Name of Program: M Sc. (Computer Science)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
MSCCS 102	Compulsory	Information and Communication Technology	3	1	0	4	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical;   C - Credit; Q/A – Quiz/Assignment/Attendance, MST - Mid SEM Test.

***Teacher Assessment** shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):
- Knowledge of ICT including new and emerging technologies
- Autonomous and discerning use of ICT
- Skills to analyze, design, implement, test and evaluate ICT systems
- Skills to consider the impact of current and new technologies on methods of working in the outside world and on social, economic, ethical and moral issues

Course Outcomes (COs):
The student will be able to:
- To understand the basic concept of Data and information
- To Communicating with ICT
- Develop confidence in the use of ICT
- Developments in ICT and related technologies

UNIT 1
Information concept, system and modeling concept, meaning of information system, business information system, system development, need to learn information system, organization and information system, competitive advantage, performance based information system, careers in information system.

UNIT-2
Computer software- System software, application software, firmware, Programming languages classification- machine language, assembly language & high-level language.

Evolution of programming languages- first generation, second generation, third generation & fourth generation languages, Language translator-Compiler, Interpreter, and Assembler. Operating System - Definition, Job, Objective and evolution of operating system, Types of operating systems.

UNIT-3

Overview of communication system, telecommunication, N/W and distributed processing, Use of functioning of the internet, internet services, WWW ,intranets and extranets, Net issues, Connecting to the Internet Hardware ,Search Engines, Web Portals, Online Shopping, Email – Types of email, Compose and send a message. Reply to a message, working with emails.

UNIT 4

Effect of using ICT and Cloud Computing-Software Piracy, Computer virus, Hacking, effect of ICT on employment , capabilities of ICT devices, limitation of ICT, Internet developments .
Cloud Computing -Introduction, uses of cloud Computing, Advantages and Disadvantages of Cloud Computing, E-Books and Online Newspapers.

UNIT 5

Impact of Emerging Technology: Artificial Intelligence, Impact of AI on everyday Life, Biometrics, Robotics, Quantum Cryptography, Computer Assisted Translation, Virtual Reality
Application of ICT: Communication Application, Data Handling Applications, Banking Applications, Expert Systems, Monitoring and Tracking system.

Suggested Readings:

1. Computer Fundamentals – B. Ram – New Age International Publishers.
2. S.K.Basandra, "Computers Today ", Galgotia Publications.
3. Computer Fundamentals – P. K. Sinha – BPB Publication.
4. Cloud Computing for Dummies Paperback – 2009by Judith HurwitzWiley (2009).
5. Cloud Computing Paperback – Import, 30 Aug 2015by M. N. RaoPrentice-Hall of India Pvt.Ltd (30 August 2015).
6. Introduction to Artificial Intelligence Paperback – 6 Jan 2015by Patterson Pearson Education India; First edition (6 January 2015).
7. Information & Communication Technology (ICT) In Education Paperback – 2016by Prof. T. MrunaliniNeelkamal; First edition (2016).
8. Artificial Intelligence: 101 Things You Must Know Today About Our Future Kindle Editionby LasseRouhiainen.

ShriVaishnavVidhyapeethVishvavidhyalaya, Indore
Institute of Computer Applications

Name of Program: M Sc. (CS)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
MSCCS104	COMPULSORY	PC Packages	3	1	4	6	60	20	20	30	20

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*Teacher Assessment shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):-
1. To develop an understanding of database management system.
2. To provide the knowledge of using different software packages including word processor, electronic spreadsheet, presentation s/w
3. To develop presentation skills using these software.
4. To explain how to integrate the data stored in word processor, spreadsheet etc.

Course Outcome (COs):-Students will be able to
1. To create word documents and to format them using various tools available
2. To create tables and manipulate them.
3. To use mail merge, labels.
4. Creating spreadsheet for storing and managing data using functions.
5. Format, print spreadsheet.
6. Create power point presentation for different purposes using objects, animation.
7. To store and manipulate data stored in databases.
8. To export and import data stored from and to, among word processor, spreadsheet, DBMS, presentation s/w.

Unit – 1
Introduction to word processor– Editing a document - Move and Copy text - Formatting text & Paragraph – Enhancing document – Columns, Tables and Other features.

Unit – 2
Introduction to worksheet and shell – getting started with Excel – Editing cell & using Commands and functions – Moving & Copying , Inserting & Deleting Rows & Columns - Printing work sheet.

Unit – 3
Creating charts – Naming ranges and using statistical, math and financial functions, database in a worksheet – Additional formatting commands and drawing toolbar – other commands & functions – multiple worksheet and macros.

Unit – 4
MS PowerPoint: Introduction & area of use, working with MS PowerPoint, Creating a New Presentation, Working with Presentation – presenting shows for corporate and commercial using presentation. Slides & its different views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide. Introduction to Desktop publishing.

Unit – 5
DBMS: Introduction, Basic terms of access, objectives, What is database, Creating a database through table wizard, Creating a new table, Editing table, Saving the database, Relationships, Query, Form, Reports.

Suggested Readings:

1. Saxena Sanjay, "MS Office 2000 "Vikas Publication House PVT LTD.
2. Taxali R. K. "PC Software for Windows 98, Made Simple" TMH.
3. Jain S., Geetha M. and Kratika, "Microsoft Office-2007", BPB
4. Microsoft Office – Complete Reference – BPB Publication.
5. Busbby M. and Stultz R.A. "Microsoft Office 2000", BPB..

List of Experiments:
1. To demonstrate how to
   (A) Arranging icons on the desktop
   (B) Creating a new folder
   (C) Work with Windows explorer
2. To demonstrate how to
   (A) Installed fonts
   (B) Finding files or folders in window operating system
3. How to create shortcuts
4. To demonstrate how to create word document and show the different Cursor movement command.

5. To demonstrate the
6. (A) Difference between cut and paste and smart cut and paste.
7. (B) How to work with font dialog box.
8. To demonstrate how to work with mail merge.
9. To demonstrate how to work with macro.
10. To demonstrate how to create presentation.
11. To open and practice of OS – Folder related operations, My-Computer, window explorer, Control Panel,
12. To create, save and editing of Text files using word processor.
13. Formatting and printing of document (setting of margins, size, orientation, different breaks etc. Checking of spelling and use of thesaurus
14. Creating, inserting tables, header, footers, hyperlink, different objects in a document.
15. Use of Charts in Word processor.
16. Creating and manipulating spreadsheets. To create, save and editing of spreadsheets. Use of cell references, sorting and filtering data in a spreadsheet, using formulae.
17. Creating header, footers, hyperlink, and different objects in a spreadsheet.
18. Creating different types of graphs and printing.
19. Creation, editing and formatting presentation slides.
20. Create presentation for different purposes using objects, animation.

Name of Program: MSc.(Computer Science)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY END SEM University Exam	THEORY Two Term Exam	THEORY Teachers Assessment*	PRACTICAL END SEM University Exam	PRACTICAL Teachers Assessment*
MSCCS105	COMPULSORY	Programming with C	3	1	4	6	60	20	20	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical;   C - Credit;
Q/A – Quiz/Assignment/Attendance, MST - Mid SEM Test.
*****Teacher Assessment** shall be based on following components:
Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):

The languages that programmers use are constantly changing, and the popular languages of today will surely be replaced by new ones. The objective of this course is to provide students with a working knowledge of the basic principles underlying the design of all computer programming languages.

Course Outcome (COs)s: Students completing this course should be able to quickly learn to effectively use new computer programming languages. In particular, after taking this course students should be able to do the following:

- Design an algorithmic solution for a given problem.
- Draw flowcharts for the solution.
- To write a maintainable C program for a given algorithm.
- To Write well documented and indented program according to coding standards..
- Debug a given program.
- To Execute the C program.

UNIT 1:-Programming fundamentals: Algorithm development, techniques of problem solving, flow-chart, decision table, structured programming concepts; top-down design, development of efficient program; program correctness; debugging and testing of programs, algorithm for searching, sorting (exchange and insertion), merging of ordered lists.

UNIT 2:- Programming in C: Introduction to C, features of C , IDE of C Data type, constants and variable; structure of a C program,, Compilation & execution of C program., Identifiers, Operators: Arithmetic, Logical, Relational, Conditional and Bitwise operators, Precedence and associatively of operators, Types conversion in expression , Library Functions , Control structures- If Statement, If…….Else Statement, Nesting Of If ……..Else Statement, Else If Ladder, ? : Switch Statement, Compound Statement, Loop Controls – For, While, Do-While Loops, Break Continue, Exit, Goto Statement

UNIT 3:- Array- Representation of single and multidimensional arrays; sparse arrays - lower and upper triangular matrices and Tri-diagonal matrices Array as function arguments.
String : Declaration, Initialization, String Functions
Functions:- top-down approach of problem solving, modular programming and functions, prototype of a function:, return type, function call, block structure, passing arguments to a function: call by reference, call by value, recursive functions, arrays as function arguments

UNIT 4:- Structures and Unions structure variables, initialization, structure assignment, nested structure, structures and functions, structures and arrays: arrays of structures, structures containing arrays, unions Pointer- The & and * Operators, Pointers expressions, Pointers V/s Arrays, Pointer to functions, Function returning pointers.

UNIT 5:- File management-Defining, Opening a File & Closing a File, Text file, Binary file, Functions for File Handling: fopen, fclose, gets, puts, fprint, fscanf, getw, putw, fputs, fgets, fread, fwrite, Random access to files: fseek, ftell, rewind, file name as Command Line Argument.

Suggested Readings:

1. Programming in c by e. balagurusamy, tmh publications
2. Programming with c by gottfried, schaumsoutlie series, tmh publications
3. Thinking in c by mahapatra, phi publications
4. Kenneth, A. : C problem solving and programming, Prentice Hall.
5. Gottfried, B. : Theory and problems of Programming in C, Schaum Series.
6. Kerninghan&Ritchie : The Programming Language, PHI.

List of Experiments:

1. Define an algorithm and flowchart. Draw algorithm and flow chart for a program that converts an input Fahrenheit degree into Celsius equivalent
2. Write an algorithm and a C program to find the greatest among three numbers.
3. WAP to print an input string in lower case, upper case and mixed case using library function.
4. WAP a C program to reserve an input number.
5. Draw a flow chart to find prime number from 1 to 100.
6. Write a C program to obtain the sum of first n terms of the following series: $X - X^3/3! + X^5/5! - X^7/7! + \ldots$
7. WAP to calculate factorial of a number using different loops.
8. WAP to calculate factorial of a number using recursion.
9. WAP in C to generate Fibonacci series.
10. WAP in C to generate Pascal triangle.
11. WAP in C to swap value and address of two variables.
12. WAP in C to search a given element in an array using linear and binary search.

13. WAP to sort an integer array in ascending and descending order according to user's choice.
14. Write a menu driven program to perform matrix addition, subtraction and multiplication.
15. Write a program to sum diagonal elements of two matrices.
16. WAP a C program to reverse a string by recursion.
17. WAP using structure in C to generate student mark-sheet for 3 students with student details name, course, and semester and with marks in 5 subjects, assume max mark in each subject as 100 and passing marks as 35.
18. WAP display contents of a file on screen, also display character count.
19. WAP to read data from file using fscanf().
20. WAP to add two numbers using command line arguments.
21. Write a program to copy contents of file c:\test.txt to c:\test1.txt