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S.No.	Subject Code	Subject Name	Programme to which the course is offered
1	MDC044	Introductory Concepts of Computer Technology	M.Sc. (Zoology & Botany)
2	MDC045	Introductory Concepts of Computer Technology- Practical	M.Sc. (Zoology & Botany)
3	MDC046	Computer fundamentals and programming	M.Sc. (Agronomy, Fruit Science, Vegetable Science, Soil Science)
4	MDC047	Agri-Informatics	B.Sc. (Agriculture)
5	MDC048	Basics of Computers Laboratory	B.Sc. (MLS)
6	MDC049	Basics of Computer Sciences	Bachelor of Physiotherapy
7	MDC050	Basics of Computer sciences Laboratory	Bachelor of Physiotherapy/ Bachelor of Fashion Designing
8	MDC051	Computers for Chemists	M.Sc. (Chemistry)
9	MDC052	Computer in Chemistry Laboratory	M.Sc. (Chemistry)
10	MDC053	Fundamentals of Computer Science	M.Sc. (Mathematics)
11	MDC054	Fundamentals of Computer Science Laboratory	M.Sc. (Mathematics)
12	MDC055	Computers Application in Physical Education	B.P.E.S
13	MDC056	Computer Graphics	B.Sc. (Hons.) Mathematics

Programme	M.Sc. (Zoology & Botany)
Course Code	MDC044
Course Title	Introductory Concepts of Computer Technology
Type of course	Theory
L T P	3 0 0
Credits	3
Course prerequisite	Basic of Computer
Course Objective	To aware students about the basic fundamentals of computer and its use in day today life.
Course Outcomes	The students will able to: 1. Understand Basics of computer and its operating system 2. Distinguish the types of Software 3. Learn the MS-Windows basics and applications

Syllabus

UNIT-I

Evolution of computers; **Basics of computer and its operation**: Functional Components and their inter-connections, concept of Booting, Use of Operating System for directory listing, hierarchical directory structure, renaming, deleting files/folders, formatting floppy, copying files, concepts of path and pathname, switching between tasks, installation/removal of applications

UNIT-II

Computers and their applications in biology; **Operating systems:** Need for operating system, Functions of operating system (Processor Management, Memory Management, File Management and Device Management); **Types of operating system** - Interactive (GUI based), Timesharing, Real Time and Distributed; **Types of Software:** System Software, Utility Software and Application Software

UNIT-III

Computer fundamentals, Introduction to digital computers, Organization; Number system, I/O devices, Storage devices; Introduction to internet and its applications – www, email

UNIT-IV

MS-Windows basics; **MS-Word**: Meaning of Word–Processing, Creating, Saving, Printing documents, Formatting, Spell-Check, Adding page numbers, Header and Footer, Macros, Creating tables, Converting table to text and vice–versa, Mail Merge; **MS-Excel:** Spreadsheets, Using different types of formulae, Creating graphs and charts, Exporting charts to MS-Word, **MS-PowerPoint:** Creating presentations, Formatting, Adding effects and timings.

Text and Reference Books:

S.No.	Name/Title	Author	Publisher
1	Computer Fundamentals	Sinha, P.K	
2	Windows Based Computer Courses	Sumit Kumar,	JBD Publishers
3	Fundamentals of Computers	Rajaraman	Prentice Hall of India
4	Introduction to Computers, 6th Ed	Peter Norton's	

Programme	M.Sc. (Zoology & Botany)
Course Code	MDC045
Course Title	**Introductory Concepts of Computer Technology Practical**
Type of course	Practical
L T P	0 0 1
Credits	1
Course prerequisite	Basic of Computer
Course Objective	To aware students about the basic fundamentals of computer and its use in day today life.
Course Outcomes	The students will able to: 1. Learn the basics of computer and its operating system 2. Understand the working of different softwares 3. Learn the basics of MS-Word, MS-Excel, MS-PowerPoint

<u>Syllabus</u>

1. Word Processor software

Word

To familiarize with parts of Word window, To create and save a document, page settings, create headers and footers, To edit a document and resave it, To use copy, cut and paste features. To create a table with specified rows and columns, To create a table with specified rows and columns, To select a table, a row, a column or a cell ,To insert new row and/or a column, To delete a row and/or a column

Excel

To familiarize with parts of Excel window, To create and save a workbook with single and/ormultiple worksheets, To edit and format text as well numbers, To insert new row and/or column in a worksheet, To delete a row and/or column in a worksheet.

Power point

To familiarize with parts of PowerPoint, window create and save a new presentation, To apply design templates to a presentation insert, edit and delete a slide, To use different views of slides . To use slide show from beginning or from the current slide and To preview and print a presentation.

To check spellings in a presentation, To add clip art and pictures in a slide, To add chart, diagram and table in a slide, To set animation for a selected slide and/or for entire presentation.

2. Exploring the Internet:

To understand the working of the internet web browsers, create email-account, sending mails, receivingmails, sending files as attachments, etc. To login to a remote computer, To search information using

Text and Reference Books:

S.No.	Name/Title	Author	Publisher
1	Computer Organization fifth edition	Carl hamacher	Mc Graw Hill

Programme	M.Sc. (Agronomy, Fruit Science, Vegetable Science, Soil Science)
Course Code	MDC046
Course Title	**Computer fundamentals and programming**
Type of course	Theory and Practical
L T P	2:0:2
Credits	3(2+1)
Course prerequisite	Basic of Computer and C language
Course objective	To impart comprehensive knowledge about the computer fundamentals and programming
Course outcomes	CO1	Bridge the fundamental concepts of computers with the present level of knowledge of the students.
	CO2	Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet.

Syllabus

UNIT-I

Computer fundamentals-number systems, decimal, octal, binary and hexadecimal, representation of integers, fixed and floating point numbers, character representation, ASCII, EBCDIC. Functional units of computer, I/O devices, primary and secondary memories.

UNIT-II

Programming fundamentals with C - algorithm, techniques of problem solving, flowcharting, stepwise refinement, representation of integer, character, real, data types, constants and variables, arithmetic expressions, assignment statement, logical expression.

UNIT-III

Sequencing, alteration and iteration, arrays, string processing.

UNIT-IV

Sub-programs, recursion, pointers and files. Program correctness, debugging and testing of programs.

Practical

1. Conversion of different number types
2. Creation of flow chart
3. Conversion of algorithm/flowchart to program
4. Mathematical operators, operator precedence, sequence, control and iteration
5. Arrays and string processing
6. Pointers and file processing

Text and Reference Books:

S. No	Name	Author(S)	Publisher
1	Digital logic and computer design	MM Mano	Prentice Hall of India
2	Digital Computer Electronics	AP Malvino & JA Brown	Tata McGraw Hill

Programme	B.Sc. (Agriculture)
Course Code	**MDC047**
Course Title	Agri-Informatics
Type of course	Theory & Practical
L T P	1 0 1
Credits	2 0 0
Course prerequisite	Basic of Computer and C language
Course objective	Main objective of the Agri-Informatics subject is to introduce the students to uses of information technology in agriculture sciences.
Course outcomes	CO1	Students will learn about MSOffice for document creation & Editing, Data presentation, interpretation and graph creation, statistical analysis, mathematical expressions
	CO2	Students will learn about Database, concepts and types, uses of DBMS in Agriculture, World Wide Web (WWW)
	CO3	Students will learn about computer models for understanding plant processes

Syllabus

UNIT-I

Introduction to Computers, Operating Systems, definition and types, Applications of MSOffice for document creation & Editing, Data presentation, interpretation and graph creation, statistical analysis, mathematical expressions.

UNIT-II

Database, concepts and types, uses of DBMS in Agriculture, World Wide Web (WWW): Concepts and components. Introduction to computer programming languages, concepts and standard input/output operations. e-Agriculture, concepts and applications, Use of ICT in Agriculture.

UNIT-III

Computer Models for understanding plant processes. IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for agri-input management,
Smartphone Apps in Agriculture for farm advises, market price, postharvest management etc.

UNIT-IV

Geospatial technology for generating valuable agri-information. Decision support systems, concepts, components and applications in Agriculture, Agriculture Expert System, Soil

Information Systems etc. for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

Practical

1. Study of Computer Components, accessories, practice of important DOS Commands.

2. Introduction of different operating systems such as windows, Unix/ Linux, Creating, Files & Folders, File Management.

3. Use of MS-WORD and MS Power-point for creating, editing and presenting a scientific document.

4. MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions, creating graphs, analysis of scientific data.

5. MS-ACCESS: Creating Database, preparing queries and reports, demonstration of Agri-information system.

6. Introduction to World Wide Web (WWW). Introduction of programming languages.

7. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost;

8. Computation of water and nutrient requirements of crop using CSM and IT tools.

9. Introduction of Geospatial Technology for generating valuable information for Agriculture.

10. Hands on Decision Support System. Preparation of contingent crop planning.

Text and Reference Books:

S. No	Name	Author(S)	Publisher
1	Computer Fundamentals	B. Ram	
2	Computers Today	Basandra	
3	Agro-informatics	G. Vanitha	New India Publishing Agency

Programme	B.Sc. (MLS)
Course Code	**MDC048**
Course Title	Basics of Computers Lab
Type of course	Practical
L T P	0 0 3
Credits	1.5
Course prerequisite	Basic of Computer
Course Objective (CO)	Main objective of the Basics of Computers Lab subject is to introduce the students to uses of information technology.
Course Outcome	• Bridge the fundamental concepts of computers with the present level of knowledge of the students • Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet • Understand binary, hexadecimal and octal number systems and their arithmetic

List of practical's

1. Given a PC, name its various components and peripherals. List their functions
2. Practice in installing a computer system by giving connection and loading the system software and application software
3. Exercises on entering text and data (Typing Practice)
4. Installation of operating System viz. Windows XP, Windows 2007 etc.
   Features of Windows as an operating system
   • Start
   • Shutdown and restore
   • Creating and operating on the icons
   • Opening closing and sizing the windows
   • Using elementary job commands like – creating, saving, modifying, renaming, finding and deleting a file
   • Creating and operating on a folder
   • Changing setting like, date, time, colour (back ground and fore ground)
   • Using short cuts
   • Using on line help
5. Word Processing (MS Office/Open Office)
   a) File Management:
      Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file
   b) Page Set up:
      Setting margins, tab setting, ruler, indenting
   c) Editing a document:
      Entering text, Cut, copy, paste using tool- bars
   d) Formatting a document:

Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods

Aligning of text in a document, justification of document, Inserting bullets and numbering

Formatting paragraph, inserting page breaks and column breaks, line spacing

Use of headers, footers: Inserting footnote, end note, use of comments

Inserting date, time, special symbols, importing graphic images, drawing tools

e) Tables and Borders:

Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table

Print preview, zoom, page set up, printing options

Using Find, Replace options

f) Using Tools like:

Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelops and lables

Using shapes and drawing toolbar,

Working with more than one window in MS Word,

How to change the version of the document from one window OS to another

Conversion between different text editors, software and MS word

6. Spread Sheet Processing (MS Office/Open Office)

a) Starting excel, open worksheet, enter, edit, data, formulae to calculate values, format data, create chart, printing chart, save worksheet, switching between different spread sheets

b) Menu commands:

Create, format charts, organise, manage data, solving problem by analyzing data, exchange with other applications. Programming with Excel Work Sheet, getting information while working

c) Work books:

Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations, working with arrays

a) Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet

b) Creating a chart:

c) Working with chart types, changing data in chart, formatting a chart, use chart to analyze data

d) Using a list to organize data, sorting and filtering data in list

e) Retrieve data with query: Create a pivot table, customising a pivot table. Statistical

f) analysis of data

g) Exchange data with other application: embedding objects, linking to other applications, import, export document.

7. PowerPoint Presentation (MS Office/Open Office)

a) Introduction to PowerPoint

- How to start PowerPoint
- Working environment: concept of toolbars, slide layout, templates etc.
- Opening a new/existing presentation
- Different views for viewing slides in a presentation: normal, slide sorter etc.

b) Addition, deletion and saving of slides

c) Insertion of multimedia elements

- Adding text boxes
- Adding/importing pictures
- Adding movies and sound
- Adding tables and charts etc.
- Adding organizational chart

d) Formatting slides

- Using slide master
- Text formatting
- Changing slide layout
- Changing slide colour scheme
- Changing background
- Applying design template

e) How to view the slide show?

- Viewing the presentation using slide navigator
- Slide transition
- Animation effects etc.

8. Working with Data Processing (MS Office/Open Office)

    a) Understanding different data types
    b) Creation of table
    c) Entering data in a table and modify it.
    d) Creating simple Queries

9. Internet and its Applications

    a) Log-in to internet
    b) Navigation for information seeking on internet
    c) Browsing and down loading of information from internet
    d) Sending and receiving e-mail

- Creating a message
- Creating an address book
- Attaching a file with e-mail message
- Receiving a message
- Deleting a message

Programme	Bachelor of Physiotherapy
Course Code	**MDC049**
Course Title	**Basics of Computer Sciences**
Type of Course	Theory
L T P	2 0 0
Credits	2
Course Prerequisites	Basic of Computer
Course Objectives (CO)	To understand the basic concepts of computer, office automation, information technology and internet.

UNIT-I
Introduction to Computers
Define a Computer System, Block diagram of a Computer System and its working, Applications of computer system, Input and Output device, memories, RAM, ROM, secondary storage devices, Computer Software and Hardware, Number System.

UNIT-II
Computer Languages: Machine language, assembly language, higher level language.
Operating System: Definition, Need for operating system, Functions of operating system (Processor Management, Memory Management, File Management and Device Management), Working with GUI operating System.

UNIT-III
Working Knowledge of Computer System
Word Processor- Introduction to word processors and its features, creating, editing, printing and saving documents, spell check, mail merge
PowerPoint: creating power point presentations, creating spreadsheets and simple graphs, evolution of Internet and its applications and services.
Spreadsheets- Introduction to spreadsheets and its features, Using different types of formulae, Creating graphs and charts, Exporting charts to word processor.

UNIT-IV

Introduction to Information Technology: Introduction to Information Technology and its applications.

Introduction of internet- Definition, Applications of internet, Impact of Internet on Society – Crime on/through the Internet, E-mail, WWW.

UNIT-IV

Introduction to Information Technology: Introduction to Information Technology and its applications.

Introduction of internet- Definition, Applications of internet, Impact of Internet on Society – Crime on/through the Internet, E-mail, WWW.

Text and Reference Books

Sr. no.	Name	Author(s)	Publisher
1	Fundamentals of Computers	R. S. Salaria	Salaria Publishing House
2	Computer Fundamentals	P.K. Sinha and P. Sinha	BPB Publication
3	Absolute Beginners Guide to Computer Basics	Miller M	Pearson Education
4	MS Office for Windows XP	Sagman S	Pearson Education

Programme	**Bachelor of Physiotherapy / B.Sc. Fashion Designing**
Course Code	**MDC050**
Course Title	**Basics of Computer sciences Laboratory**
Type of course	Practical
L T P	0 0 2
Credits	1
Course prerequisite	NA
Course Objective (CO)	To familiarize all the students with basic concepts of computers including office automation and internet concepts.

LIST OF EXPERIMENTS

1. Given a PC, name its various components and peripherals. List their functions
2. Installation of operating System viz. Windows XP, Windows 2007 etc.
   Features of Windows as an operating system
   - Start
   - Shutdown and restore
   - Creating and operating on the icons
   - Opening closing and sizing the windows
   - Using elementary job commands like – creating, saving, modifying, renaming, finding and deleting a file
   - Creating and operating on a folder
   - Changing setting like, date, time, colour (back ground and fore ground)
   - Using shortcuts
   - Using on line help
3. Word Processing (MS Office/Open Office)
   a) File Management:
      Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file
   b) Page Set up:
      Setting margins, tab setting, ruler, indenting
   c) Editing a document:
      Entering text, Cut, copy, paste using tool- bars
   d) Formatting a document:
      Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods
      - Aligning of text in a document, justification of document, Inserting bullets and numbering
      - Formatting paragraph, inserting page breaks and column breaks, line spacing
      - Use of headers, footers: Inserting footnote, end note, use of comments
      - Inserting date, time, special symbols, importing graphic images, drawing tools
   e) Tables and Borders:
      Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table
      Print preview, zoom, page set up, printing options

Using Find, Replace options

f) Using Tools like:

Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelops and lables

Using shapes and drawing toolbar,

Working with more than one window in MS Word,

Conversion between different text editors, software and MS word

4. Spread Sheet Processing (MS Office/Open Office)

a) Starting excel, open worksheet, enter, edit, data, formulae to calculate values, format data, create chart, printing chart, save worksheet, switching between different spread sheets

b) Menu commands:

Create, format charts, organize, manage data, solving problem by analyzing data, exchange with other applications. Programming with Excel Work Sheet, getting information while working

c) Work books:

Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation.

a) Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet

b) Creating a chart:

c) Working with chart types, changing data in chart, formatting a chart, use chart to analyze data

d) Using a list to organize data, sorting and filtering data in list

e) Analysis of data

5. PowerPoint Presentation (MS Office/Open Office)

a) Introduction to PowerPoint

- How to start PowerPoint
- Working environment: concept of toolbars, slide layout, templates etc.
- Opening a new/existing presentation
- Different views for viewing slides in a presentation: normal, slide sorter etc.

b) Addition, deletion and saving of slides

c) Insertion of multimedia elements

- Adding text boxes
- Adding/importing pictures
- Adding movies and sound
- Adding tables and charts etc.
- Adding organizational chart

d) Formatting slides

- Using slide master
- Text formatting
- Changing slide layout
- Changing slide colour scheme
- Changing background
- Applying design template

e) How to view the slide show?

- Viewing the presentation using slide navigator
- Slide transition
- Animation effects etc.

6. Internet and its Applications
a) Log-in to internet
b) Navigation for information seeking on internet
c) Browsing and downloading of information from internet
d) Sending and receiving e-mail
- Attaching a file with e-mail message
- Deleting a message

Text and Reference books

Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Fundamentals of Computers	R. S. Salaria	Salaria Publishing House
2	Computer Fundamentals	P.K. Sinha and P. Sinha	BPB Publication
3	Absolute Beginners Guide to Computer Basics	Miller M	Pearson Education
4	MS Office for Windows XP	Sagman S	Pearson Education

Programme	M.Sc. (Chemistry)
CourseCode	MDC051
CourseTitle	Computers for Chemists
Type of course	Theory
L T P	3 0 0
Credits	3
Course prerequisite	B.Sc. with Chemistry as main subject
Course Objective	To learn the basic concepts of computer related chemistry like Huckel theory, pH titration, kinetics, radioactive decay etc.
Course Outcomes	The students will be able to: 1. Understand Coherent Knowledge of use different operating system and their tools easily 2. Apply word processing software, presentation software, spread sheet software and latex. 3. Analyze use of computers in every field like teaching, industry and research.

Syllabus

Unit-I

Introduction To Computers And Computing: Basic structure and functioning of computers with a PC as illustrative examples. Memory, I/O devices, Secondary storage, Computer Software, Operating system with DOS as an example. Introduction to UNIX and WINDOWS. Data processing, Algorithms and flow charts.

Unit-II

Computer Programming In C/ FORTRAN: Concept of low level and high level languages, Compiler, interpreter, structure of program (header files, C pre-processor, standard library functions, etc.), Keywords, Character Set, Constants and variables, operators and Data types, Statement Input and output, Control structure such as IF or go to statement.

Unit-II

Programming in Chemistry: Development of small computer codes involving simple formulae in chemistry, such as calculation of mean, median, mode. Solution of a quadratic equation, Radioactive decay, kinetic energy, Addition, Multiplication of 3X3 matrix.

Unit-III

Use of Computer to Programmes: introduction to word processors and its features creating, editing, printing and saving documents, spell check, Adding page number, Header and Footer, Creating a table, Creating power point presentation, creating spreadsheets and use of different types of formulae, simple graphs, FOXPRO.

Unit-IV

Overview of: Information Technology (IT), Data Communication, Computer Networks (LAN, WAN and MAN), Introduction to Internet and Intranet technology and their applications, WWW, E-mail.

Text and Reference books:

S.No.	Name/Title	Author	Publisher
1	Computers and Common Sense	Hunt, R.; Shelley, J.	Prentice Hall.
2	Computational Chemistry	Norris, A.C.	1st edition, John Wiley & Sons, 1981.
3	Computer Programming in FORTRAN IV,	Rajaraman, V.	4th edition, Prentice Hall
4	Learn Programming in C	Dr.Kamaljeet Kaur, Anshuman Sharma	7thedition, LAKHANPAL PUBLISHERS
5	Fundamental of computer programming & information technology	Sumita Arora	3rd edition, Dhanpat Rai

Programme	M.Sc. (Chemistry)
Course Code	MDC052
Course Title	Computer in Chemistry Laboratory
Type of Course	Practical
L T P	0 0 1
Credits	1
Course Prerequisites	Knowledge of C ,C Programming Language
Course Objectives (CO)	Allows the students to know about background functioning of System Programs
Course Outcomes	The students will be able to: 1. Understand about background functioning of System Programs. 2. Use working of the internet for the use of domains, IP addresses, URLs and different web browsers. 3. Acquire knowledge to search information using search engines for different programme.

SYLLABUS

UNIT-I

1. Word Processor software : Word: To familiarize with parts of Word window, To create and save a document ,To set page settings, create headers and footers, To edit a document and resave it To use copy, cut and paste features. To create a table with specified rows and columns To create a table with specified rows and columns, To select a table, a row, a column or a cell ,To inset new row and/or a column, To delete a row and/or a column.

Excel: To familiarize with parts of Excel window, To create and save a workbook with single and/or multiple worksheets To edit and format text as well numbers To insert new row and/or column in a worksheet, To delete a row and/or column in a worksheet.

Power point: To familiarize with parts of PowerPoint window create and save a new presentation, To apply design templates to a presentation insert, edit and delete a slide, To use different views of slides . To use slide show from beginning or from the current slide To preview and print a presentation. To check spellings in a presentation, To add clip art and pictures in a slide, To add chart, diagram and table in a slide, To set animation for a selected slide and/or for entire presentation.

2. Exploring the Internet: To understand the working of the internet that include the use of protocols, domains, IP addresses, URLs, web browsers, web servers, mail-servers, etc. create email-account, sending , mails, receiving mails, sending files as, attachments, etc. To login to a remote computer, To search information using search engines.

3. Write a Program to display a message.
4. Write a program to display greater of two numbers.
5. Write a program to find area of a circle.
6. Write a program to find addition of two numbers.
7. Write a program to convert Celsius temperature to Fahrenheit.
8. Write a program to implement calculator in c
9. Write a program to find factorial of a number.

10. Write a program to implement and print an array elements in C.

11. Write a program in C to print two dimensional array.

Text and Reference Books:

Sr. no.	Name	Author(S)	Publisher
1	ANSIC	Balagurusamy	McGraw Hill Education India Pvt Ltd
2	Let usC	Yeshavant Kenetkar	BPB Publication

Programme	M.Sc. (Mathematics)
Course Code	MDC053
Course Title	Fundamentals of Computer Science
Type of course	ID
L T P	3 0 0
Credits	3
Course prerequisite	Basic of Computer
Course Objective (CO)	To provide the excellent training/knowledge in basic computer science, Operating System, DBMS,SQL,C++.
Course Outcomes(CO)	Students will be able to: 1. Be exposed to basic hardware and software concepts. 2. Be familiar with using C++ functions and the concepts related to good modular design. 3. Be familiar with using C++ structures, pointers and reference parameters.

UNIT- I

Introduction to Computer System: Block diagram of a Computer System and its working, Hardware - CPU, Memory, Input, Output & Storage devices, Software - System and Application, introduction to word processors, creating, editing, printing and saving documents, spell check, mail merge, creating power point presentations, creating spreadsheets and simple graphs, introduction to MS- EXCEL and its features, Internet and its applications.

UNIT-II

Introduction to Operating System: Operating Systems functions, Types of operating systems, Multiprogramming systems, Batch systems, Time-sharing systems, Operating system operations, distributed system. Development Tools: Editors, Translators - Compilers, Interpreters, Linkers Loaders, Debuggers.

UNIT-III

Introduction to Databases: Introduction to database system, purpose of database system, view of data, relational databases, database architecture, Constraint, View and SQL: Introduction to SQL,Features, Data Types, Database Languages, Introduction to view, Integrity constraints and their types.

UNIT-IV

Programming using C++: program design tools–algorithms, flow charts, pseudocode, Decision table, introduction to C++, structure of C++ , basic terminology- Character set, tokens, identifiers, keywords, fundamental data types, literal and symbolic constants, declaring variables, initializing variables ,type-modifiers, Operators and expressions in C++,Control Statements: if, nested if, if - else. Else if ladder, switch, Loops and iteration: while loop, for loop, do - while loop, nesting of loops, Break statement, continue statement, go to statement,

Text and Reference books:-

S.No.	Name	Author(s)	Publisher
1	A Text Book on Windows Based Computer Courses	Gurvinder Singh and Rachhpal Singh	Kalyani Publishers
2	Introduction to Computers	Norton, Peter	McGraw Hill
3	C++ Programming	Satish Jain	BPB Publications
4	Operating Systems: A Modern Perspective	G. Nutt	Pearson Education

Programme	M.Sc. (Mathematics)
Course Code	MDC054
Course Title	**Fundamentals of Computer Science Laboratory**
Type of course	ID
L T P	0 0 2
Credits	2
Course prerequisite	B.Sc with Mathematics and B.A with Mathematics
Course Objective (CO)	To provide the practical training/knowledge in basic computer science, Operating System, DBMS, SQL, C++.
Course Outcomes(CO)	Students will be able to: 1. Be able to work with basic features of MS excel. 2. To display documents using various views. 3. Be able to work with the basic features of Word.

4. Familiarization of the computer system and on hand practice on power on and power off window Closing, Maximizing, Icon shifting & Ordering. Practice with Control Panel and File manager.
5. Practice with MS Word. Opening and Closing document. Preparation and setting of a document. Familiarization with various tools, mail-merge practice.
6. Practice with Power Point and MS Excel sheets
7. **C++ PROGRAMS:**
    1. WAP to find the sum of two numbers.
    2. WAP to print a string on the screen.
    3. WAP to find the simple interest.
    4. WAP to find to find the greatest of two numbers.
    5. WAP to find P by using P=(W-X)/(Y-Z)
    6. WAP to convert temp from Celsius to Fahrenheit.
    7. WAP to convert days into years, weeks, days.
    8. WAP to display table of given number
    9. WAP to find the Arithmetic operations on two numbers.
    10. WAP which finds the square root of a number.
    11. WAP which use the if statement.
    12. WAP which using the if-else statement.
    13. WAP which describes the functionality of switch statement.
    14. WAP which uses the conditional ternary operator.
    15. WAP which uses the for loop.
    16. WAP which describes the functionality of While loop.
    17. WAP which describes the functionality of Do-While loop.
    18. WAP which having the functionality of jumping statements(go to, break,continue).
    19. WAP to find the sum of the digits of a number.

Text & References Books

S. No.	Name	Author(s)	Publisher
1	A Text Book on Windows Based Computer Courses	Gurvinder Singh &Rachhpal Singh	Kalyani Publishers
2	C++ Programming	Satish Jain	BPB Publications
3	SQL,PL/SQL,The programming language of oracle	Ivan Bayross	BPB Publication

Programme	B.P.E.S
Course Code	MDC055
Course Title	Computer Application in Physical Education
L T P	4 0 0
Credits	4
Course prerequisite	+2
Course Objective (CO)	To familiarize all the students with basic concepts of computers including office automation and internet concepts.

UNIT-I

Define a Computer System, Applications of computer system, Input and Output device, Memories, RAM, ROM, secondary storage devices, Computer Software and Hardware, Number System.

UNIT-II

Computer Languages: Machine language, assembly language, higher level language. Operating System: Definition, Need for operating system, Functions of operating system (Processor Management, Memory Management, File Management and Device Management.

UNIT-III

Word Processor- Introduction to word processors and its features, creating, editing, printing and saving documents, spell check, mail merge

PowerPoint: creating power point presentations, creating spreadsheets and simple graphs, evolution of Internet and its applications and services.

Spreadsheets- Introduction to spreadsheets and its features, Using different types of formulae, Creating graphs and charts, Exporting charts to word processor.

UNIT-IV

Installation of operating System viz. Windows XP, Windows 2007 etc. Word Processing (MS Office/Open Office) PowerPoint Presentation (MS Office/Open Office).

Text and Reference Books:			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Fundamentals of Computers	R. S. Salaria	Salaria Publishing House
2	Computer Fundamentals	P.K. Sinha and P. Sinha	BPB Publication
3	Absolute Beginners Guide to Computer Basics	Miller M	Pearson Education

Programme	B.Sc. (Hons.) Mathematics
Course Code	MDC056
Course Title	Computer Graphics
Type of course	MDC
L T P	2 0 0
Credits	2
Course prerequisite	Computer Graphics (basics), linear algebra, programming
Course Objective (CO)	The main objective of this course is to give the student a comprehensive understanding of computer graphics and visualization and their applications. In particular participants will have the ability to understand the process of generating virtual images from virtual scenes, typically identified as a pipeline of generate, compute and store/display.

SYLLABUS

UNIT-I

Introduction to Computer Graphics: Definition, Application areas of Computer graphics, Graphical user interface, Cathode ray tubes, Random scan displays, Raster scan displays, Color CRT monitors, Flat panel displays (Plasma Panels, Liquid crystal displays, Electroluminescent displays, etc.), Graphics software (GKS, PHIGS), Color Models (RGB, CMYK, HSV, Lookup tables, color map table, etc.)

UNIT-II

Raster Graphics Algorithms: Line drawing algorithms (DDA, Bresenham's algorithm), Circle and Ellipse drawing algorithms, Filling (Scan-converting Polygon filling, Inside outside tests boundary fill, flood fill and area fill algorithm).

UNIT-III

Transformations: 2-D transformations (Translation, Rotation, Reflection, shearing, scaling), Homogeneous coordinate representation, 3-D transformations.

Discrete Techniques- Texture mapping, compositing, textures in OpenGL; Ray Tracing- Recursive ray tracer, ray-sphere intersection.

UNIT-IV

Two dimensional Clipping and visible surface detection methods: Viewing pipeline, window and viewport, Sutherland-Cohen sub-division algorithm, Line segment and polygon clipping, 3D clipping, Shading - Light sources, illumination model, Gouraud and Phong shading for polygons.

Text and Reference Books:			
Sr. no.	Name	AUTHOR(S)	PUBLISHER
1	Computer Graphics (2nd Ed.)	Hearn & Baker	Prentice Hall India
2	Introduction to computer Graphics	Krihsnamurthy N	Tata Mc Graw Hill Edition
3	Fundamentals of Digital Image processing	Jain V.K.	Pearson Education