, Types of connections - Dial up, leased ISDN, Broadband.

UNIT -II
World Wide Web:
About www, useful services of the www, web browsers, URL, types of web pages (Static & Dynamic), Domain name system, Search Engines, E-mail, Web Publishing, Principles of effective web page design.

UNIT - III
Introduction to HTML:
Origin, evolution and importance of HTML, elements of HTML, Head, Title Body : background, bgcolor, link, vlink, alink, bgroperties, margin.
Anchor: href. Name, title.
Block formatting elements: font, heading, blockquote, line break, centre, marquee, list elements.

UNIT - IV:
Forms in HTML:
Input elements: Textbox, password box, check box, radio button, combo box, select elements, option element.
Information types elements: code, emphasis, keyboard, strong, boldface, italics, strike and subscript.

UNIT-V
Advanced HTML:
Table elements: border, cell spacing, width, height, align, bgcolor, border color, TR element, TD element, TH element, Col Element.
Frames : frame and frameset elements.

Reference Books:
1. Internet for Everyone by Alexis Leon and M.Leon, Vikas Publishing.
2. Internet for Dummies, Pustak Mahal, New Delhi.
3. HTML For Beginners The Easy Way available at html.com.

Practical
Code: PGDCA-104

Practical PGDCA101, 102, 103
Practical On:
1. PC Packages
2. Programming C++
3. Internet and HTML

Maharishi Vedic Science-II
Code: FC-I(II)

Objective:
To specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times. To explore the strength and scope of Vedic Education study through interdisciplinary learning

Course Outcomes:
The subject entitled 'Maharishi Vedic Science' has the following CO:
CO1: The study of Maharishi Vedic Science develops the full potential of the knower and lays the foundation for complete knowledge of any discipline, while it fosters evolution to higher states of consciousness and progressive and fulfilling action and accomplishment in life.
CO2: Maharishi Vedic Science is the systematic study, experience, and development of the full range of life, both individual and cosmic, and its applications to create a better world.
CO3: Its principles and technologies are based on the direct experience and understanding of the most vital element in life – the unbounded field of consciousness that is the inner intelligence at the basis of every individual and the entire universe.

Unit 1:
Maharishi General Introduction to Ayurveda, Definition of Ayurveda, Tradition of Ayurveda, Departments of Ayurveda Samhita, Ayurveda and Health, Ashtanga Ayurveda, Purpose of Ayurveda, Tridosha in Ayurveda.

Unit II:
Routine, getting up in the morning, defecation, teething, exercise, morning walk, bath, worship, breakfast, food, earning livelihood, evening meal, sleeping etc.

Unit III:
Introduction to Maharishi Complete Security Policy, Principles of Security Policy, Opinions of Scholars on Maharishi Complete Security Policy, Invincible Security, Defense and Mahasutra, Meaning of Invincibility, Qualities of Invincibility, Basis of Defense of Invincibility.

Unit IV:
Meissner Effect, Universal Effect of Maharishi Ji, Principle of Power in Purity, Components of Invincibility, Forty Areas of Complete Knowledge.

Unit V:
Verification of Physics from Veda Science, Verification of Veda Science on the basis of Physics, Chemistry, Mathematics and Physiology, Latest research and development till date, Comparison of Veda Science with Physics etc.

Reference Books:
1. Maharishi Sandesh Part I and II.
2. ChetnaVigyan by His Holiness Maharishi Mahesh Yogi Ji.
3. DhyanShailey by BrahmachariDr. Girish Jii

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Reference Books:
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3. DhyanShailey by BrahmachariDr. Girish Jii

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Data Communication and Computer Network
Code: PGDCA-105

Objective: Let the student know how to enable seamless exchange of data between any two points in the world. This exchange of data takes place over a computer network. They will be aware of issues on network securities and probable solutions to them.

Course Outcomes:
CO- 1. Making acquainted with the concept of data communication and computer network.
CO- 2. To make aware of networking topologies & communication protocols.
CO- 3. To make them able to understand the issues related to network security and relevant preventive measures.

UNIT- I
Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model.

UNIT- II
Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission.

UNIT- III
Multiplexing, LLC, error detection and correction, flow control, HDLC, LANs- applications, architecture, Ethernet, 802.3 LANs, token ring, FDDI, IEEE 802.6, circuit switching, packet switching, message switching, connection oriented and connectionless services.

UNIT- IV
Principles of internetworking– connection– oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices.

UNIT- V
Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)

Reference Books:
01. Computer networks– A.S. Tanenbaum. PHI
02. Data communication and networking – Behrous A. Forouzan. TMH

Relational Database Management System(Oracle)
Code: PGDCA-106

Objective: Students will know the use of an RDBMS and how it could be beneficial to most organizations; the systematic view of raw data helps companies better understand and execute the information while enhancing the decision-making process. The use of tables to store data also improves the security of information stored in the databases.

Course Outcomes:
CO- 1. Making acquainted with the concept of RDBMS.
CO- 2. To make aware of different models to represent underlying entities in the RDBMS structure.
CO- 3. To make them able to understand the SQL and its benefit for structured data mining.

UNIT- I
Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. Introduction to distributed database, client/server databases, object- relational databases, introduction to ODBC concept

UNIT- II
Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram.

UNIT- III
Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT...FORM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constrains: Not null, unique, check, primary key, foreign key, reference, triggers.

UNIT- IV
Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (INF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes.

UNIT- V
Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL.

Reference Books:

01. Database system concept, H. Korth and A. Silberschatz,TMH
02. Data Base Management System, C.J. Date, Narosha Publication.
03. An Introduction to database systems – Bipin Desai, Galgotia Publication.
04. SQL,PL?SQL Evan Bayross (2nd edition) BPB publications.

ProgrammingUsingVB.Net
Code: PGDCA-107

Objective: Students will capable to assist for providing a simple, safe, object-oriented, Internet-centric, high-performance language for .NET development. VB.NET is simple because there are relatively few keywords. This makes it easy to learn and easy to adapt for specific needs.

Course Outcomes:
CO- 1. Making acquainted with the concept of .NET development environment.
CO- 2. To make aware of VB.NET software language of OOP technique.
CO- 3. To make them able to understand working with GUI components and database connectivity through VB.NET.

UNIT I:
Introduction to .NET: - NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser. The environment: Editor tab, format tab, general tab, docking tab. visual development & event drive Programming - Methods and events.

UNIT II:
The VB.NET Language: - Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function. Control flow statements, conditional statement, loop statement. Msgbox&Inputbox

UNIT III:
Object oriented Programming: - Classes & objects, fields Properties, Methods & Events, constructor, inheritance. Access Specifiers, Public Private, Projected. Overloading, Friend, Overloading Vs Overriding, Interfaces, Polymorphism, My Base & My class keywords. Overview of OLE, Accessing the WIN32 API from VB.NET & Interfacing with office 97, COM technology, advantages of COM+, COM & .NET, Create User control, register User Control, access com components in .net application.

UNIT IV:
Working with Forms: - Loading, showing and hiding forms, controlling one form within another. GUI Programming with Windows Form: Textbox, Label, Button, Listbox, Combobox, Checkbox, PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar.There Properties, Methods and events. OpenFileDilog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Link Label. Designing menus, ContextMenu, access &shorcut keys, System.io Namespace, Reading and Writing data from and into files,File class and related Methods,Stream Reader, Stream Writer , Binary Reader, Binary Writer class, File and Directory Classes.

UNIT V:
Databases in VB .NET: - Database : Connections, Data adapters, and datasets, Data Reader, Connection to database with server explorer, Multiple Table Connection, Creating Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on Data grid. Data binding with controls like Text Boxes, List Boxes, Data grid etc. Navigating data source, Data Grid View, Data form wizard, Data validation, Connection Objects,
Command Objects, Data Adapters, Dataset Class, Overview of ADO, from ADO to ADO.NET, Generate Reports Using Crystal Report Viewer. Crystal Report : Connection to Database, Table, Queries Building, Report, Modifying Report, Formatting Fields and Object, Header, Footer, Details, Group Header, Group footer, Working with formula fields, Parameter fields, Group, Special fields, Working with Multiple Tables, SQL in Crystal Report, Report Templates.

Reference Books:
1. VB.NET Programming Black Book by Steven Holzner – Dreamtech Publications.
2. Mastering VB.NET by Evangelos Pet Routsos- BPB publications.
3. Introduction to .NET framework-Worx Publication.

Practical
Code: **PGDCA-108**

Practical PGDCA 106 & 107
Practical On:
1. Relational Database Management System(Oracle)
2. ProgrammingUsingVB.Net

Maharishi University of Management & Technology
Mangla, Bilaspur (CG)

A PROJECT REPORT

ON

"..... TITLE OF THE PROJECT....."

SUBMITTED

TO

DEPARTMENT

OF

COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

SESSION

IN

PARTIAL FULFILLMENT OF THE REQUIREMENS

FOR THE AWARD OF THE

POST GRADUATE DIPLOMAIN COMPUTER APPLICATION (PGDCA)

Project Guide Name	HOD	Submitted BY
NAME...	NAME...	Name of Student-

Enrollment No. –

Roll No. –

Class. -

Maharishi University of Management & Technology
Mangla, Bilaspur (Chhattisgarh)

FACULTY OF
COMPUTER SCIENCE & INFORMATION TECHNOLOGY (CSIT)

Syllabus
2024-25

Diploma in Computer Applications
(DCA)

Introduction of Program

Name of the Program - DCA

Aim of the Programme- DCA programme has been designed to prepare pre-university students for attaining the following specific outcomes:

- An ability to apply knowledge of computer applications and computer accounting in practice.
- An ability to communicate effectively andto specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times.
- The program prepares the young professional for a range of computer applications, Database management, accounting in computer, digital document preparation.
- An ability to design a computing system to meet desired needs within realistic constraints such as safety, security and applicability in multidisciplinary teams with positive attitude.
- To build initial programming skills to introduce the IT sector, the program introduces the concept and basics of programming language/technology.

Seats: 60 (sixty)
Eligibility:12 th
Medium of Instruction: English

Scheme of Examination:
For Theory/ Practical Papers:
Internal Assessment/ Assignment: 30 Marks
External Evaluation/ Term End Examination: 70 Marks

DCA-1ST SEMESTER

S. No	Paper Code	Paper No.	Name of Paper	Marks
1	FC-I(I)	I	Maharishi Vedic Science-I	100
2	DCA 101	II	Computer Fundamentals and MS Office	100
3	DCA 102	III	Programming Methodology and C Programming	100
4	DCA 103	IV	Introduction of Operating System	100
5	DCA 104	V	Practical on: DCA101, 102	100
Total Marks				**500**

DCA- 2nd SEMESTER

S.No	Paper Code	Paper No.	Name of Paper	Marks
1	FC-I(II)	I	Maharishi Vedic Science-II	100
2	DCA 105	II	Internet and Web Page Designing	100
3	DCA 106	III	Programming in Visual Basic	100
4	DCA 107	IV	DBMS using MS Access	100
5	DCA 108	V	Practical on: DCA 105, 106, 107	100
Total Marks				**500**

Programme Outcome:

PO-1. Enhance ability to use computer techniques.
PO-2. Develop understanding the basic components of computers and terminology.
PO-3. Make aware of different type of computer viruses and prevention.
PO-4. Develop ability to use computer to learn new skills and upgrade existing skills.
PO-5. Help to frame effective mail for good communication.
PO-6. Enhance ability to use word processor, spreadsheet, and presentation software for creating documents.

Programme Specific Outcome:
After completion of the course, candidates will be equipped with: -

PSO-1. Basics of computer and its function.
PSO-2. Acquire knowledge of features of Ms Word, Ms Excel, worksheets and drafting email.
PSO-3. Ability of creating and compiling C-Programs.
PSO-4. Understanding of Internet and functions of web browser.
PSO-5. Acquire knowledge of MS Access and creating, editing table in MS Access.
PSO-6. Acquire Knowledge of Data base programming, visual basic language, Graphic method, and Image handling in visual basic.
PSO-7. Ability to create balance sheet, understanding of tally vault and use of tally audit.

Maharishi Vedic Science-I

Code: FC-I(I)

Objective:

To specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times.

To explore the strength and scope of Vedic Education study through interdisciplinary learning

Course Outcomes:

The subject entitled 'Maharishi Vedic Science' has the following CO:

CO1: The study of Maharishi Vedic Science develops the full potential of the knower and lays the foundation for complete knowledge of any discipline, while it fosters evolution to higher states of consciousness and progressive and fulfilling action and accomplishment in life.

CO2: Maharishi Vedic Science is the systematic study, experience, and development of the full range of life, both individual and cosmic, and its applications to create a better world.

CO3: Its principles and technologies are based on the direct experience and understanding of the most vital element in life – the unbounded field of consciousness that is the inner intelligence at the basis of every individual and the entire universe.

Unit-1: Guru Worship and importance of Guru, meditation, mind, intellect, mind, ego, thought, Maharishi Transcendental Meditation, benefits of Transcendental Meditation, Siddhi program, yogic flight etc.

Unit- 2: Vedas and Vedic literature, form of Vedic literature, description of forty regions like Rigveda, consciousness and levels of consciousness, states of consciousness.

Unit- 3: Maharishi Yoga, definition and characteristics of Ashtanga Yoga, types of Yogasanas, usefulness of Yogasanas in human life, benefits from Yogasanas.

Unit-4: Maharishi Astrology, Origin of Astrology, Introduction to Triskandha Astrology, (Siddhanta, Sanhita and Hora), Definition and Introduction of Panchang (Tithi, Vaar, Nakshatra, Yoga and Karana), Human Life and Astrology, External and Internal Personality, Planets and Introduction to expressions etc.

Unit-5: Introduction of Maharishi Sthapatyaveda, purpose of the book, origin of Vastu Purush, tradition of Vastu Shastra, natural development from Vastu, progress from Vastu, symptoms of auspicious Vastu, inauspicious Vastu symptoms, usefulness of home, when to do Vastu Puja etc.

Reference Books:

1. Maharishi Sandesh Part I and II.
2. Chetna Vigyan by His Holiness Maharishi Mahesh Yogi Ji.
3. Dhyan Shailey by BrahmachariDr.Girish Chandra Verma Ji

Computer Fundamentals and MS Office

Code: **DCA-101**

Objective: The objectives of this course are to make the student understand basics of computer fundamental, , concepts of basic input/output device reading a parts of computer , storage devices After completion of this course the student is expected to analyze the working of computer system The main emphasis of the course will be on familiar with the computer system .

Course Outcomes:

Students will be able to

1. Aware of parts of computer
2. Understand the input and output devices.
3. Gain the basic ideas of storage devices, computer Networks and Operating System.

UNIT - I

Introduction to Computer and information technology: Brief history of development of computer and generations of computer. Computer system characteristics, Advantages and disadvantages of a computer, Block diagram of computer, Types of computer - Analog, Hybrid, digital, Micro, Mini, Mainframe, Super computer, Personal Computer, Types of PCs desktop, Laptop, Notebook, Palmtop, etc., Number systems (Binary, Octal, Decimal, Hexadecimal)

UNIT - II

Input devices & Memory : Keyboard, Mouse, Monitor, Trackball, Joystick, Electronic Pen, Touch Screen, Image Scanner, MICR, OCR, OMR, Bar Code reader, Digitizer, Electronic Card Reader, Voice Recognition, **Output Devices:** Monitors, Printers, Plotters, Screen Image Projector, voice response system. Main Memory, Secondary storage devices.

Unit- III:

Introduction to MS Word

Menus, Shortcuts, Document types; Working with Documents: Opening Files - New & Existing, Saving Files, Formatting page and Setting Margins, Converting files to different formats- Importing, Exporting, Sending files to others, Editing text documents- Inserting, Deleting, Cut, Copy, paste, Undo, Redo, Find, Search, Replace, Using Tool bars, Ruler- Using Icons, Using help; Formatting Documents: Setting Font Styles, Setting Paragraph style, Setting Page Style, Setting Document Styles, Creating Tables, Drawing, Tools, Printing Documents, Mail Merge.

Unit-IV:

Introduction to MS Excel

Introduction: Spreadsheet & its Applications, Opening spreadsheet, Menus & Toolbars & icons, Shortcuts, Working with Spreadsheets-Opening, Saving Files, Setting Margins, Converting files to different formats-Importing, Exporting and Sending files to others. Entering and Editing Data, Computing data: Formula. Formatting Spreadsheets- Cell, row, column & Sheet, Alignment, Font, Border & shading. Highlighting values, Hiding/Locking Cells: Worksheet- Sheet Name, Row & Column Headers, Row Height, Column Width and Worksheet Sheet Formatting & style background, Graphs, Printing worksheet.

Unit-V:

Introduction to MS Power Point

Creating new Presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts, Formatting a presentation-Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout, Inserting pictures, movies, tables etc. into the presentation, Drawing Pictures using Draw, Setting Animation & transition effect, Adding audio and video, Printing Handouts. Generating standalone presentation viewer.

Programming Methodology and C Programming

Code: **DCA-102**

Objective: The objectives of this course are to make the student understand basics of programming language, programming style, concepts of Loops, reading a set of Data, stepwise refinement, Functions, Control structure, Arrays. After completion of this course the student is expected to analyze the /real-life problem and write a program in 'C' language to solve the problem. The main emphasis of the course will be on problem solving aspect i.e., developing proper algorithms.

Course Out Comes–

CO- 1. Making aware of Program concept, its characteristics and various programming techniques.
CO- 2. Develop ability to understand C-language , its standards and features.
CO- 3. Understanding to create and compile C programs.

UNIT – 1

Program Concept, Characteristics of Programming, Various Stages in Program Development, Algorithms, Flow Charts, Programming Techniques – Top Down, Bottom Up, Modular, Structured, Features, Merits, Demerits and Their Comparative Study, Programming Logic – Simple, Branching, Looping, Recursion, Programming Testing & Debugging.

UNIT - 2

Introduction to C Language, C Language Standards, Features of C, Structure of C Program, Introduction to C Compliers, Creating and Complier C Programs, IDE, Features of Turbo C Compiler. Keywords, Identifiers, Variables, Constants, Scope and Life of Variables, Local and Global Variable, Data Types, Expressions. Operators – Arithmetic, Logical, Relational, Conditional and Bit Wise Operators, Precedence and Associability of Operators, Type Conversion. Basic Input / Output Library Functions, Character Input/Outputgetch(), getchar(), getcher(), putchart(). Formatted Input/Output – printf() and scanf(), Mathematical & Character Functions.

UNIT – 3

Declaration Statement, Conditional Statement – if Statement, if else Statement, Nesting of it… else Statement, else if Ladder, The?: Operator, switch Statement. Iteration Statement – for Loop, while Loop, dowhile Loop. Jump statements: break, continue, goto, exit(). Arrays – Concept of Single and Multi Dimensional Arrays Strings : Deceleration, Initialization, Functions.

UNIT – 4

The Need of C Functions, User Defined and Library Function, Prototype of Functions, Prototype of main (). Function, Calling of Function, Function Arguments, Argument Passing: Call By Value and Call By Reference, Return Values, Nesting of Function, Recursion, Array as Function Argument, Command Line Arguments, Storage Class Specified – Auto, Extern, Static, Register.

UNIT – 5

Defining Structure, Declaration of Structure Variable, Type def. Accessing Structure Members, Nested Structures, Array of Structure, Structure Assignment, Structure as Function Argument, Function that Return Structure, Union.

1. REFERENCE & TEXT BOOKS
2. 1.Balaguruswamy, "Programming C", TMH Publication.
3. Gottfried Schaums outline series, "Programming with C", TMH Publication.
4. Mahapatra, "Thinking in C", (PHI) Publications
5. Anurag Seetha, "Introduction to computers and information technology". Rain Prasad & sons, Bhopal
6. S.K. Basandra, "Computers Today". Galgotia Publication.

INTRODUCTION OF OPERATING SYSTEM

Code: **DCA-103**

Objective:

- The importance of the operating system for a computer system will be taught to the students.
- To familiarize oneself with the various Operating System kinds and their functions.
- To acquire superior results, acquire knowledge of various process scheduling strategies and synchronization techniques.
- Understand the fundamentals of virtual memory.
- To get knowledge about managing secondary memory.

Course Out Comes–

On completion of the course, the student will be able to:

CO-1 Learn about operating systems, functions of operating systems, systemcalls.

CO-2. Learn about process coordination and process scheduling algorithms.

CO-3. Learn about memory management, critical section and deadlock handling algorithms.

CO-4. Learn about file management and disk scheduling algorithms.

Unit – I

Introduction to Operating System

What is an Operating System, Operating Systems Architecture, Types of Operating Systems, Process Model, Process States and Transitions, System Calls.

Unit – II

Process Management

Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, CPU Scheduling: Scheduling Criteria, Scheduling Algorithms, Process Synchronization: Background, Deadlocks.

Unit –III

Memory Management

Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging.

Unit –IV

Device and Storage Management

File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management.

Unit –V

File-System Implementation

A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

Text Books:

1. Operating System Concepts, Silbersachatz and Galvin, Pearson Education Pub.

2. Operating Systems, Madnick E., Donovan J., Tata McGraw Hill,

3. Operating Systems, A. S. Tannenbaum, PHI

Reference Books:

1. Operating Systems Internals and Design Principle, William Stallings, Prentice Hall Publishers

2. Operating Systems - A Concept Based Approach, Dhananjay M. Dhamdhere, TMH

PRACTICAL
Code: **DCA-104**

Practical on: DCA 101, 102

Computer Fundamentals and M S Office
Programming Methodology and C Programming

Maharishi Vedic Science-II
Code: FC-I(II)

Objective:
To specifically groom a generation of experts who can perform independent and application-oriented study of Vedic concepts for modern times. To explore the strength and scope of Vedic Education study through interdisciplinary learning

Course Outcomes:
The subject entitled 'Maharishi Vedic Science' has the following CO:
CO1: The study of Maharishi Vedic Science develops the full potential of the knower and lays the foundation for complete knowledge of any discipline, while it fosters evolution to higher states of consciousness and progressive and fulfilling action and accomplishment in life.
CO2: Maharishi Vedic Science is the systematic study, experience, and development of the full range of life, both individual and cosmic, and its applications to create a better world.
CO3: Its principles and technologies are based on the direct experience and understanding of the most vital element in life – the unbounded field of consciousness that is the inner intelligence at the basis of every individual and the entire universe.

Unit I:
Maharishi General Introduction to Ayurveda, Definition of Ayurveda, Tradition of Ayurveda, Departments of Ayurveda Samhita, Ayurveda and Health, Ashtanga Ayurveda, Purpose of Ayurveda, Tridosha in Ayurveda.

Unit II:
Routine, getting up in the morning, defecation, teething, exercise, morning walk, bath, worship, breakfast, food, earning livelihood, evening meal, sleeping etc.

Unit III:
Introduction to Maharishi Complete Security Policy, Principles of Security Policy, Opinions of Scholars on Maharishi Complete Security Policy, Invincible Security, Defense and Mahasutra, Meaning of Invincibility, Qualities of Invincibility, Basis of Defense of Invincibility.

Unit IV:
Meissner Effect, Universal Effect of Maharishi Ji, Principle of Power in Purity, Components of Invincibility, Forty Areas of Complete Knowledge.

Unit V:
Verification of Physics from Veda Science, Verification of Veda Science on the basis of Physics, Chemistry, Mathematics and Physiology, Latest research and development till date, Comparison of Veda Science with Physics etc.

Reference Books:
1. Maharishi Sandesh Part I and II.
2. ChetnaVigyan by His Holiness Maharishi Mahesh Yogi Ji.
3. DhyanShailey by BrahmachariDr. Girish Jii

Internet and Webpage designing

Code: **DCA-105**

Objective: Students will have idea of internet protocols and its applications. They will be able to analyze a web page and identify its elements and attributes; create web pages using HTML.

Course Out Comes–

CO- 1. Making acquainted with evolution and history of Internet.
CO- 2. To make aware of history and function of web browser.
CO- 3. Understanding concept of hypertext, different version of HTML and building HTML documents.

UNIT – 1

Internet: Evolution, Protocols, Concept, Internet Vs Intranet, growth of Internet, ISP Connectivity, Dial-up, leased line, VSAT etc, URIs, Domain names, Portals, Application.

E-Mail: Concept, POP and Web Based E-mail, merit, address basics of sending & Receiving, E-mail protocols, mailing list and free E-mail services.

UNIT – 2

File transfer Protocols, Telnet & chatting: Data Transmission Protocols, Client/ Server Architecture & its Characteristics, FTP & Its usages telnet Concept, Remote Logging, Protocols, Terminal Emulation Massage Board, Internet chatting – voice chat, text chat.

UNIT – 3

World Wide Web (WWW): History, Working, Web Browser, its function, Concept of Search Engine, Searching the web HTTP, URLS, Web Server, Web Protocols.

UNIT - 4

Web Publishing: Concept, Domain name Registration, space on Host Server for web site, HTML, Design tools, HTML editor, Image editor, issues in web site creation & maintenance, FTP software for upload web site.

UNIT – 5

HTML: Concept of Hypertext, Version of HTML, Element of HTTML, syntax, head & body section Building HTML document, Inserting Text, Image, Hyperlinks, Background and color controls, different HTML tag, Tables, Tables layout and presentation use of size & Attributes, List types and its tags.

REFERENCE & TEXT BOOKS

1. Level Madul M. 1.2 Internet & Web page Designing by Y.K. Jain, BPB Publication.
2. Internet for Dummies – Pustak Mahal, New Delhi
3. Internet & E-Commerce A. Mansoor&Anrag Seetha, Pragya Publication.

Programming in Visual Basic

Code: **DCA-106**

Objectives: Students will capable to assist for providing a simple, safe, object-oriented language for windows programming. VBis simple because there are relatively few keywords. This makes it easy to learn and easy to adapt for specific needs.

Course Out Comes–

CO- 1. Acquire confidence in Database programming with visual basic.
CO- 2. Understanding visual basic language and components of Visual basic.
CO-3. Understanding Graphic method,Graphic controls, and Image handling in Visual basic.

UNIT – 1

Integrated Development Environment of Visual Basic : Integrated Development Environment of VB, User Interface Designing, Basic of Event Driven Programming. From – designing, showing & hiding.

UNIT – 2

Visual Basic Language: Data types, variable & Constant, arrays, dynamic array, array as function, collections, procedures, arguments passing, function return values.

Control flow statements: if – then – else, select case, looping statement: Do-loop, for-next, While-Wend, Nested Control Structure, Exit stmt.

UNIT – 3

Building Blocks of Visual Basic: Basic Active X Control & Their Use – Textbox, list box, combo-box, scrollbar, slider & fire controls.

Graphic controls, Image Handling in VB, Coordinate System, Graphic method- Text Drawing, Lines & shape, filling shape and grid methods.

UNIT – 4

Components of visual Basic: Menu editor: pull down and pop-up menus, Multiple Document interfaceparent& Child form & Methods.

UNIT – 5

Database Programming with VB: Database programming with VB – Data Control – Method, Properties, Connectivity With database.

REFERENCE & TEXT BOOKS

1.Beginner's Guide to V.B. 6 byReetaSahoo
2. V.B. By Pragya Publication

DBMS Using MS Access

Code: **DCA-107**

Objectives: To deal with creating and using Tables and their Relationships, Queries, Forms and Reports and shows how these can be combined into a simple but effective application. It also discusses some of the issues involved with managing databases.

Course Out Comes–

CO- 1. Acquire knowledge of Database system and its characteristics.
CO- 2. Making aware of MS Access, creating table in MS Access and editing a table.
CO- 3. Understanding Reports, Forms, types of basic Reports and types of basic Forms.

UNIT – 1

Introduction To Database System Purpose of Database System, View Of Data, Characteristics of Database Approach, Architecture for a Database System, Advantages and Disadvantages of DBMS, Database Users and Administrator, Database Design and ER Model, Data Model Classification. Why use a Relational Database.

UNIT – 2

Introduction to MS Access. Create a Table in MS Access Data Types, Field Properties, Fields: names, types, properties-default values, format, caption, validation rules Data Entry, Add record, delete record and edit text, Sort, find/replace, filter/select, rearrange columns, freeze columns. Edit a Tables – Copy, delete, import, modify table structure, find, replace.

UNIT – 3

Add a relationship, set a rule for Referential Integrity, change the join type, delete a relationship, save relationship Queries & Filter – difference between queries and filter, filter using multiple fields, Create Query with one table, find record with select query, find duplicate record with query, find unmatched record with query, run query, save and change query.

UNIT – 4

Introduction to Forms Types of Basic Forms: Columnar, Tabular, Datasheet, Main/ Sub-forms, add headers and footers, add fields to form, add text to form use label option button, check box, combo box, list box Forms Wizard, Create Template, Navigation between forms.

UNIT – 5

Introduction to Reports, Types of Basic Reports: Single Column, Tabular Report Groups/ Total, Single table report, multi table report preview report print report, Creating Report and Labels, Wizard.

REFERENCE & TEXT BOOKS

1. MS Office XP Complete BPB Publication ISBN 8 1 – 7656-564-4
2.MS Access Fast & Easy ByFaitheWempen PHI

PRACTICAL

Practical on: DCA 105, 106, 107

PRACTICAL - Internet and Webpage designing

PRACTICAL - Programming in Visual Basic

PRACTICAL - DBMS Using MS Access