ABOUT UNIVERSITY

Dr. C.V. Raman University was established on 3 November, 2006, in the district of Bilaspur, Chhattisgarh by the "All India Society for Electronics and Computer Technology" (AISECT), the Sponsoring Body. The University was named after the first Nobel Laureate of the country in the field of science – Dr. C.V. Raman, an Indian physicist efforts influenced in the growth of science in our country. The University's principle goal is to evolve a new cadre of highly skilled technical professionals with deep academic insights and a strong sense of Indian 'Values and ethics', commemorating our forefathers who helped shape this nation.

The Sponsoring Body of the University-All India Society for Electronics and Computer Technology (AISECT) is an ISO 9001:2008 certified organization, established in 1985 and is today's one of The India's most reputed and trusted Education Groups which houses private Universities, Engineering Colleges, Professional Institutions & Education Centres across the country. Till date, AISECT has transformed the lives of over 19 lakh students and has uplifted the lives of millions of people in the community. AISECT has been lauded for its exceptional work and has won awards from the World Bank, NASSCOM, TiE, Government of India, Government of Madhya Pradesh and several others on account of its commitment to high quality education over the last 28 years. AISECT is also a partner institution with GoI, GoMP and GoCG in their Common Service Centre Program and several other projects of state and national concern.

MAIN OBJECTIVES

- Provide quality higher education and make provisions for research
- Create higher levels of intellectual abilities among our students
- Establish state-of-the-art facilities for education, training and examination, including online training
- Carry out teaching, research and offer comprehensive learning for a bright professional career
- Create centers of excellence for R&D to promote an environment of innovation and research
- Provide consultancy to public organizations and the Industry
- Award and maintain the standard of degrees, diplomas, certificates and other academic distinctions in accordance with the norms laid down by UGC, AICTE, BCI, MCI and other regulatory bodies.

Recognitions

- The University is recognized under Section 2(f) of the UGC Act.
- Other recognitions include AICTE, NCTE, BCI and DEB
- It is the first University in the state of Chhattisgarh to be awarded an ISO: 9001-2008 Certification.
- Membership of the Association of Indian Universities (AIU)
- NAAC B+

THE FACULTIES OF STUDIES

The University has wide range of faculties which offers the traditional as well as the new era job oriented courses. The main emphasis is on providing a wide choice of courses at different levels. The following faculties currently are in operation in the University:

- Faculty of Arts
- Faculty of Commerce
- Faculty of Management
- Faculty of Science
- Faculty of Engineering
- Faculty of Information Technology
- Faculty of Education
- Faculty of Law

ABOUT INSTITUTE OF OPEN AND DISTANCE EDUCATION (IODE), CVRU

Education determines the quality of our life to a great measure, especially professional life. However, for many, in some circumstances, the path to education is ridden with many obstacles, including location, geographical inflexibility and lack of time. Fortunately, distance education is changing that scenario by providing an effective alternative platform to learn new skills and acquire a degree, such as distance education MBA, without having to attend traditional classes.

We, a UGC/DEB approved distance university (1 may 2009), offer various undergraduate and post-graduate degrees, along with a number of diplomas, which have benefitted many distance learners.

Our distance learning programmes are the shining light that many have been looking for; they unite conventional teaching approaches, including course materials in the form of books, and modern teaching methodologies, which include online access to the course. Our unique approach has made us the centre of distance education in Chhattisgarh, helping scores of professionals to obtain a degree and fly high in their careers.

With our distance learning programmes, we are bringing people into the fold of skilled workforce, which has changed the life of many.

What makes us a distinguished Chhattisgarh distance education university?
- Reaching various far-flung regions of the state through information technology
- Providing professional education, need- and knowledge-based
- Setting new national standards in distance education

IMPORTANT ACHIEVEMENTS

- AN ISO 9001: 2008 Certified University

- World Education Award

- Largest Network for Learning Support System.

- Declaration of Term end result Time to Time.

- Best in Skill Development Award 2015

- Best University in Open Distance and online Award 2017

ACADEMIC PROGRAMMES OFFERED BY THE UNIVERSITY IN OPEN AND DISTANCE LEARNING MODE

The University offers through the Institute of Open and Distance Education (IODE) both short term and long term programmes leading to Certificates, Diploma and Degrees, which are conventional as well as innovative. Most of these programmes have been developed after an initial survey of the demand for such Programmes in the job market. They are launched with a view to fulfil the learner's need for skill and employability.

- Certification,
- Improvement of skills,
- Acquisition of professional qualifications,
- Continuing education and professional development at work place,
- Self-enrichment,
- Diversification and updation of knowledge, and
- Empowerment.

PROMINENT FEATURES OF THE OPEN AND DISTANCE EDUCATION AT CVRU

The open and distance education at the Dr. C. V. Raman University has certain unique features such as

- Individual study - flexible in terms of place, pace and duration of study.
- Use of latest information and communication technologies.
- Modular approach to programmes.
- Cost-effective programmes.

- Socially and academically relevant programmes based on students need
- Convergence of open and conventional education systems.
- Take higher-education to the unreached sections of the society through the use of information technology.
- Provide need and knowledge-based professional education.
- Set the national standards for Distance Education.

PROGRAMME DELIVERY MODE

The methodology of instruction in the distance learning mode in the university is different from that of the conventional regular programs. The system adopted for this more learner oriented and the learner is an active participant in the pedagogical process. Most of the instructions are imparted through distance education methodology and face to face mode as per requirement. The programme delivery methodology used in the distance learning mode follows a multimedia approach for instructions, which compromises:

- **Self Instructional Written Material:** The printed study material (written in self instructional style) for both theory and practical components of the programs is supplied to the learners in batches for every course.

- **Audio-Visual Material Aids:** The learning package contains audio and video CDs which have been produced/adopted by the University for Better Clarification and enhancement for understanding of the course material given to the learners. A video programme is normally of 25-30 minutes duration. The video cassettes are screened at the leaner support centre during specific sessions which are duly notified for the benefit of the learners.

- **Counseling Sessions:** Normally counseling sessions are held as per schedule drawn by the IODE DR. C. V. RAMAN UNIVERSITY. These are mostly held outside the regular working hours of the learner support centre.

- **Teleconferences:** Live teleconferencing sessions are conducted via Internet/ satellite through interactive Video Conferencing facility (available at some places) from the University studios, the schedule of which is made available at the learner support centre.

- **Industrial Training/Practical/Project work:** Some programmes have industrial training/practical/ project component also. Practical are held at designated institutions for which schedule is provided by the learner support centre. Attendance at practical is compulsory. For Project Work, comprehensive project guide, in the form of booklet, is provided to the student along with the study material.

- The printed study materials will be dispatched periodically to the enrolled students for each paper of study. These materials will be as guide for the students for effective learning. The assignment for internal assessment shall also be dispatched along with the study material. Online modules are also available for some courses. These are in progress

and as and when available, these will be available on the website of the students for registered candidates.

- The counseling sessions will be of 30 days duration for a course in a year. The actual schedule and place of contact program shall be announced and communicated to students in – time.

EVALUTION SYSTEM

The system of evaluation in open and distance learning system has a multi-tier system of evaluation.

1. Self-assessment exercise within each unit of study.
2. Continuous evaluation mainly through assignments which are tutor-marked practical assignments and seminar/workshop/extended.
3. The term-end examinations.
4. Project work.

The evaluation of learners depends upon various instructional activities undertaken by them. A learner has to write assignment responses compulsorily before taking term-end examination from time to time to complete an academic programme. A learner has to submit TMA responses to the learner support centre established by IODE Dr. C. V. Raman University. A learner should keep duplicate copies of assignments responses of TMA that may be required to be produced at Student Evaluation Division on demand. Term-end examination will be conducted at various examination centre approved by institute of open and distance education Dr. C. V. Raman university spread all over the Chhattisgarh. The weightage for Term End Examination will be 70% and weightage for Internal Assessment will be 30 % for this programme.

TERM-END EXAMINATION AND PAYMENT OF EXAMINATION FEE

The University conducts Term-end Examination in semester system and held in the month of Nov/Dec and May/June every year. Students will be permitted to appear in term-end examination subject to the conditions that:
1. Registration for the courses, in which they appeared is valid,
2. Minimum Time to pursue these courses is elapsed.
3. Submission of required number of assignment in respective courses by the due date.

Students can also submit on-line examination form as per guidelines through website at www.cvru.ac.in. Examination fee is required to be paid online payment gateway as per the fee table.

Please do all correspondence regarding the course admission and other detail at the following address:

The Director

Institute of Open and Distance Education (IODE)

Dr. C. V. Raman University

Kargi Road, Kota, Bilaspur, Chhattisgarh

Phone: 07753-253851, 8827920016, 8827920019

Email: cvrussd@gmail.com

LEARNER SUPPORT DESK:

Phone: 07753-253872, 07753-253873, 8359050061

Email: cvrussd@gmail.com

PROGRAMME GUIDE

DISTANCE EDUCATION PROGRAMMES

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (MSCIT)

- **Scheme of Examination**
- **Detailed Syllabus, List of Practical & Reference Book**
- **Counseling and Study Structure**
- **Study Modules & Books Information**
- **Date Schedule & Instructions for Submitting Assignments**
- **Guideline For Preparation of Project Report**

DR. C. V. RAMAN UNIVERSITY
INSTITUTE OF OPEN AND DISTANCE EDUCATION (IODE)

KARGI ROAD, KOTA, BILASPUR, CHATTISGARH
PHONE : **07753-253851**, 8827920016, 8827920019 FAX : 07753-253728
E-mail: cvrussd@gmail.com, Website: www.cvru.ac.in

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY (MSCIT))

Duration : 24 Months   Eligibility : Graduate in BCA/B.Sc.(CS/IT)/B.Sc. Mathematics/B.Sc. (With Mathematics upto 10+2)/B.Sc. With an additional course in Mathematics during M.Sc. (IT)

New Proposed Scheme of Examination

Course Code	Name of the Course	Credit	Total Marks	Theory		Practical Marks		Assignments	
				Max	Min	Max	Min	Max	Min
FIRST SEMESTER									
1MSCIT1	Fundamentals of Computers & Information Technology	3	100	70	25	-	-	30	11
1MSCIT2	Windows & MS Office	3	150	70	25	50	18	30	11
1MSCIT3	Programming Methodology & Programming in C	3	150	70	25	50	18	30	11
1MSCIT4	Computer Networks & Internet	3	100	70	25	-	-	30	11
1MSCIT5*	Digital Electronics & Logic Design	2	100	70	25	-	-	30	11
Total aggregate required to pass		**14**	**600**	**350**	**140**	**100**	**40**	**150**	**60**
SECOND SEMESTER									
2MSCIT1	Objects Oriented Programming with C++	3	150	70	25	50	18	30	11
2MSCIT2	DBMS & SQL (With MS Access / MS SQL Server)	3	150	70	25	50	18	30	11
2MSCIT3	A. Computerised Accounting with Tally	3	150	70	25	50	18	30	11
2MSCIT4	Programming with VB.Net	3	150	70	25	50	18	30	11
2MSCIT5**	Data Structure with C++	2	150	70	25	50	18	30	11
2MSCIT6	Minor Project	4	100	70	25	-	-	30	11
Total aggregate required to pass		**18**	**850**	**420**	**168**	**250**	**100**	**180**	**72**
THIRD SEMESTER									
3MSCIT1	Operating Systems	3	100	70	25	-	-	30	11
3MSCIT2	Java Programming	3	150	70	25	50	18	30	11
3MSCIT3	Software Engineering	3	100	70	25	-	-	30	11
3MSCIT4	A. Computer Architecture	3	100	70	25	-	-	30	11
3MSCIT5	C. Artificial Intelligence And Expert System	3	100	70	25	-	-	30	11
Total aggregate required to pass		**15**	**550/600**	**350**	**140**	**50/100**	**20/40**	**150**	**60**
FOURTH SEMESTER									
4MSCIT1	Computer Graphics	3	100	70	25	-	-	30	11
4MSCIT2	Data warehousing & Mining	3	100	70	25	-	-	30	11
4MSCIT3	A. Advanced Java Programming	3	150	70	25	50	18	30	11
4MSCIT4	A. Discrete Mathematics	3	100	70	25	-	-	30	11
4MSCIT5	Major Project	6	200	-	-	150	54	50	19
Total aggregate required to pass		**18**	**650/700**	**280**	**112**	**200/250**	**80/100**	**170**	**68**

** This Paper shall be offered in the Third Semester of M.Sc. (IT) Lateral Entry Candidates from PGDCA stream.

** This Paper shall be offered in the Fourth Semester of MSC (IT) Lateral Entry Candidates from PGDCA stream.

Evaluation Scheme

1. 36% in each theory, practical, project, dissertation & internal assessment but the total aggregate for passing is 40%.
2. Total project work carrying 300 (Major Project + Minor Project) marks has to be done under the guidance of a Project supervisor. Learners have to prepare project report under the guidance of project guide allotted by the university. Viva-voce will be conducted in the presence of an external examiner.

Detailed Syllabus, List of Practical & Reference Book

Dr. C.V. RAMAN UNIVERSITY
Institute of Open and Distance Education (IODE)
Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- First Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25
COURSE: - FUNDAMENTALS OF COMPUTERS   Assig. Max. M: 30 Min. M: 11
         & INFORMATION TECHNOLOGY
COURSE CODE: 1MSCIT1, CREDIT:-3

UNIT-I

Know the Computer -, Introduction, What does computer stand for?, Strengths of computers, Limitations of computers, Fundamental uses of computers, Development of computers, Types of Computers, Generations of Computers

Personal Computer - Introduction, Personal computer, Uses of personal computers, Components of personal computers, Evolution of PCs, Developments of processors, Architecture of Pentium IV, Configuration of PC

Boolean Algebra and Logic Gates - Introduction, Boolean Algebra, Binary Valued Quantities, And Operator, OR Operator, NOT Operator, Basic Postulates of Boolean Algebra, Theorems of Boolean Algebra, De Morgan's Theorems, Reducing Boolean Expression by their Simplifications, Proving the Equations of Boolean Expressions By Truth Table, Principle of Duality, Standard Forms, Basic Logic Gates, Use of Logic Gates in Circuits, Karnaugh Maps

Number System - Introduction, Digital and Analog Operations, Binary Data, Binary Number System, Decimal Number System, Octal Number System, Hexadecimal Number System, Fractional Conversion, Coding System

UNIT-II

Data Representation and Binary Arithmetic - Introduction, Bits, Nibbles, Bytes and Words, Data Representation, Coding system, Binary Arithmetic, Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division, Character Representation, Checking the Result of Binary Arithmetic

Input Devices - Introduction, Input Device, Typing Input Devices, Pointing Input Devices, Scanning Input Devices, Audio Visual Input Devices

Output Devices - Introduction, Output Devices, Soft Copy Vs Hard Copy Output, Monitor, Printers, Plotter , Electrostatic Technique, Special Purpose Output Equipments

Central Processing Unit - Introduction, What is Central Processing Unit, Arithmetic And Logic Unit, Control Unit, Registers, Instruction set, Processor Speed

Storage Devices - Introduction, Storage and its needs, Brain Vs Memory, Storage Evaluation Units, Data Access Methods, Primary Storage, Secondary Storage, Hard Disk Operations, Floppy Disk Drives, Winchester Disk, Optical Disk, VCD, CD-R, CD-RW, DVD, Zip Drive, Flash Drives, Blue Ray Disk, Memory Card, Driving Naming Conventions In a PC

UNIT-III

Basics of Software- Introduction, What Does Software Stand For ?, Needs of software, Types of software, Open Source Software, Integrated Development Environment

Operating System - Introduction, Operating System, Why an Operating System, Functions of Operating System, The Booting Process, Types of Reboot, Booting From Different Operating System, Types of Operating System, Some Prominent Operating Systems

Disk Operating System - Introduction, What is DOS?, Functions of DOS, Versions of DOS, DOS Commands , Important Internal Commands of DOS, Important External Commands of dos, Executable Vs Non-Executable Files In Dos

Programming Languages , Introduction, Data, information And Knowledge, Characteristics of Information, Comparison between human language and , Computer Language, What is a program?, What is a Programming language?, Programming development cycle, Algorithm, Program Flowcharts, Pseudo code, Programming approaches, Programming Paradigms, Types of Programming Language, Third Generation Language, Fourth Generation Language

UNIT-IV

Computer Virus - Introduction, Virus, History, Mechanism of virus, How A Virus Spreads , How is virus named, A few Prominent Viruses, Types of Computer Virus, Related Concepts :, Anti Virus Programs, Norton Anti - Virus (NAV), Execution of Norton Anti-Virus

Communication and IT - Introduction, Computer Network, Communication Process, Communication Types, Transmission Media, Wireless Media, Communication Channels/Media, Modem, Characteristics of a Modem, Types of Modem

Networks - Introduction, Internet Vs Intranet, Types of Network, Topology, Types of Connectivity, Network Devices

UNIT-V

Internet - Introduction, What is Internet actually ?, Growth of Internet, Owner of the Internet, Internet Service Provider, Anatomy of Internet, ARPANET and Internet history of the World Wide Web, Services Available on Internet (Internet Tools), Basic internet terminologies, net etiquette, Application of internet

Management Information System - Introduction, Information System, Management Information System (MIS), Fields of Information System, Elements Of MIS, Objectives Of MIS, Characteristics of MIS, Impact Of MIS, Designing An MIS, Placement Of MIS, Views Of MIS, Pitfalls In Designing an MIS, Advantages of MIS, Disadvantages of MIS

Applications of Computers and Information Technology - Introduction, Business And Computer, E-Mail, E-Commerce, Project management, Computers in Personnel Administration, Accounting, Computers in Cost and Budget Control, Marketing, Manufacturing, Materials management, Banking, Insurance And Stock broking, Purchasing, Computers in warehousing.

READINGS: SELF LEARNING MATERIAL.

FURTHER READING:-

1. 1.COMPUTER FUNDAMENTAL :- PRADEEP K SINHA
2. 2.ESSENTIALS OF INFORMATION TECHNOLOGY :- A.MANSOOR
3. FUNDAMENTALS OF COMPUTERS :-V.RAJARAMAN
4. 4.COMPUTERS FUNDAMENTAL AND INFORMATION TECHNOLOGY:-RAMESH BANGIA

Dr. C.V. RAMAN UNIVERSITY
Institute of Open and Distance Education (IODE)
Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- First Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY	Theo. Max. M: 70 Min. M: 25
COURSE: - Windows & MS Office	Assig. Maxim: 30 Min. M: 11
COURSE CODE: 1MSCIT2, CREDIT:-3	practical Max. M: 50 Min. M: 18

UNIT-I

Know the Windows XP - Introduction, What is Windows XP ?, Evolution of Windows Operating System, Features of Windows XP, What's New in Windows XP, Windows and Its Elements.

Accessories And Other Tools - Introduction, The Calculator , Using THE Calculator, The Character Map, Using Outlook Express, The Address Book, The Paint, The Notepad, The WordPad, The NetMeeting, The Internet Explorer, The Windows Media Player, The MS-DOS , The Control Panel , The Windows Picture and Fax Viewer, The HyperTerminal, The Windows Messenger, Using Windows Movie Maker.

Managing Files and Folders - Introduction, Viewing files and folders, Arranging files and folders, Creating a new folder, Creating a file using short-cut.

Customizing Your Computer - Introduction, customizing Your Desktop, Changing the Start menu style, Setting a screen saver, Reversing your mouse buttons, Changing the appearance of your mouse pointer, Adding a new font to your computer, Logging off from the computer, Adding or Removing Programs, Hiding and displaying quick launch bar.

Microsoft Office XP Suite With Other Office Suites - Introduction, Different office suites, Microsoft Office XP Suite, What's Special About Office XP, Voice Dictation and Voice Commands, Smart Tags , The Office Task Panes , The Ask a Question Box, Document Recovery, Product Activation.

Common Elements Of The Suite - Introduction, Different Integrated Items in Office Suite, Menu Bars and Toolbars, Shared Tools, Objects, Linking, Embedding, Office Assistant and Online Help.

Office Task Panes - Introduction, The Task Pane, Displaying And Hiding a Task Pane, Types of Task pane, Additional Task Panes, Insert ClipArt Task Pane, Styles and Formatting Task Pane, Mail Merge Task Pane, Exercise.

UNIT-II

Word Processing and MS-Word - Introduction, Features of Word Processor, MS-WORD—a powerful word processor, Starting MS-Word, Chief Elements Of MS-Word Window, Displaying and Hiding the Toolbar, File operations in MS-WORD, Using Help Online, Customizing Office

Assistant.

Text Formatting - Introduction, Typing the text, Selecting Text with a mouse, Deleting Text, Restoring the deleted text, Typing over the existing text, Undoing/Cancelling the last action, Redoing/Repeating the last action, Formatting font, Advanced text formatting, Customizing Spelling Check, Using the thesaurus.

Document Formatting - Introduction , Using page border, Bullets and numbering, Setting and removing tab stops, Making word count, Using Autotext, Using autocorrect, Headers and Footers, Setting up columns in the document, Removing columns from the document, Inserting page numbering, Formatting the page numbering, manual and automatic page breaks, Setting margins, Inserting date and time, Using Goto, Cursor movement with key-board.

Tables And Graphics - Introduction, creating tables, calculating numeric data in a table , Deleting columns and rows, Formatting a table, Aligning text in the table, Formatting text in the table, Applying borders and shadings, Add a border to a table, Automatically format a table , Using Drawing, Creating a Shape, Using Word Art, Using Autoshapes, Insert a clip from the Clip Organizer, Inserting a text box, What is Drawing Canvas?, Using autoshapes.

Mail Merge, Views, Template and Wizard - Introduction, Mail merge , Views, Overview of templates, Creating a document template, Create a Web page based on a template, Modify a document template, RULER, ZOOM, PROTECTING YOUR DOCUMENT, INSERTING A FILE INTO ANOTHER , overview of wizard , Inserting Hyperlinks to a Web Page or a Word Document , EXERCISE.

UNIT-III

Spreadsheet and MS -Excel-Introduction , Starting MS-Excel , Spreadsheet and its Elements , Application Window , Document Window, Cell , Standard Toolbar, Formatting Toolbar, Workbook , Worksheet, Handling Files.

Worksheet Formatting - Introduction, Entering Text Data, Entering Formula , Editing the Cell Content, Formatting the Cell , Formatting Font, Setting Border Around Cell, Highlighting gridlines, Using Format Painter, Finding and Replacing the Text, Using Spelling and Grammar.

Function and Operator- Introduction, Entering Functions , Editing Functions, Using Mathematical Functions, Using Statistical Functions, Using Date & Time Functions, Changing the default date format , Text Function, Logical Functions, Financial Function, Operators, AutoSum, Function Wizard.

Chart and Web Object - Introduction, Types of Charts, Creating a Quick Chart Sheet , Parts of a Chart, Types of Charts, Creating A Chart using wizard, Using Pivot Table , Object Linking and Embedding (OLE), Linking Cells, Linking Formula, Hyper Links, Previewing charts, printing charts, Exercise.

UNIT-IV

Presentation Package And MS-PowerPoint , Introduction, Chief Elements of Presentation, Starting Powerpoint, Creating A Presentation, Creating A Presentation with Auto Content Wizard, Create a presentation using a design template, Creating a blank presentation, Powerpoint window and its Elements, Using Help Online, Customizing Office Assistant .

Text Formatting in Slides - Introduction , Adding text to slides, Editing text on a slide, Using Format Painter, Setting Paragraph Indents, Line Spacing in a Paragraph, Setting and Removing Tab Stops , Checking Spelling of the text , Finding and replacing the text, Moving slides.

Table, Chart and other Drawing Objects- Introduction, Creating a table, Creating an

embedded Word table, Adding Columns and Rows, Deleting Columns and Rows, Changing Table Borders, Using Autoshapes, Chart, Inserting a clip to your slide, Using Word Art, Inserting A Word Art, Working With Drawing Toolbar, Creating A Shape.

Slides, Views, Notes, Handouts - Introduction, PowerPoint Views, Notes Pages, Using Handouts, Inserting Header and Footer in the, Slide , Transition , Custom Show, Assigning Custom Animation, Adding a motion path, Animating a chart, Publish a presentation or HTML file , to the Web, Preview a presentation as a Web page, Showing Slides , Printing Slides.

UNIT-V

Outlook Express - introduction, WHAT IS outlook express?, Features of Outlook Express, starting outlook express, Concepts of CC and BCC, Email address, Reading a received message , composing message, Replying And Forwarding Messages, attaching files, Creating signatute in outlook express, Formatting message text, What is mime?, applying stationery, Inserting a hyperlink or HTML page into a message, Flagging an e-mail or news message, Importing messages from other e-mail programs, What are newsgroups?, Adding a newsgroup account, Switching between e-mail and news reading, Identities (Multiple Users on A Single Computer), Adding a new identity, Managing contacts with outlook, creating addresses, Importing an address book from another program, Using keyboard shortcuts in Outlook Express ,

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. ILLUMINATING MS-OFFICE XP-A.MANSOOR
2. MS-OFFICE XP FOR EVERY ONE-SANJAY SAXENA

LAB WORK:-

SR. NO	TOPICS
1	EXPLORING MS-WORD BASIC TOOLS AND FEATURE
2	FAMILIEAR WITH MS-WORD DIFFERENT COMMAND AND STYLE
3	PRACTICE MS-EXCEL DIFFERENT COMMAND AND FEATURES

List of Practical's

1. Creating, opening, closing, saving, editing and defining header and footer in a word Document.

2. Perform fonts, page formatting, and color and bullet operation in a word document.

3. Use of word art, spell check, cut, copy, paste and save as command.

4. Creation of a link between two files using Hyperlink.

5. E- mail-merge and providing protection of a document.

6. Creation of a letter/Application in different subjects.

7. Creation of records in excels for students marks of five subjects and calculation of their average percentage using formulas.

8. Creation of a mark sheet in excels and calculation of percentage marks of 10 students using function and formulas.

9. Operation of data sorting in a worksheet.

10. Use of mathematical functions, date function and time function.

11. Define trig function with an operation on excel sheet.

12. Creation of new slide and duplicate slide in power point.

13. Steps of presentation and creation of presentation for the seminar in a topic.

14. Use of animation audio and clipart in power point presentation.

15. Changing backgrounds and adding slides in a present.

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Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- First Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY   Theo. Max. M: 70 Min. M: 25

COURSE:-PROGRAMMING METHODOLOGY & PROGRAMMING IN C Assig. Max.M: 30 Min. M: 11

COURSE CODE: 1MSCIT3, CREDIT:-3   Practical Max.M:50 Min. M: 18

UNIT-I

Principles of Programming, Introduction to Programming, Program Concept, Characteristics of Programming, Stages in Program Development, Tips for Program Designing, Programming Aids, Algorithms, Notations, Design, Flowcharts, Symbols, Rules

Programming Techniques and Logic, Introduction, Introduction to programming techniques, Top-down approach or technique, Bottom -up approach or technique, Unstructured technique of programming, Structured technique of programming, Modular technique of programming, Comparative study of programming techniques, Cohesion , Coupling, Debugging , Syntax Errors, Logical Errors, Data Entry Errors, Linker Errors, Runtime Errors, Program Testing

Turbo C IDE, Turbo C IDE (Integrated Development Environment), Main Menu Bar, File Options, Edit option, Run option, Compile option, Project option, Options option, Debug option, Break/watch option, Edit Window, Message Window, Status bar, Editing, Compiling and Running a C Program, Features of C language, C language standards, Standardization , Successors of C language

Introduction to 'C', Introduction, Structure of a C program, 'C' Tokens, Keywords, Identifiers, 'C' Constants, Variables in C, Data Types, Derived Data Types : , Operators, Precedence and Associativity of operators, Hierarchy of operators at a glance, Expression & its Evolution, Type conversion in expressions , (Implicit and Explicit type conversion)

UNIT-II

Decision Making and Branching, Introduction, Sequential statements, Unformatted I/O functions, Formatted input using scanf() function, Formatted output using print(), Branching statements, The if-else statement, The nested if-statement, The switch statement, Additional programs

Looping Statements, Introduction, for-statement, while-statement, do-while statement, Difference between while-loop and do-while loop, Nested loops, Jumps in loops, Programming examples

UNIT-III

Arrays, Introduction, Single-dimensional arrays, Reading and writing single dimensional arrays, Examples of Complex Programs, Searching, Sorting, Two-dimensional arrays (Multi-

dimensional arrays), Reading-writing two-dimensional arrays, Manipulation in two-dimensional arrays, Programming Examples

Strings, Concepts of string, Strings in C language, String variable, Initializing strings, String input/output functions, Arrays of strings, String handling functions, Memory formatting

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UNIT-IV

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User Defined Functions, Introduction, Elements of user-defined functions, Categories of functions, Passing parameters to functions, Programming Examples, Arrays in functions, Nesting of Functions, Recursion, Command Line Arguments , Storage Classes

Structure and Union, Introduction to structures, Structure and its definition, Structure declaration, Tagged Structure, Structure variables, Type-Defined Structure, Structure initialization, Accessing structures, Nested structures, Array of structures, Structures and functions, Sending individual members, Sending the whole structure, Passing structures through pointers, Uses of structures, Union and its definition

Debugging, Common Programming Errors, Program Testing and Debugging, Types of Errors, Debugging C program

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UNIT-V

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Pointers, Introduction, Pointer concepts, Pointer variable, Accessing variables through pointers, Pointer declaration and Definition, Initializing a pointer variable, Pointers to Pointers, Compatibility, Pointer applications, Pointers and other operators, Memory allocation functions, Memory map of C program, Memory management functions

File Handling, Introduction to file handling, File system basics, Standard streams in C, File structure, FILE pointer, Opening and closing a file, File handling functions, File types, Text and Binary, Input / Output operations on file, Reading a character using getc(), Writing a character using putc(), Using feof(), Working with string using fputs() and fgets(), Using fprintf() and fscanf(), Using fread() and fwrite(), Direct Access file, fseek()

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:
1. Let us C, Yashwant kanetkar, BPB Publication
2. ANSI C, E Balagurusamy, MC. Graw Hill
3. Ashok N. Kamthane, Programming with ANSI and Turbo C, Pearson Education
4. The Spirit of "C"- Henrry Mulish, Herbert L. Cooper.

LAB WORK:-

SR. NO	TOPICS
1	UNDERSTANDING THE C WINDOWS AND ITS TOOLS
2	FAMILIEAR WITH THE DATA TYPES & DECISION MAKING CONCEPT
3	RUN BASIC PROGRAM ACCORDING TO THE SYLLABUS

List of Practical's

1. Introduction to flow chart and algorithm.

2. Flow chart to find larger between three numbers.

3. An algorithm to find the smallest among three numbers.

4. Write a program to perform addition of any given number.

5. Write a program to calculate the given number is Armstrong or not.

6. Write a program to print Fibonacci series from 01to 100.

7. Write a program to calculate the multiplication table for given number.

8. Write a program for calculating the area of triangle.

9. Write a program to calculate factorial of given no.

10. Write a program to explain Recursion.

11. Write a program to print this pattern:

```
**********
*********
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12. Write a program to store and print the student record by using file handling.

13. Write a file handling program which shows the various operations on files

Dr. C.V. RAMAN UNIVERSITY
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SEMESTER- First Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25
COURSE: - COMPUTER NETWORK & INTERNET   Assig. Max. M: 30 Min. M: 11
COURSE CODE: 1MSCIT4, CREDIT:-3

UNIT-I

Introduction To Internet- introduction, what is internet actually ?, growth of internet , owner of the internet, internet service provider, anatomy of internet, Arpanet and internet history of the world wide web, services available on internet wais , basic internet terminologies, net etiquette, applications, commerce on the internet, governance on/through the internet, impact of internet on society

TCP/IP - Internet Technology And Protocols-introduction, switching technology , internet protocols, overview of TCP/IP reference model, introduction to TCP/IP, routers, internet addressing scheme

Internet Connectivity - connectivity types, level one connectivity, level two connectivity, level three connectivity, hardware requirements, modems, narrow-band/phone-line dialup modems, software requirements, modem configuration:, telephone line options, making a dial-up connection, protocol options, service options, news services, desktop alerts

UNIT-II

Internet Network- computer networks, applications of networks, common terminologies :, interoperability, network security, the need for security, common threats, security barriers in network pathways, network components :, communication media, network devices, types of network : client / server & peers, addressing in internet, domain name system (DNS), domain name and their organization, network topology, internet vs. intranet

Services Of Internet (Definition And Functions) - introduction, file transfer protocol, ftp related terminologies, ftp servers and authentication, public and private software services, ftp clients, types of ftp client software, displaying files , remote login, chat programs, connecting to a server, search engines

Electronic Mail - introduction, what is an e -mail?, email networks and servers, merits of e-mail, limitations, e-mail protocols, structure of an e-mail, e-mail address, Microsoft internet explorer and outlook express, applying stationary, web based emails, working with yahoo, starting the mail program , creating signature in outlook express, creating signature in yahoo, email encryption, why email encryption?, digital certificate

UNIT-III

Current Trends On Internet - current trends of internet:, languages used on the internet, internet phones, internet video / internet tv, streaming video & audio, collaborative computing,

e-commerce, technical and organizational aspects

Web Publishing- overview, SGML (standard generalized markup language), what is the need of a website? , types of web sites, components of web publishing , domain name planning and registration, choosing a web host and signing up for an account, web hosting, web design and development, testing your website, promotion of the site, registering your site with a search engine, publishing tools, html editor, image editor, program to transfer your files to a web server, uploading web pages using CuteFTP

World Wide Web - introduction, evolution of the www, basic features, mechanism of the World Wide Web, search and meta-search engines, searching the web, using Boolean operators in your searches, using advanced, using a Metasearch engine, site specific search tools, web protocols, hyper text transfer protocol (http), web server
.

UNIT-IV

Browsers , introduction, www web browsers, Mozilla Firefox browser, the opera browser, google chrome, what are bookmarks?, adding folders, favorites, deleting favorite folders and pages, history, progress indicator, customizing internet explorer, turning off graphics to display all web pages faster, customizing the toolbar, copying, saving and printing in internet explorer, printing an image from a web page, printing a web page, cookies, what is cache setting ?, internet explorer, the standard toolbar, internet explorer keyboard shortcuts

Hyper Text Markup Language Programming Basics - introduction, html editors, elements of html, definition lists , compact attribute, nested list, type attribute, html links, using alt attribute, background graphics, html document tables, creating tables within tables, html frames, html rules, introduction of multimedia, meaning of multimedia, what is multimedia ?, identifying multimedia elements, audio on the web, video on the web

Introduction To Interactivity Tools- overview, what is ASP?, functions of asp, the basic syntax rule , writing output to a browser, adding some html to the text, declaring a variable in asp, declaring an array in asp, what is VBScript?, java, features of java, starting with java, Javascript and java, syntax and conventions, FrontPage, introduction to flash, installation of flash MX, creating simple animation for the web, working with layers in flash, masking in flashmx, bouncing effect in flash, to create motion tween , flash ripple effect

UNIT-V

Internet Security Management Concepts, Information Privacy And Copyright Issues - overview , basic security concepts, security events, measures for check threats, firewalls , monitoring tools, security analysis tools, cryptography , information privacy, copyrights and the internet, copyright legislation in India, key points of copyright, encryption & decryption - cryptography, terminology

Firewalls - firewalls, firewall design principles, firewall attributes, firewall strengths and weaknesses, types of firewalls, comparison of firewall types, DMZ DNS server, VLAN

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:
1. A.S. Tananbaum, "Computer Networks", Pearson Education, Delhi, Fourth edition, Year of Publication: 2009
2. Behnouz A. Forouzan, "Data Communication and networking", 2nd Ed. Update, Tata McGraw Hills 2003

3. Black U, "Computer Networks-Protocols, Standards and Interfaces", PHI 1996
4. Comer E. Doughlas, "Computer Networks and Internets", 2nd Ed., Pearson, 2000
5. W. Stallings, "Data and Computer Communications", 7th Ed., Pearson, 2002.
6. Laura Chappell (Ed), "Introduction to Cisco Router Configuration", Techmedia, 99

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SEMESTER- First Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY	Theo. Max. M: 70 Min. M: 25
COURSE: - DIGITAL ELECTRONICS & LOGIC DESIGN	Assig. Max. M: 30 Min. M: 11
COURSE CODE: 1MSCIT5, CREDIT:-3	

UNIT-I

Digital Number System - Data Type, Number System, Decimal Number System, Binary Number System, Octal Number System, Hexadecimal Number System, Conversions, Decimal to Binary Number System, Decimal to Octal Number System, Decimal to Hexadecimal Number System, Binary-To-Decimal Conversion, Binary to Octal Number System, Binary to Hexadecimal Number System, Octal to Decimal Number System, Octal to Binary Number System, Octal to Hexadecimal Number System, Hexadecimal to Decimal Number System, Hexadecimal to Binary Number System, Hexadecimal to Octal Number System

Binary Arithmetic - Addition, Binary Number Addition, Octal Number Addition, Hexadecimal Number Addition, Subtraction, Binary Number Subtraction, Octal Number Subtraction, Hexadecimal Number Subtraction, Binary Multiplication, Binary Division, 1's Compliment, 2's Compliment, Subtraction Using 2's Compliment

Arithmetic Operations - Integer Data, 8 Bit Signed Binary Representation, 16 Bit Signed Binary Representation, Fixed Point Representation, Floating Point Representation**,** Binary Codes, Weighted Code (8421, 2421, 5211), Un Weighted Code, Excess 3 Code, Gray Code, Error Detection Code, Even Parity, Odd Parity, Error Detection and Correction Code, Alpha Numeric Code, EBCDIC

UNIT-II

Boolean Algebra - Introduction, Boolean Postulates : , Boolean Identities :, OR Gate Identity, AND Gate Identity, NOT Gate Identity, Boolean Laws, Commutative Law, Associative Law, Distributive Law, Duality, DeMorgan's Theorem

Logic Gates - Logic Gates, NOT Gate, AND Gate, OR Gate, NAND Gate, NOR Gate, Ex OR Gate, Ex NOR Gate, Universal Gate

Karnaugh Map - Introduction, Karnaugh Map, MIN and MAX Terms, MIN and MAX Terms from Truth Table, Product of Sum (POS) Equation, Simplification of Boolean Equation by K Map, Two Variable K Map, Three Variable K Map, Four Variable K Map, Don't Care Condition

UNIT-III

Combinational Circuits - Introduction, Arithmetic Circuits, Adders, Half Adder, Full Adder, Serial Adder, Parallel Adder, BCD Adder, Subtractors, Half Subtractor, Full Subtractor, Parity

Generator - Checker, Three Bit Parity Generator, Three Bit Parity Checker, Binary Comparators, Two Bit Comparator, Multiplexers, 4-to-1 Multiplexer, 16-to-1 Multiplexer, De-multiplexer, 1-to-4 De-multiplexer, 1-to-16 De-multiplexer, Encoder, Decimal to BCD Encoder, Octal to Binary Encoder, Decoder

Sequential Circuits - Introduction, Clock, FLIP FLOP, Latch, S-R Flip Flop, J-K Flip Flop, Master Slave J-K Flip Flop, Preset and Clear Inputs, T(Toggle) Flip Flop, D(Delay) Flip Flop, State Diagrams of Flip-Flops, State Diagram of SR Flip-Flop, State Diagram of JK Flip-Flop, State Diagram of T Flip-Flop, State Diagram of D Flip-Flop, 8.5 Excitation Table of Flip-Flops, Excitation Table of SR Flip—Flop, Excitation Table of JK Flip-Flop, Excitation Table of D-Flip-Flop, Excitation Table of T-Flip-Flop

UNIT-IV

Registers - Introduction, Bit Shift Register, Serial In Serial Out (SISO), Serial In Parallel Out (SIPO), Parallel In Serial Out (PISO), Parallel In Parallel Out (PIPO), 4 Bit Left Shift Register, 4 Bit Right Shift Register, Universal Shift Register, Applications of Registers, Ring Counter, Self Correcting Ring Counter, Johnson or Twisted Ring Counter

Counters - Introduction, 2-Bit Asynchronous Up Counter, 4-Bit Asynchronous Up Counter, 4-Bit Asynchronous Down Counter, Asynchronous Binary Up/Down Counter, Asynchrenous Counter Design, 2-Bit Synchronous Counter, 3-Bit Synchronous Counter, 3-Bit Synchronous Down Counter, 3-Bit Synchronous Up/Down Counter, Design of Modulus N Synchronous Counters, Skipping State Counter, State Reduction and State Assignment, Comparison Between Asynchronous Vs Synchronous Counters

UNIT-V

Register Transfer Level (RTL) - Introduction, Micro-operations, Transfer Micro-operations, Arithmetic Micro-operations, Logic Micro-operations , Shift Micro-operations, Instruction Code and Code Format, Design of a Simple Computer, Components Of Digital Computer, Designing a Simple Computer, Steps to Design a Computer,

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Digital Computer & logic Dssign, M. Morris Mano, Pearson Publication
2. Fundamentals of Digital Circuit, A.Anand Kumar, PHI

SECOND SEMESTER

Dr. C.V. RAMAN UNIVERSITY
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Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- Second Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25

COURSE: - OBJECT ORIENTED PROGRAMMING WITH C++   Assig. Max. M: 30 Min. M: 11

COURSE CODE: 2MSCIT1, CREDIT:-3   Practical Max. M: 50 Min. M: 18

UNIT-I

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

C++ Environment, Program development environment, The language and the C++ language standards, Introduction to various C++ compilers, The C++ standard library, Prototype of main() function, i/o operator, manipulator, comments, data types

Creating and Compiling C++ Programs - TURBO C++ IDE, Creating, compiling and running a C++ program using ide and through command line, Elements of C++ Language, Structure of a C++ program, C++ tokens, Type conversion in expressions

Decision Making and Branching - Introduction, Sequential 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, Two-dimensional 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, Friend classes, Inline function, Scope resolution operator, Static class members, Static data members, Static member functions, Passing object to functions, Returning objects, Object assignment

UNIT-III

Array, Pointers, References and the Dynamic Allocation Operators - Array of objects, Pointer to object, Type checking in C++, The 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

<div align="center">**UNIT-IV**</div>

Function and Operator Overloading - Function overloading, Overloading Constructor Function, Finding the address of an overloaded function, Operator Overloading, Creating a Member Operator Function, 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 some special operators, Overloading [ ] (Subscripting) operator, Overloading() (Function Call) operator, Overloading Binary Arithmetic operators, Concatenating String, Overloading Comma (,) operator, Overloading the I/O operators

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, Granting Access, Virtual Base Classes

<div align="center">**UNIT-V**</div>

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, Clearing Format Flags, An Overloaded form of setf( ), Examining the Formatted Flags, Using width( ), Using precision( ), Using fill( ), Using Manipulators to format I/O, Creating your own Manipulators,

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:
1. Object Oriented Programming with C++, E Balagurusamy, McGraw hill
2. Insight Into OOPS & C++, Rajeshwar Shukla, Pragya
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++, Pearson Education, 2006
4. Robert Lafore, "Object Oriented Programming with C++", Galgotia.

LAB WORK:-

SR. NO	TOPICS
1	UNDERSTANDING THE OOPS CONCEPT
2	FAMILIEAR WITH THE C++ WINDOWS AND TOOLS
3	RUN BASIC PROGRAM ACCORDING TO THE SYLLABUS

List of Practical's
1. Write a program to calculate the given number is Armstrong or not.

2. Write a program to print Fibonacci series from 1to 100.

3. Write a program to calculate area of rectangle and triangle.

4. Write a program for calculating the area of any shape by function overloading.

<div align="center">26</div>

5. Write a program to create and use a class for employee.

6. Write a program to demonstrate the use of parameterized constructor.

7. Write a program to demonstrate the working of multiple Inheritances.

8. Write a program to demonstrate the use of friend function.

9. Write a program for binary operator overloading.

10. Write a program to demonstrate the working of hybrid Inheritance.

11. Write a program to access employee record from their object.

12. Write a program to print this pattern:

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13. Write a program to store and print the student record by using file handling.

14. Write a program to demonstrate the virtual function.

15. Write a file handling program which shows the working of seek ()and ftell() method

Dr. C.V. RAMAN UNIVERSITY

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Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- Second Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25
COURSE:- DBMS &SQL(WITH MS ACCESS/MS SQL Server)   Assig. Max. M: 30 Min. M: 11
COURSE CODE : 2MSCIT2, CREDIT:-3   Practical Max. M: 50 Min. M: 18

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, Execution of SQL*PLUS, Important commands used in 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, A Few Other SQL Statements

UNIT-III

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, 'Not Null' Constraint, Default Value Concept, 'User Constraints' Table
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

UNIT-IV

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
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

READINGS: SELF LEARNING MATERIAL

ADDITIONAL READINGS:

1. Author: Silberschatz–Korth–Sudarshan: Database System Concepts, Fourth Edition, Title: Database System Concepts, Publishers: Tata McGraw Hill.
2. Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi.
3. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.
4. Martin Gruber, Understanding SQL, BPB Publication, New Delhi.
5. Val Occardi, Relational Database: Theory & Practice, BPB Publication, New Delhi.
6. Ivan Bayross, SQL, PL/SQL The Programming Language of Oracle, BPB Publication.

LABORATORY WORK:

Sr. No	Topics
1.	INSTALLING AND LOGIN INTO SQL
2.	IMPLEMENTING THE CONCEPT OF DBMS THROUGH SQL
3.	UNDERSTANDING THE BASIC CONCEPT OF PL/SQL

List of Practical's

1. Define Data Definition Language Commands.
2. Define Data Manipulation Language Commands.

3. Explain various Set operators.

4. Define Procedure and Functions.

5. Explain the use of trigger command.

6. Explain Front End Tools in DBMS?

7. How can you design Menu in a form?

8. Define Control Structure in DBMS.

9. Write the SQL query for creating, updating and selecting student table.

10. Write the SQL query for inner join and outer join.

11. Write a program for adding two numbers.

12. Write the SQL query for intersect clause and minus clause.

13. Write a program in PLSQL to calculate commission of employee by using function according
    to following condition:
    a- if salary<10000 then commission=10%
    b-if salary>=1000 then commission=20%

14. Write a program in PLSQL to increase the salary of employee by using procedure.

15. In PLSQL, I want to declare a cursor within cursor. The second cursor should use a value
    from the first cursor in the "where clause" How can I do this

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SEMESTER- **Second Semester**

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25

COURSE: - COMPUTERIZED ACCOUNTING WITH TALLY   Assig. Max. M: 30 Min. M: 11

COURSE CODE: 2MSCIT3, CREDIT:-3   Practical Max. M: 50 Min. M: 18

UNIT-I

Accounting, Meaning Of Accounting, Objectives Of Accounting, Important Terms, Accounting Equation, Rules Of Debit And Credit- Journal & Ledger, Journal, Ledger, Cash Book, Subsidiary Books, Financial Statement, Trading & P&L A/C, Balance-sheet, Inventory, Adjustment Entries, Bill Of Exchange

Installing Tally 9, Introduction, Tally 9.0 (Release 1.0), Major Enhancements In Tally 9, Minor Enhancements In Tally 9, Multilingual Business Accounting And Inventory Management Features, Performance And Implementation Features, Accounting And Inventory Control Features, Installing Tally 9.0, Application Directory, Data Directory, Configuration Directory, Language Directory, Activating Tally, Activating Tally Gold For Multi User, Registering Tally, Validating Tally, Tally Data Migration Tool, Uninstalling Tally 9

UNIT-II

ABC of Company, Creation Of New Company Selection Of New Company Deletion Of Company Alteration Of Company Shut A Company

Company Features, Features Of Company Accounting Features Inventory Features, , Statutory Features

Tally Screen Components, Title Bar, Button Bar, Calculator, Working Are, Quitting, Gateway Of Tally, Current Status Area

Configuration, General, Numeric Symbols, Accts/Inventory Info, Printing, Connectivity, Licensing, Shop, Quit

Budget, Introduction, Budget, Creating Budget, Alter A Budget, Delete Budget, Display Budget/ Budget Variance, Scenarios

UNIT-III

Job Costing, Introduction, Enabling Or Configure Job Costing In Tally, Master Creation For Job Costing, Voucher Type And Voucher Class, Job Cost Reports

Reports, Introduction Accounting Reports, Trial Balance, Balance Sheet, Profit & Loss, Cash Flow Statement, Fund Flow Statement, Ratio Analysis, Day Book, Cash/Bank Book Sales Register Purchase Register Outstanding Interest Cost Centers Job Work Analysis Statistics Inventory Reports Accounts Groups & Ledgers, Introduction Accounts Group Multiple Group Creation Display Group Alter Group Multiple Ledgers Display Ledger Alter Ledger Voucher Types Payroll Accounting, Introduction, To Activate Payroll In Tally 9, Payroll Menu, Diaplay

Pay Heads, Multiple Group Creation, Employee Creation, Salary Detail, Attendance, Attendance Type, Voucher Creation Export & Import, Introduction, Export, Import, ODBC Complianies

UNIT-IV

Cost Centre, Introduction Cost Centre, Creating Cost Centre, Display Cost Centre, Alter Cost Centre Cost Category, Create Cost Categories, , Display Cost Categories, Alter Cost Categories Voucher Entry Cost Centre Class, Creating Cost Centre, Invoice Entry Using Cost Centre Reports Related To Cost Centre

Foreign Currencies, Introduction Foreign Currency, Create Foreign Currency, Alter Foreign Currency, Display Foreign Currency, Exchange Rate Entry Voucher Entry Using Foreign Currency Voucher Entry through Forex Journal Voucher Class Reports Related To Foreign Currency

Interest, Introduction, Interest, Simple Mode, Interest On Outstanding Balances, Reports On Interest Calculated On Outstanding Balances, Advanced Parameter Mode, Interest Calculation Transaction By Transaction/Voucher Interest At Fixt Rate, Voucher Interest At Variable Rate, Statement Of Interest Due On Invoice, Interest Reports, Interest Voucher Class

UNIT-V

Printing, Introduction Cheque Printing Printing Of Cheque Multi Account Printing Printing Options General, Purchase Printing, Sales Transaction, Receipt Voucher, Journal/Contra, Debit/Credit Note, Reminder Letter, Confirmation Statement Reports Printing Button Related

Bank Reconciliation, Introduction, Bank Reconciliation In Tally 9, Configuration Of Bank Reconciliation

Security Control, Introduction Security Levels Access Type

Backup & Restore, introduction, Group Company, Create a Group Company, Alter a Group Company, Tally Audit, Splitting Company Data

Inventory, Introduction Stock Group Stock Item Stock Categories Godowns Units Of Measures Rate Of Duty Inventory Vouchers Reorder Level Inventory Reports Inventory Info Inventory Books Statement Of Inventory Batch Wise Details Price List

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:
1. Financial accounting with tally, Dr mukti jain, Prgya publication

LABORATORY WORK:

Sr. No	Topics
1.	UNDERSTANDING THE BASIC CONCEPT OF ACCOUNTANCY
2.	LOGIN AND FAMILEAR WITH TALLY ERP
3.	IMPLEMENING THE BASIC ENTRY AND CONCEPT ACCORDING TO THE SYLLABUS

List of Practical's

1. Write the steps for creating, altering, displaying and deleting a new company.

2. Write the steps for creating, altering, displaying and deleting a budget.

3. Explain all the screen component of tally.

4. Write the steps for creating, altering, displaying and deleting a ledger book.

5. Post any 10 entries in the ledger book of any company.

6. What does u mean by pay roll accounting?

7. Explain the entire sub menu's of pay roll accounting.

8. Write the steps of creating a cost centre.

9. Write the steps for creating, altering, displaying and deleting cost centre.

10. Explain financial statement, trading account and profit/loss.

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Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- **Second Semester**

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25

COURSE: - PROGRAMMING WITH VISUAL BASIC .NET   Assig. Max.: 30 Min. M: 11

COURSE CODE: 2MSCIT4, CREDIT:-3   Practical Max. M: 50 Min. M: 18

UNIT-I

Introduction to .NET - Introduction, What is a Program?, What is Programming?, What do you mean by .NET Framework?, Features of .NET Framework, VB 6 VS VB.NET, VB.NET VS JAVA, VB.NET VS C#, What is .NET Architecture?, What is CLR?, What do you mean by Class Library?, Versions of .NET Framework, What are Assemblies?, Namespaces, CTS (Common Type System), Interfaces, What is special in VB.NET?

Visual Studio 2005 - Introduction, What is Visual Studio?, Flavors of Visual Studio, Visual Studio 2005, File Extensions Used in VB.Net, Using Visual Studio 2005, Feature of Visual Studio 2005, Output Window, Components Tray, References and the Reference Window, Quick View of Visual Studio 2005, Opening an existing project, Adding a Form to a Project

UNIT-II

The Visual Basic Language - Visual Basic Statements, Data Types in VB.NET, Declaring Variables, Declaration of Variables (Advanced), Data Type Conversion, String Functions, Formatting Data, Arithmetic Operators, Parentheses and Precedence, Operator Operation, Constants, Control Statements, Arrays in VB.NET, Specifying Optional Procedure Arguments, Passing a Variable Number of Arguments, Recursion, Using a Delegate

Working With The Controls - The Toolbox, Adding and deleting Tools in the Toolbox, creating a tab on the toolbox, Form Designer Basics, The Button, The ComboBox , The ListBox, The Checkbox, The PictureBox, The RadioButtons, The Scroll Bar, Timer, ListView, TreeView, Toolbar, Dialog Boxes, Menus in VB.NET, LinkLabel Control

Designing Menus - Menus, Context menu, Event of the MenuItem, Creating menu items in Visual Studio .Net

UNIT-III

Object Oriented Programming with VB.NET - OOPs?, What is an Object?, What are Classes?, Visual Basic .NET and Object- Oriented, Principles of Object-Oriented Programming, Classes V/s Objects, Inheritance, Polymorphism and Overloading, Scope and Accessibility in Class Modules, Namespaces, Managed Execution, Assemblies, Assemblies in VB .NET

UNIT-IV

The .NET Framework Class Library - The .NET Framework Class Library, The System Namespace, Data Type Conversion Using Convert Class, The Array Class, The Math Class, The String Class, Other Namespaces, System.Collections, System.Data, System.IO

OLE/COM/Win32 API - Object Linking and Embedding, History of OLE/COM, Component Object Model (COM), COM interoperability in .NET, Win32 API in .NET, COM Interoperability in .NET, Installation and Registration of Assembly, Microsoft Office solutions with Visual

Studio .NET, Automation of Office from Visual Studio .NET, Creating and opening Microsoft Word document from VB.NET

User Controls in VB.NET - Introduction, The Control Class, The Control Class' Properties, The Control Class' Methods, Creating the Control Project 1, The RoundButton Control, Creating the Control Project 2, Building the new Button

UNIT-V

A Brief Introduction to Database Access with VB .NET - Introduction, What is ADO?, What is ADO.NET?, The Connection Object, Connecting to a Database, The Command Object, The DataAdapter Object, The DataReader Object, The DataSet Object, Updating Your Database by Using DataSets, The AcceptChanges () Method, The RejectChanges () Method, The HasChanges () Method, The GetChanges () Method, Working with DataSets in Visual Studio, Moving Around in DataSet and Retrieving Data, Using Strongly Typed DataSets, DataSets With Multiple Tables, Finding and Sorting Data in DataSets, Filtering on Row State and Version, Data View Manager

Graphics In VB.NET - Introduction, Service of GDI+, Using GDI+ Manged Classes, BRUSH Class, Bitmap Class, Graphics Class, Simple Drawing, Drawing Text, An Example: Show All Fonts, Printing, Printing Multiple Pages, More on the PrintPageEventArgs Class, Using a Print Dialog Control, Rolling Your Own Printing Code, Print Preview

LABWORK:-

SR. NO	TOPICS
1	UNDERSTANDING THE .NET FRAMEWORK
2	RUN BASIC PROGRAM ACCORDING TO THE SYLLABUS
3	UNDERSTANDING DATA BASE CONECTIVITY IN .NET FRAMEWORK

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. V.B. Net Programming, Hemant Bairagee, Kamal Prakashan
2. Visual Basic .Net Simplified, A.Mansoor, Pragya

List of Practical's

1. Write a console application and explain Data Type Conversion.
2. Write a console application to display month according to the given input.
3. Write a console application to print following pattern
4. Write a console application for calculating the simple interest.

5.   Write a console application and explain any 5 String functions.
6.   Write a windows application for pizza center.
7.   Write a windows application for treeview.
8.   Write a windows application to create any two dialog boxes.
9.   Write a console application for function overloading.
10. Write a console application and explain the Math class.
11. Write a console applicaton to explain inheritance.
12. Write a console applicaton to explain how a namespace is created and imported.
13. Write a windows application and explain how to create and use user control.
14. Write a windows application to connect database with ole.
15. Write a windows applicaton to insert update and delete records in the database

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SEMESTER- Second Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25

COURSE: - DATA STRUCTURE WITH C++   Assig. Max. M: 30 Min. M: 11

COURSE CODE: 2MSCIT5, CREDIT:-3   Practical Max. M: 50 Min. M: 18

UNIT-I

Analysis of Algorithm-Introduction, Criteria of Algorithm, Time Complexity, Space Complexity, Asymptotic Notation :, Big Oh (O) Notation :, Big Omega (Ù) Notation :, Big Theta (È) Notation

Types of Data structures- Introduction, Types of Data structures, Linear Data Structures, Non Linear Data Structure, Array, SPARSE MATRICES, Garbage Collection, Benefits, Disadvantages

UNIT-II

Stacks-Introduction, Push operation, Pop operation, Stack implementation using arrays, (static implementation of stacks), STACK as a Linked List, Stack as an abstract data structure, Applications of stack, Conversion of Expressions, Precedence and associativity of the operators, Evaluation of Postfix expression, Multiple stacks,

Recursion-Introduction, Working of recursion, Fibonacci series, Tower of Hanoi, Efficiency of recursion

UNIT-III

Queue-Introduction, Different types of queues, Queue (Linear queue), Queue as an abstract data structure, Circular queue, Double ended queue (Dequeue), Priority queue, QUEUE as a Linked List, Applications of Queue

Linked Lists -Concept of list and array , Introduction to Data Structures, Arrays, Linked list, Singly or Linear linked list, Circular singly linked list, Doubly linked lists, Header Node, Applications of linked lists, Addition of two long positive numbers, Evaluation of a polynomial

UNIT-IV

Trees-Introduction, Representation of tree, Binary Tree , Representation of binary tree, Array representation of binary tree, Linked List representation of binary tree, Basic Operation on Binary Tree- Traversals, Binary Tree Traversal Algorithms (Recursive), Creation of Binary Search Tree:, Types of binary trees, Operations on Binary Search Tree (BST), Threaded binary trees, Application of Binary Tree:, B-Tree, Height Balanced Tree ,

Graph- Introduction to Graphs, Undirected Graph, Directed Graph or digraph, Graph Representation, Adjacency Matrix Representation, Adjacency List Representation, Graph Traversals, Breadth First Traversal, Depth First Traversal , Searching in Graph, Minimal Spanning Tree, Kruskal's Algorithm, Prim's Algorithm , Shortest Path in Graph,

UNIT-V

Sorting and Searching - Introduction, Bubble sort, Selection Sort, Merge Sort, Quick sort, Insertion Sort, Shell sort, Address calculation sort, Radix sort, Comparison of sorting methods, Hash Table, Collision Resolution Techniques, Linear Search (Sequential Search), Binary Search, Searching an ordered table, Indexed sequential search, Interpolation search

File Structure And Indexing- Introduction, Objectives, Terminology, File Organisation, Sequential Files, Disadvantages, Direct File Organisation, Indexed Sequential File Organisation

LABWORK:-

SR. NO	TOPICS
1	UNDERSTANDING THE BASIC ALOGRITHM AND CONCEPT
2	IMPLEMENTING DATA STRUCTURES ACCORDING TO THE SYLLABUS
3	IMPLEMENTING PROGRAM IN C++ RELATED TO DATA STRUCTURE IN THE SYLLABUS

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Tenenbaum, Augenstein, & Langsam, Data Structures using C and C++, Prentice Hall of India, New Delhi.
2. Adam Drozdek, Data Structure & Algorithms in C++. Thomson.
3. Data Structure Using C & C++, Agrawal & Birthare, Kamal Prakhasn

List of Practical's

1. To insert an element item at Kth position of Array.
2. To insert an element Item in Sorted Array.
3. To implement the operation of Push, Pop and to know the status of stack.
4. An algorithm to check the status of stack.
5. To find factorial of a number using Recursion.
6. To find multiplication of two number using Recursion.
7. To implement the operation of insertion and deletion on Queue.
8. A menu driven program to implement the operation of addition, deletion, searching, traversing, reversion, sorting,
9. Implementation of stack using linked list.
10. Implementation of Queue using linked list.
11. To create binary search tree, traverse it and find number of leaves and total nodes in the Tree.

12. To arrange the list of number in a Sorted order using Bubble sort.

13. To arrange the list of number in the Sorted order using Quick sort.

14. To check all the element of list is in sorted order or not.

15. To search an item position in sorted list (Binary search).

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SEMESTER- Second Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

COURSE: - MINOR PROJECT   **Assig. Max. M: 30 Min. M: 11**

COURSE CODE: 2MSCIT6, CREDIT:-3   **Practical Max. M: 70 Min. M: 25**

A two-three weeks project topic will be assigned to each of the student individually on the related topics studied in the First Semester on which student shall prepare a project report and submit to the University. Detailed Guidelines related to the Minor project can be obtained in the contact-class or can be downloaded from the website.

THIRD SEMESTER

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SEMESTER- Third Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

COURSE: - OPERATING SYSTEM	Theo. Max. M: 70 Min. M: 25
COURSE CODE: 3MSCIT1, CREDIT:-3	Assig. Max. M: 30 Min. M: 11

UNIT-I

Operating Systems: Overview -Introduction of Operating System, Types of Operating System, System Components and it's services, System Calls, System Programs, Structure, Design and , Implementation, Operating System Generation

Process : Concept, Description and Control -Concept of process, Process state model, Process description - PCB, Process control, Threads, Threads in Linux

UNIT-II

Process Scheduling - Types of Scheduler, Scheduling Criteria, Uniprocessor, Scheduling, Multiprocessor Scheduling, Algorithm Evaluation, Process Scheduling in Linux

Concurrency - Introduction to concurrency, Critical section problem, Mutual Exclusion solutions, S/w approach, H/w support, semaphore, monitor, Classical problem of synchronization

Deadlock - Deadlock Characterization, Deadlock Prevention, Deadlock Detection, Deadlock Avoidance, Combined Approach

UNIT-III

Protection - Goal of Protection, Protection Domains, Access Matrix, Implementation of Access Matrix, Revocation of Access Rights, Language Based Protection

Security and Encryption - Security Problem, User Authentication, Program Threats, System Threats, Securing System and Facilities, Encryption & Decryption – Cryptography

UNIT-IV

Memory Management -Memory Management Requirements, Address Space, Linking and Loading, Swapping, Partitioning, Paging, Segmentation

Virtual Memory - Introduction to Virtual Memory, Demand Paging, Page Replacement, Thrashing, Demand Segmentation

UNIT-V

Input Output Systems - Input - Output Devices, Hardware Support for I/o, I/O Communication Techniques, I/O Software Device Drivers, Performance Consideration,

Disk Structure - Introduction to Disks, Disk Scheduling, Disk Management, Disk Reliability, Swap Space Management, Stable Storage Implementation

File Management - File Concepts, Directory structure, File Sharing, Protection, File system in Linux

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Operating System principles, Abraham Silberschatz, Wiley Indian edition
2. Overview of operating system, Dr. Pankaj chaturvedi, Deepak sahu, Ratnesh Jain, Pragya
3. Milankovic, Operating system, Tata Macgraw Hill, New Delhi.
4. A.S. Tanenbaum : Operating System : Design and Implementation, Prentice Hall of India.

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SEMESTER- **Third Semester**

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo.Max.M:70 Min.M: 25

COURSE:- JAVA PROGRAMMING   Assig. Max.M: 30 Min. M:11

COURSE CODE : 3MSCIT2, CREDIT:-3   Practical Max.M:50 Min.M:18

UNIT-I

OVERVIEW OF JAVA - Introduction, Programming paradigm, OOPS Concepts, Evolution of Java, Features of Java, C++ Vs Java, Java and Internet, Java and WWW, Java support systems, Java Environment

KEY FEATURES OF JAVA - Introduction, Java Program Structure, Simple Java Program, Tokens, Java Statements, Java Virtual Machine, Constants and Variables, Declaration of Variables, Scope of Variables, Data types, Symbolic Constants, Type Casting, Command line arguments

UNIT-II

OPERATORS - Operators, Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Increment and Decrement, Conditional Operators, Special Operators, Assignment Operators, Expression & its evaluation

CONTROL STATEMENTS - Introduction, Control Statements, Sequence Control Statement, Decision Control Statement, Case Control Statement, Iteration Control Statement, Jump in loops, Labelled Loops

ARRAYS AND STRINGS - Introduction, Array, Need of Array, Types of Array, One dimensional Array, Two- Dimensional Array, Multidimensional Array, Strings, Concatenation of Strings, Methods for String Comparison, Methods for searching Strings, Changing the case of characters, String Buffer

UNIT-III

CLASSES - Introduction, Defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class members, Call by value and call by reference, Recursion, Access Control, Constructors, Method overloading, Constructor Overloading, Garbage Collection, finalize( ) method, this keyword, Static Members, Nesting of Methods

INHERITANCE - Inheritance, Single Inheritance, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Using Super, Constructor -Order of Execution in Inheritance, Overriding methods, Final variables and methods, Final Classes, Abstract methods and Classes, Containership, Visibility Control

UNIT-IV

WRAPPER CLASSES AND VECTORS - Introduction, Wrapper Classes, Number Class, Byte class, Short class, Integer class, Long class, Converting Numbers to and from Strings, Float class, Double class, Character class, Boolean class, Vectors, Creating a vector

INTERFACE & PACKAGES - Introduction, Interfaces, Defining interface, Implementing interface, Accessing interface method, Accessing interface variable, Extending interfaces, Packages, System packages, Using system packages, User defined packages, Adding class to a package, Accessing and using package

UNIT-V

EXCEPTION HANDLING - Introduction, Exceptions, Using try & catch, Multiple catch clauses, Finally, Throw, Throws

MULTITHREADING - Introduction, The Main Thread, Creating Threads, Life cycle of Thread, Using Threads Methods, Thread Priorities, Stopping and Blocking a thread, Thread Exceptions, Using is Alive( ) and join( ), Synchronization

APPLETS - Introduction, Local & remote applets, Applet vs applications, Writing applets, Life cycle of an applet, Creating source code of applet, Creating an executable applet, Creating applet tag, Adding applet tag to html, Running the applet, Detailed form of applet tag, Passing parameters to applet, Aligning the display, Html tags, Getting input from user

INPUT-OUTPUT STREAMS AND FILE MANAGEMENT - Introduction, Stream, Stream Classes, Byte Stream Classes, Character Stream Classes, System Class, Reading Console Input, Writing Console Output, Using the File Class, Random Access File

GRAPHICS PROGRAMMING - Introduction, The Graphics Class, Drawing Lines and Rectangles, Using drawOval() and fillOval() method, Drawing arcs, Drawing Polygon, Line Graphs, Drawing Bar Charts

LABWORK

SR. NO	TOPICS
1	UNDERSTANDING THE JVM
2	IMPLEMENT THE BASIC CONCEPT IN COMMAND LINE ARGUMENT
3	FAMILEAR WITH BASIC CONCEPT OF JAVA ACCORDING TO SYLLABUS

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:
1. Programming in Java – 2nd Edition by C.Muthu, TMH Publication
2. Java How to Program by Deitel & Deitel - 6th Edition- PHI Publication 2005..
3. Programming with JAVA, E-Balagurusamy, TATA McGraw Hill

List of practical

1. Write a program to check whether a number is a Armstrong number or not.
2. Write a program to sort a stream of Strings.
3. Write a program to perform multiplication of two matrices.
4. Write a program to find the volume of a box having its side w,h,d means width ,height and depth. Its volume is v=w*h*d and also find the surface area given by the formula s=2(wh+hd+dw).use appropriate constructors for the above.
5. Develop a program to illustrate a copy constructor so that a string may be duplicated into another variable either by assignment or copying.
6. Create a base class called shape. It contains two methods getxyvalue() and showxyvalue() for accepting co-ordinates and to display the same. Create the subclass called Rectangle which

contains a method to display the length and breadth of the rectangle called showxyvalue().Use overriding concept.

7. Write a program that creates an abstract class called dimension, creates two subclasses, rectangle and triangle. Include appropriate methods for both the subclass that calculate and display the area of the rectangle and triangle.

8. Write a program which throws Arithmetic Exception. Note the output, write another class (in a different file) that handles the Exception.

9. Create a user defined Exception class which throws Exception when the user inputs the marks greater than 100.

10. Write a program in which a Mythread class is created by extending the Thread class. In another class, create objects of the Mythread class and run them. In the run method print "CSVTU" 10 times. Identify each thread by setting the name.

11. Write a program using InetAddress class and also show the utility of URL and URL Connection classes.

12. Write a program which illustrates capturing of Mouse Events. Use Applet class for this.

13. Write a program using RMI in which a simple remote method is implemented.

14. Write a servlet program using HttpServlet class. Also give the appropriate HTML file which posts data to the servlet.

15. Write a JDBC program for Student Mark List Processing.

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SEMESTER- Third Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo.Max.M:70Min. M: 25

COURSE:- SOFTWARE ENGINEERING   Assig. Max.M: 30 Min. M:11

COURSE CODE : 3MSCIT3, CREDIT:-3

UNIT-I

Introduction to software engineering - introduction, reusable software components, what is well engineered software ?, programming and software engineering, what is software engineering ?, goals of software engineering, software processes, software process models, process iteration, other important software models

Software project management - project management, management activities, project planning, project scheduling, risk management, selecting staff, metrics used for measuring the software cost, cocomo model

Software process and project metric - software quality, metrics for the analysis model, metrics for the design model, metrics for source code, metrics for testing

Software project planning - introduction, software project planning, other planning activities, organisation of the software project, management plan (spmp) document

UNIT-II

Software cost estimation - introduction, software cost factors, programmer's ability, product complexity, product size, required level of reliability, level of technology, decomposition technique, empirical estimation models, the structure of estimation models

Software project requirements - software requirements, functional and non-functional requirements, user requirements, system requirements, software requirements document

Requirements engineering process - requirements engineering process, feasibility study, requirements elicitation and analysis, scenarios, requirements specification, ethnography, requirements validation, requirements management

UNIT-III

Software prototyping - software prototyping, prototyping in the software process, rapid prototyping techniques, user interface prototyping

Analysis concept and modeling - analysis modeling, context model, data modeling concepts, cardinality and modality, flow oriented diagram, data dictionary

Design concepts and principles - introduction, design within the context of software engineering, design process and design quality, design concepts, information hiding, functional independence, design classes, the design model, software patterns

UNIT-IV

Software architecture - software architecture data design, architectural styles and patterns, analyzing alternative architectural designs, mapping the requirements into a

software architecture, architectural design

Designing the user interface - user interface, input design, end-user considerations for input design, output design, design principles, screens, forms, menu, messages, importance of code, data codification schemes, designing code less systems

Software quality management, software quality management, role of a software quality manager, iso quality model, quality assurance standards, quality planning, quality control, software reviews, software reliability

Verification and validation - verification and validation, software testing, verification and validation planning, software inspections, automated static analysis, cleanroom software development

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UNIT-V

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Software testing models - software testing fundamentals, black-box and white-box testing, white-box testing, basis path testing, control structure testing, black-box testing, object-oriented testing methods

Software testing strategies - the strategic approach, the software testing strategy, strategic issues, unit testing, integration testing, validation testing, system testing, test automation

Computer aided software engineering (CASE) - computer aided software engineering (CASE), case workbenches, integrating case environment, need of software reuse:, types of reuse, reuse

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. R.S. Pressman, Title: Software Engineering – A Practitioner's Approach Publishers: McGraw Hill, 6th edition
2. P. Jalote, "An Integrated approach to Software Engineering", Narosa.
3. R. Fairley, "Software Engineering Concepts", Tata McGraw Hill, 1997.
4. Software Engineering by Ian Sommerville, Pearson Education

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SEMESTER- Third Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

COURSE: - COMPUTER ARCHITECTURE   Theo. Max. M: 70 Min. M: 25
COURSE CODE: 3MSCIT4, CREDIT:-3   Assig. Max. M: 30 Min. M: 11

UNIT-I

INTRODUCTION- Digital Computers, Computer Architecture, Computer Organization, Difference between Computer Architecture and Organization, Structure and Functions, Summary, Exercise

BASIC ARRANGEMENT OF A COMPUTER SYSTEM - Computer, Basic organization of a computer system, Types of computers, Microprocessor (µp), Working of Microprocessor, Microprocessor 8085 Architecture, Speed of Microprocessors, Summary, Exercise

NUMBER SYSTEM AND ITS REPRESENTATION - Data Types, Number System, Number System Conversion, Binary Arithmetic, Integer and Floating Point Representation Overflow Underflow

UNIT-II

COMPUTER CODES - Introduction, BCD (Binary Coded decimal) Code, EBCDIC Code, ASCII Code, Excess-3 Code, Gray Code, Error Detection Code, Error Correction Code

BASIC BUILDING BLOCKS - Logic Gates , Universal Gates, Exclusive Gates, Bubbled Gates, Universality of NAND and NOR gates

BOOLEAN ALGEBRA - Boolean Variable, Boolean Algebra, Boolean Functions and Truth Tables, Logic Diagram, Laws of Boolean Algebra, Rules for Boolean Algebra, Demorgan's theorems, Simplification of Boolean Functions, Implementation Using Basic Gates, To Obtain Expression from Logic Circuits

KARNAUGH MAP - Introduction, Algebraic Expression by Karnaugh Map, Simplification of Boolean Expression using K Map, Simplification of Boolean expression using K-map, Don't care conditions

UNIT-III

DIGITAL LOGIC CIRCUITS - Introduction, Combinational Logic Circuit , Sequential Logic Circuits

BASIC COMPUTER ORGANIZATION - Register Transfer language and Micro- operations, Instruction Codes , Instruction Set, Operations and Operands, Computer Registers, Instruction Format, Instruction Cycle, Addressing Modes, Real and Protected Addressing Modes, Assembly Language Programming, Input-Output and Interrupt

UNIT-IV

Von Neumann Architecture- Data Path and Memory Bus, Arithmetic and Logic Unit (ALU),

Memory, Static Random Access Memory (SRAM), Dynamic Random Access Memory (DRAM), Control Unit (CU), Register Transfer Language, Execution of Instructions, Microarchitecture, Complex and reduced instruction sets (CISC/RISC), Input/Output

CENTRAL PROCESSING UNIT DESIGN - Central Processing Unit (CPU), BUS Organization, Register Organization, Stack Organization, Data Path and Control Signals, Types of Processor (CPU) , Micro Programmed Control and Hardwired Control, Pipelining, Software - Hardware Interaction layers in Computer Architecture

UNIT-V

INPUT-OUTPUT ORGANIZATION, Transfer of Information between I/O Devices, CPU & Memory, Data Transfer Format , Types of Data Transfer , I/O Interface , Modes of Data Transfer , I/O Channels and Processors, Input/Output Identification (Peripheral or Memory Mapped), Conditions of Data Transfer

MEMORY ORGANIZATION - Computer Memory, Characteristics of Memory, Units of Memory, Data Accessing/Storing Methods in Computer Memory, Memory Hierarchy, Classification of Memory, Associative Memory, Virtual Memory, Memory Management System

Optimizing Hardware Performance - Memory Hierarchy, Cache, Virtual Memory, Pipelining, Pipelining Hazards, Conclusion, Superscalar CPU, Brief Historical Detour into Supercomputing, Superscalar Principle

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Digital Computer & logic Design, M. Morris Mano, Pearson Publication
2. Fundamentals of Digital Circuit, A.Anand Kumar, PHI
3. Computer Architecture, sheetanshu rajoriya, Pragya

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SEMESTER- Third Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY
COURSE: - ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM   Theo. Max. M: 70 Min. M: 25
COURSE CODE: 3MSCIT5, CREDIT:-3   Assig. Max. M: 30 Min. M: 11

UNIT-I

Introduction to Artificial Intelligence, Overview and definition of AI, Importance of AI, Early work in AI, General issues in AI, Problems of AI, AI Techniques, Scope and Application areas of AI

Problem Solving and Search, State Space Search for problem solving, Production System, Search and Control Strategies, Breadth First Search, Depth First Search, Heuristic Search, Production System Characteristics, Problem characteristics, Some other Control Strategies, Uniform cost search, Depth -limited search, Iterative deepening search, Adversarial Search, Two agent Games, The Minimax procedure, Example Problems, -Puzzle Problem and Playing Chess, Traveling Salesman Problem, Tic-Tac-Toc Problem, Water Jug Problem

Heuristic Search Techniques, Introduction, A General Graph Searching Algorithm, Generate and Test, Hill Climbing Search, Best First Search and A* algorithm, Admissibility of A*, Monotone or Consistency Condition, Problem Reduction, AND-OR TREE, Constraint Satisfaction, Cryptarithmetic Problem

UNIT-II

Knowledge Representation and Logic, Introduction and Importance of Knowledge, Characteristics of Knowledge, Explicit and Implicit Knowledge, Declarative or Procedural knowledge, Internal vs. External Knowledge, Mappings and Knowledge representation Methods, Issues in Knowledge representation, Important Attributes, Relationship among attributes, Granularity of representation, Representing set of objects, Finding the Suitable structure

First order logic or predicate calculus, Introduction, Syntax and Semantix, Extentions and Notational Variations, Representing Simple facts in Predicate Logic, Representing Instance and ISA Relationships, Inference in First Order Logic, Inference Rules Involving Quantifiers, Generalized Modus Ponens, Canonical Form, Unification, Forward and Backward Chaining, A Complete Inference Procedure: Resolution, The Resolution Inference Rule, Canonical Form for Resolution, Resolution Proofs, Conversion to Normal Form (Skolimization), Conversion to Clause Form, Resolution control strategies, Unit Preference, Set of support, Linear Input Resolution, Subsumption, Natural Deduction and Question Answering

UNIT-III

Knowledge Representation Using Rules, Representing Knowledge Using Rules, Procedural V/S Declarative Knowledge, Logic Programming, Forward and Backward Reasoning, Matching, Indexing, Matching with Variable, Complex and Approximate Matching, Conflict Resolution, Control Knowledge

Symbolic and Statistical Reasoning, Symbolic Reasoning Under Uncertainty, Introduction to Reasoning, Nonmonotonic Reasoning and its Logics, Implementation Issues, Implementation: Depth – First Search, Implementation: Breadth – First Search, Statistical Reasoning, Symbolic Verses Statistical Reasoning

UNIT-IV

Structural Knowledge Representation, Weak Slot and filter structures, Semantic nets, Intersection search, Non-binary predicates Representation, Essential distinctions, Partitioned semantic nets, Semantic nets to Frames, Frames, Frames as sets and instances, Additional ways of relating classes to each other, Slots and full-fledged objects, Property Inheritance algorithm, Languages for Frame, Strong slot and filter structures, Conceptual Dependency, Scripts, CYC

NLP : Natural Language Processing, Introduction, Computational linguistics, Problems of NLP, NLP Steps, Syntactic processing, Grammars, parsers, One or many Interpretations, Parsing techniques, Transition networks and augmented transition net, Unification Grammar, Semantic analysis, Semantic grammars, Case grammars, Conceptual parsing, Sementic interpretation, Discourse & pragmatic processing, Focus use in understanding, Modeling beliefs, Use of goals and plans for understanding, Acts of speech, Postulates of conversation

UNIT-V

Expert system, Introduction, Need and Justification, Benefits of using ES, Characteristics, Applications, Building blocks of Expert system, Knowledge Base, Inference Engine, User Interface, Expert System Life Cycle, Representing and Using Domain Knowledge, Knowledge Engineering and Acquisition, Expert System Tools, Expert System Shells, Case Study: Mycin & Dendral, Rule Based Systems, Learning Procedure

PROLOG: AI Programming Language, Introduction, Data Types & Structures: Atom, Variables, Lists, Prolog Syntax and Programming, Prolog Objects and Methods, Objects & Relationships using Trees and Lists, Facts, rules, Relationships and queries, 'IS' Operator & Singleton Variable, 'CUT' Operator

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Introduction to intelligence and expert system, Dan W. Patterson, PHI Publication
2. Artificial Intelligence, Dr . Rama Sushil, Dr Sushil Kumar, Pragya

FOURTH SEMESTER

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Institute of Open and Distance Education (IODE)
Kargi Road, Kota, Bilaspur (C.G.)

SEMESTER- Fourth Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY
COURSE: - COMPUTER GRAPHICS   Theo. Max M: 70 Min. M: 25
COURSE CODE: 4MSCIT1, CREDIT:-3   Assig. Max. M: 30 Min. M: 11

UNIT-I

Introduction to Computer Graphics - introduction to computer graphics, advantages of computer graphics, applications of computer graphics, classification of computer graphics, graphics standards, graphical user interface, basic elements of graphics

Graphical Input Devices - Introduction, Keyboard, Mouse, Trackball, Trackpads, Touch Screens/panels, Automatic Teller Machine, Joystick, Light Pen, Data Glove, image scanners, Digitizers/digitizing or graphic tablets

Graphical Output Devices - Introduction, hard copy and soft copy output devices, graphical Display or soft copy Devices, Monitor , Raster Scan and Random scan displays, Display technologies, Cathode Ray Tube (CRT) Displays, Flat Panel Displays, Characteristics OF A Monitor, video/Display Adapters , Modes , HARD COPY DEVICES

UNIT-II

Drawing Geometry : Line & Circle Generation, Introduction, lines, Line Segments, Vectors, Vector Generation, Thick Lines, Basic Concepts in Circle Drawing, Circle Drawing Algorithms, Ellipse Drawing Algorithm

Aliasing, Antialiasing and Character Generation - Aliasing and Antialiasing, Character Generation, Normalized Device Co-ordinates, Display of Frame Buffer

Polygon Representation and Filling - Introduction, Types of Polygons, Representation of Polygons, Entering Polygons, An Inside Test, Polygon Filling, Filling with Patterns, Scan Conversion

UNIT-III

2D Geometric Transformation - Introduction, Matrices, Transformations, Homogeneous Co-ordinates, Composition of 2D Transformations, Other Transformations

2D Viewing Transformation and Clipping - Introduction, Viewing Transformation, More about Viewport and Window, Two- Dimensional Viewing Functions, Clipping, Cohen-Sutherland Subdivision Line Clipping Algorithm, Midpoint Subdivision Algorithm, Polygon Clipping, Sutherland - Hodgeman Polygon Clipping Algorithm

UNIT-IV

3D Geometric Transformation - Introduction, 3D Geometry, 3D Primitives, Techniques to Achieve Realism, 3D Geometric tranformations, Reflection with Respect to Given Plane,

Reflection with Respect to Any Plane

3D Display Methods - Three Dimensional Viewing, Viewing Parameters, Transformation from World co-ordinate to , Viewing co-ordinates, Projections, 3D Clipping, 3D Midpoint Subdivision Algorithm.

<div align="center">

UNIT-V

</div>

Segments - Introduction, Segment Table, Functions for Segmenting the Display File, More about Segments, Image Transformation, Raster Techniques, Animation using Segmentation

Curve Generation - Introduction, Curve Generation, Interpolation, Interpolating Polygons, Spline Representation, Bezier Curves, B-Spline Curves, hidden surface, Back face Removal Algorithm, Z-Buffer Algorithm, Scan Line Algorithm, Painter's Algorithm (Depth Sort Algorithm)

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Graphics (C version) - Pearson Education.
2. W.M. Newman and RF.Sproull - Principles of Interactive Computer Graphics - McGraw Hill International Edition - 1979.
3. Computer Graphics, Zhingang Xiang, Shaums Outline

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SEMESTER- Fourth Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION TECHNOLOGY
COURSE: - DATA WARE HOUSING & MINING   **Theo. Max. M: 70 Min. M: 25**
COURSE CODE: 4MSCIT2, CREDIT:-3   **Assig. Max. M: 30 Min. M: 11**

UNIT-I

Strategic Information Management - Need for strategic information, Decision support system, Knowledge discovery & decision making, Need for data warehouse, Definitions of Data warehousing and data mining, Common characteristics of Data warehouse, Data Marts, Metadata, Operational versus analytical databases, Trends and planning of Data warehousing.

UNIT-II

Data Modeling Strategy - Defining business requirements, Data modeling strategy, Fact tables, Dimensions, Star schema and other schemas, Multi dimensional data models, Data Cube presentation of fact tables, Using the Data warehouse, Designing tools for Data warehouse, OLAP models and operations

UNIT-III

Data Warehouse Architecture Components and , Implementation Options - Architectural components, Infrastructure: Operational & Physical, Extraction, Transformation and Loading, Components of an Oracle Data warehouse, Data Transformation Functions, DBA responsibilities, Capacity Planning.

UNIT-IV

Data Warehouse Implementation -Implementation of Data warehouse, Physical design: steps, considerations, physical storage, indexing, Performance Optimization, Datawarehouse deployment activities, Data security, Backup and recovery concepts, Data warehouse Maintenance

UNIT-V

Data Mining - Basics of data mining, Related concepts, Data mining techniques, Data Mining Algorithms , Classification, Clustering and Association rules, Knowledge Discovery in databases (KDD) Process, Introduction to Web Mining

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Data Mining (Concepts and Techniques), Jiawei Han and Micheline Kamber, Morgan Kaufmann Publishers (An imprint of Elsevier)

2. Data warehousing Fundamental, Paulray ponniah, wiley Indian edition

3. Data Mining (Next Generation Challenges and Future Directions, Karguta, Joshi, Sivakumar & Yesha, Printice Hall of India

4. Data Warehousing , Data mining & OLAP, Alex Benson, Stephen V. Smith, Tata McGraw – Hill

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SEMESTER- Fourth Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY Theo. Max. M: 70 Min. M: 25
COURSE: - ADVANCED JAVA PROGRAMMING Assig. Max. M: 30 Min. M: 11
COURSE CODE: 4MSCIT3 , CREDIT:-3 Practical Max. M: 50 Min. M: 18

UNIT-I

EXCEPTION HANDLING - Introduction, Exceptions, Using try & catch, Multiple catch clauses, Finally, Throw, Throws

MULTITHREADING - Introduction, The Main Thread, Creating Threads, Life cycle of Thread, Using Threads Methods, Thread Priorities, Stopping and Blocking a thread, Thread Exceptions, Using is Alive( ) and join( ), Synchronization

UNIT-II

APPLETS - Introduction, Local & remote applets, Applet vs applications, Writing applets, Life cycle of an applet, Creating source code of applet, Creating an executable applet, Creating applet tag, Adding applet tag to html, Running the applet, Detailed form of applet tag, Passing parameters to applet, Aligning the display, Html tags, Getting input from user

Using Standard Java Packages, Exploring java Input Output Classes

UNIT-III

Exploring Java.util package- Interface summary, Class summary, Collection Framework, Core collection Interface, Set Interface, List Interface, Map Interface, StoredMap, Interface Iterator.

UNIT-IV

Networking in Java-Network Basics, Java & Networking – Sockets & Ports, Client Server architecture, TCP, UDP, Server Sockets ad Datagram, Networking classes in JDK

TCP/IP & Datagram Programming in Java – Socket Programming Basics, Datagram Communication, TCP/IP Sokect Programming in Java.

UNIT-V

AWT – AWT Programming basics, Working with Windows, Graphics &

Text. Multimedia in Java- Handling images, sound and animations in

Java

Event Handling in Java-Handling of various events in Java, Handling Mouse & Keyboards events Swing Classes.

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. The Complete Reference JAVA, Herbert Schildt, TATA McGraw Hill

2. Programming in Java – 2nd Edition by C.Muthu, TMH Publication

3. Java How to Program by Deitel & Deitel , PHI Publication

LABWORK

SR. NO	TOPICS
1	UNDERSTANDING THE EXCEPTION AND MULTITHREDING
2	IMPLEMENT THE BASIC OF APPLET PROGRAM
3	FAMILEAR WITH BASIC CONCEPT OF NETWORKING,AWT ,UTIL PACAKAGE ACCORDING TO SYLLABUS

List of Practical's

1. Write a program for Arithmetic Exception?

2. How can you check Number Format() Exception in your java program?

3. Write a java program for creating three child threads?

4. Write a program to demonstrate the working of thread life Cycle?

5. How do you create join() and isAlive() method in your java program?

6. In which manner Thread can be locked? Write a program to demonstrate that concept?

7. How the Frame can be created in java program?

8. Write a program for applet life cycle?

9. How can we create graphics in applet program? Demonstrate with suitable program?

10. Write a program for key event handling?

11. Write a program for handling mouse Event?

12. Write a program using sub class of List Interface for storing different data elements?

13. How can we access ArrayList() data using Iterator() Interface?

14. Write a program to fetch IP address of local Host?

15. Write a program for adding image in Frame window?

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SEMESTER- Fourth Semester

PROGRAMME:-MASTER OF SCIENCE IN INFORMATION TECHNOLOGY
COURSE: - DISCRETE MATHEMATICS   Theo. Max. M: 70 Min. M: 25
COURSE CODE: 4MSCIT4, CREDIT:-3   Assig. Max. M: 30 Min. M: 11

UNIT-I

SET THEORY - Set and Subsets, Operations on Sets, Countable and Uncountable Sets, The Principle of Inc Inclusion-Exclusion, Derangements, Propositions

PERMUTATION, COMBINATIONS, DISCRETE PROBABILITIES - The rules of sum and product, Permutations, Combinations, Binomial and Multinomial Theorems, Combinations with Repetitions, Probability, Random Variables & Probability Distributions, Repeated Trials

UNIT-II

RELATION AND FUNCTION- Cartesian (Cross) Product of Sets, Relation, Operation on Relations, Properties of Relation as Binary Relation on a Set, Two Important Relations, Partial Ordered Relation, Lattices, Functions - Mappings, Types of Functions, Cardinality of Set, Composition of Relation and Function, Composition of Function, Existence of Inverse Function (Mapping), Set Image/Preset Image of Function

UNIT-III

Graph - Directed Graphs, Graphs, Isomorphism, Sub graphs, Operations on Graphs, Walks and their classification, Connected and Disconnected Graphs, Euler circuits Euler trails, Planar and non-planar graphs

Recurrence relations - First-order Recurrence Relations, Second-order Homogeneous Recurrence Relations, Third and higher-order Homogeneous Recurrence Relations, Non-homogenous Recurrence Relations of second and higher orders, Method of Generating Functions

UNIT-IV

Groups - Introduction, Important Examples, Necessary and sufficient Condition for any subset of a group to be subgroup, Partition of a Group, Characteristics of Cosets of a Subgroups, Normal Subgroups, Necessary and sufficient condition for any subgroup of group to be normal subgroup, Characteristics of Normal (Sub groups), Quotient groups, Concept of Homomorphism, Rings, Some special types of Rings, Elementary Properties of Rings, Subrings, Results of Sub-rings of a ring, Standard Properties of ideals, Homomorphism of Rings, Properties of Homomorphism

UNIT-V

Discrete Numeric Functions and Generating Functions -Discrete Numeric Functions, Manipulation of Numeric Functions, Asymptotic Behavior of Numeric Functions, Binomial Coefficients

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Discrete Mathematics, Dr. Swapan Kumar Sarkar, S. Chand & Company
2. Discrete Mathsmatics, Akerkar & Akerkar, Pearson

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SEMESTER- Fourth Semester

PROGRAMME: - MASTER OF SCIENCE IN INFORMATION   **Assig. Max. M: 50 Min. M: 19**
                  TECHNOLOGY
COURSE: - MAJOR PROJECT   **Practical Max. M: 150 Min. M: 54**
COURSE CODE: 4MSCIT5, CREDIT:-4

All the candidates of M.Sc. (IT) are required to submit a project-report based on the work done by him/her during the project period. A detailed Viva shall be conducted by an external examiner based on the project report. Students are advised to see the detailed project related guidelines on the website of CVRU, (www.cvru.ac.in) under Project Guidelines for student section.

COUNSELING AND STUDY STRUCTURE

Sl. No.	Course Code	Title of the Course	Credit	Total Hours of Study	Counseling and Study Structure (hours)				Project
					Face to Face Counseling	Self study	Practical	Assignments	
First Semester									
1	1MSCIT1	Fundamentals of Computers & Information Technology	3	90	12	51	-	27	-
2	1MSCIT2	Windows & MS Office	3	90	12	33	18	27	-
3	1MSCIT3	Programming Methodology & Programming in C	3	90	12	33	18	27	-
4	1MSCIT4	Computer Networks & Internet	3	90	12	33	18	27	-
5	1MSCIT5*	Digital Electronics & Logic Design	3	90	12	33	18	27	-
Second Semester									
6	2MSCIT1	Objects Oriented Programming with C++	3	90	12	33	18	27	-
7	2MSCIT2	DBMS & SQL (With MS Access / MS SQL Server)	3	90	12	33	18	27	-
8	2MSCIT3	A. Computerised Accounting with Tally	3	90	12	33	18	27	-
9	2MSCIT4	Programming with VB.Net	3	90	12	33	18	27	-
10	2MSCIT5**	Data Structure with C++	3	90	12	33	18	27	-
11	2MSCIT6	Minor Project	4	120	-	-	-	-	120
Third Semester									
12	3MSCIT1	Operating Systems	3	90	12	33	18	27	-
13	3MSCIT2	Java Programming	3	90	12	33	18	27	-
14	3MSCIT3	Software Engineering	3	90	12	33	18	27	-
15	3MSCIT4	A. Computer Architecture	3	90	12	33	18	27	-
16	3MSCIT5	C. Artificial Intelligence And Expert System	3	90	12	33	18	27	-
Fourth Semester									
17	4MSCIT1	Computer Graphics	3	90	12	33	18	27	-
18	4MSCIT2	Data warehousing & Mining	3	90	12	33	18	27	-

19	4MSCIT3	A. Advanced Java Programming	3	90	12	33	18	27	-
20	4MSCIT4	A. Discrete Mathematics	3	90	12	33	18	27	-
21	4MSCIT5	Major Project	6	180	-	-	-	-	180

STUDY MODULES AND BOOKS INFORMATION

Sl. No.	Course Code	Title of the Course	Module to be Used
First Semester			
1	1MSCIT1	Fundamentals of Computers & Information Technology	Module Prepared by CVRU
2	1MSCIT2	Windows & MS Office	Module Prepared by CVRU
3	1MSCIT3	Programming Methodology & Programming in C	Module Prepared by CVRU
4	1MSCIT4	Computer Networks & Internet	Module Prepared by CVRU
5	1MSCIT5*	Digital Electronics & Logic Design	Module Prepared by CVRU
Second Semester			
6	2MSCIT1	Objects Oriented Programming with C++	Module Prepared by CVRU
7	2MSCIT2	DBMS & SQL (With MS Access / MS SQL Server)	Module Prepared by CVRU
8	2MSCIT3	A. Computerised Accounting with Tally	Module Prepared by CVRU
9	2MSCIT4	Programming with VB.Net	Module Prepared by CVRU
10	2MSCIT5**	Data Structure with C++	Module Prepared by CVRU
11	2MSCIT6	Minor Project	Guidelines provided by CVRU
Third Semester			
12	3MSCIT1	Operating Systems	Module Prepared by CVRU
13	3MSCIT2	Java Programming	Module Prepared by CVRU
14	3MSCIT3	Software Engineering	Module Prepared by CVRU
15	3MSCIT4	A. Computer Architecture	Module Prepared by CVRU
16	3MSCIT5	C. Artificial Intelligence And Expert System	Module Prepared by CVRU
Fourth Semester			
17	4MSCIT1	Computer Graphics	Module Prepared by CVRU
18	4MSCIT2	Data warehousing & Mining	Module Prepared by CVRU
19	4MSCIT3	A. Advanced Java Programming	Module Prepared by CVRU
20	4MSCIT4	A. Discrete Mathematics	Module Prepared by CVRU
21	4MSCIT5	Major Project	Guidelines provided by CVRU

DATE SCHEDULE AND INSTRUCTIONS FOR SUBMITTING ASSIGNMENTS

DUE DATE OF SUBMISSION OF ALL ASSIGNMENTS AT THE IODE, CVRU/STUDY CENTRE		
Year	**Assignment No.**	**Due Date**
First Semester	1MSCIT1 1MSCIT2 1MSCIT3 1MSCIT4 1MSCIT5	• April 30 (for January Session) • October 31 (for July Session)
Second Semester	2MSCIT1 2MSCIT2 2MSCIT3 2MSCIT4 2MSCIT5	• April 30 (for January Session) • October 31 (for July Session)
Third Semester	3MSCIT1 3MSCIT2 3MSCIT3 3MSCIT4 3MSCIT5	• April 30 (for January Session) • October 31 (for July Session)
Fourth Semester	4MSCIT1 4MSCIT2 4MSCIT3 4MSCIT4 4MSCIT5	• April 30 (for January Session) • October 31 (for July Session)

INSTRUCTIONS TO STUDENTS FOR FORMATTING THE ASSIGNMENTS

सत्रीय कार्य हेतु छात्रों के लिये निर्देश

1. This booklet contains the assignments for the entire (All Semester) programme. Each course has one assignment. All assignments should be completed and submitted at IODE CVRU/ study centre before the due date.

इस पुस्तिका में पूरे पाठ्यक्रम के लिये (सभी सेमेस्टर) के सत्रीय कार्य दिये गये हैं। प्रत्येक पाठ्यक्रम के लिये एक सत्रीय कार्य दिया गया है जिसे पूर्ण करने के पश्चात निर्धारित तिथि तक डॉ. सी. वी आर.यु के दूरस्थ शिक्षा संस्थान / अध्ययन केन्द्र को भेजना आवश्यक है।

2. Please note that you will not be allowed to appear for the Term End Examinations for the course, until the assignments are submitted before the due date.

कृपया ध्यान रहे जब तक सत्रीय कार्य निर्धारित तिथि तक जमा नहीं होंगे, आप सत्रांत परीक्षा में नहीं बैठ सकेंगे।

3. The assignments constitute the continuous component of the evaluation process and have 30% weightage in the final grading. You need to score minimum marks as per Examinations Scheme of Particular Programmme in assignment in each course in order to clear the continuous evaluation component.

सत्रीय कार्य सतत् मूल्यांकन का महत्वपूर्ण अंग है एवं अन्तिम ग्रेडिंग में 30 प्रतिशत अंक निर्धारित हैं। सतत् मूल्यांकन में उत्तीर्ण करने हेतु प्रत्येक सत्रीय कार्य में संबंधित कार्यकम के परीक्षा योजना के अनुसार न्यूनतम अंक प्राप्त करना अनिवार्य है।

4. The assignment should be hand written on a A-4 size paper with proper cover which contains all the required information as given on the next page. You can use the photocopy of the cover for each assignment.

सत्रीय कार्य ए–4 साइज पेपर पर हस्तलिखित होना चाहिए तथा उस पर अगले पृष्ठ पर दिये गये कवर के अनुसार सभी जानकारी लिखी होनी चाहिए। (आप चाहें तो कवर की फोटोप्रति प्रत्येक सत्रीय कार्य पर लगाकर प्रयुक्त कर सकते हैं)

5. Leave at least 4cm margin on the left, top and bottom of your answer sheets for the evaluator's comments.

प्रत्येक पृष्ठ पर बायें, ऊपर एवं नीचे कम से कम 4 सें.मी. जगह छोड़ें जो मूल्यांकनकर्ता अपनी टिप्पणी के लिये प्रयोग करेगा।

6. Your answers should be brief, precise and in your own words. Please do not copy the answers from the study material.

सत्रीय कार्य के प्रश्नों के उत्तर संक्षेप, स्पष्ट एवं स्वयं के शब्दों में होना चाहिए। उत्तर स्टडी मटेरियल की कॉपी नहीं होना चाहिये।

7. Please do not copy the assignment from other student.

कृपया सत्रीय कार्य दूसरे छात्र से कॉपी न करें।

8. While solving the questions, clearly indicate the question number along with the part being solved. Recheck your work before submitting it.

प्रश्नों के उत्तर लिखते समय, प्रश्न संख्या अथवा उसके भाग का स्पष्ट उल्लेख करें। सत्रीय कार्य जमा करते समय एक बार पुनः जांच कर लें।

9. You may retain a copy of your assignment response to avoid any unforeseen situation.
सत्रीय कार्य की एक प्रतिलिपि अपने पास रखें ताकि किसी अनहोनी घटना से बचा जा सके।

10. You can resolve the difficulties you may face while studying the course material by sending an e-mail to Programme coordinator IODE CVRU/ study centre coordinator. However, the coordinator will not provide solutions to the assignment questions, since they constitute an evaluation component.
पाठ्यक्रम सामग्री के अध्ययन के समय यदि कोई कठिनाई होती है तो उसके निराकरण हेतु कार्यक्रम समन्वयक दूरस्थ शिक्षा संस्थान डॉ. सी. वी. रामन् विश्वविद्यालय / अध्ययन केन्द्र के समन्वयक से ई–मेल द्वारा संपर्क किया जा सकता है। परंतु समन्वयक सत्रीय कार्य के प्रश्नों के उत्तर नहीं देंगे क्योंकि ये मूल्यांकन पद्धति के अंग हैं।

Note: Assignments of the course are available for download at the CVRU Website http://www.cvru.ac.in . You can download the assignments as per your course, follow the instructions given and submit it before due dates at the IODE CVRU/study centre.

GUIDELINE FOR PREPARATION AND PRESENTATION OF PROJECT REPORT

INSTITUTE OF OPEN AND DISTANCE EDUCATION

DR. C.V. RAMAN UNIVERSITY

KARGI ROAD, KOTA, DISTT. - BILASPUR

CHHATTISGARH

PROJECT REPORT   FORMAT

IODE PROGRAMME

The Project Report   consists of three main parts (i) The Preliminaries (ii) The Text (iii) Annexure. It is to be arranged in the following sequence.

THE PRELIMINARIES:

❖ Title Page (Outer Cover) as per the format given in Annexure III, (should be printed in White Colour on a Navy Blue background).

❖ Title Page (Inner Cover) as per the format given in Annexure IV

❖ Declaration by the candidate (Annexure – V)

❖ Certificate of Supervisor/s (Annexure – VI)

❖ Acknowledgements (Annexure – VII)

❖ Table of Contents (Annexure – VIII)

❖ Abstract/Preface

❖ List of Tables (If applicable)

❖ List of Figures (If applicable)

❖ List of abbreviations (Optional)

❖ Chapter –I   to ….continue according to the table of contents.

THE TEXT OF THE PROJECT REPORT

The text the Project Report is usually divided in to chapter's with subheadings, within the chapters to indicate the orderly progression of topics and their relation to each other

Chapter-I Introduction: - The Project Report   should normally begin with a general introduction presenting an overview of the purpose and significance of the study. The introduction should show why the topic selected is worth investigating. This will normally be done with reference to existing research, identifying areas that have not been explored, need to be explored. The final section of the introduction should provide a brief overview of each of the main chapters that the reader will encounter.

Chapter-II Review of Related Literature: - The purpose of the literature review is to summarize, evaluate and compare the main developments and current database in the field which are specifically relevant to the subject of research embodied in the Project Report .

Chapter-III Research Methology: - The supervisor and the student may decide how this part of the Project Report   should be structured. Although this section varies depending up on method and analysis technique chosen, the chapter describes and justifies the methods chosen for the study and why this method was the most appropriate.

Chapter-IV Observations & Analysis:- Observations , Analysis and Interpretation should be done as per data collected from sample.

Chapter-V Results Conclusions and Suggestions: The results are actual statement of observations, including statistics, tables and graphs. Do not present the same data as graph as well as table. Use one of the appropriate style of presentation. The purpose of this chapter is not just to reiterate the findings but discuss the observation in relation to the theoretical body of knowledge on the topic.

Bibliography Citation in Text: Citation in the text usually consists of the name of the author(s) and the year of the publication. The page no is added when utilizing a direct quotation. It should be arranged Alphabetically .

Example (i):Thomas.V (2007) identified….

Example (ii): Gould and Brown (1991, p. 14) used the

Example (iii) : Rhoades et. al (2008) define the …..

References: All publications listed in the Project Report   should be presented in a list of references, following the sample.

Citation from Project Report :

➢ Kundur., D. (1999),Mulitresolution Digital Watermarking: Algorithms and Implications for Multimedia Signals. Ph.D Project Report , University of Toronto.

Citation from Journal:

➢ Clifford, G. D. and Tarassenko.,s L. (2001),One-pass Training of Optimal Architecture Auto-associativeNeural Network for Detecting Ectopic Beats. Electron Letters. 37(18): 1126–1127.

➢ Rhoades, B.E. (1997), A Comparison of various definitions of Contractive mappings, Trans.Amer.Math.Soc.,Vol. 5, no.3, 257-290.

Citation from Books:
➢ Thompson, D. ed., (1995),The Concise Oxford Dictionary of Current English. Oxford, UK: Oxford University Press, 9th ed. ISBN No.: 0987654.
➢ Lindsay, D. (1999),A Guide to Scientific Writing, Melbourne, Chapter 2, Australia: Addison Wesley Longman Australia, 2nd ed. ISBN No.: 12345678.

Citation from Website:
Anonymous, unZign, "Tool for Evaluating a Variety of Watermarks", http://altern.org/watermark/, (Browsing date: 23rd September 1997)
Publication of the University of Geneva (on digital watermarking): <http:// cuiwww.unige.ch/˜vision/Publications/watermarking_publications.html> (Browsing Date: 4thJanuary 2006)

Citation from patent:
Gustafsson J. K. (1976), "Analog-digital converter for a resistance bridge", Patent U. S. 3960010, June 1,.
References must be given alphabetically in References section and in text as …..
Clifford. G. D. and Tarassenko. L. (2001) suggested that……

Appendices:

- Questionnaire /Formula /Diagnosis/Any other Supporting Documents

GUIDELINES FOR WRITING :-

	1. **Font size For English**		**Font size For Hindi**
Title Page		18-24	18-24
Headings / subheadings	12-16		16-20
Text		12	14
Footnotes		8-10	10-12

Footnotes be given on the same page where reference is quoted

2. Type style

Times New Roman for English   Kruti dev 10 for Hindi

3. Margins.

At least 1¼ -1½ inches (3.17-3.81cm) on the left-hand side, 3/4 - 1 inch (2 -2.54cm) at the top and bottom of the page, and about ½ - 0.75 inches (1.27 - 1.90cm) at the outer edge. The best position for the page number is at top-center or top right ½ inch (1.27 cm) below the edge. Pages containing figures and illustration should be suitable paginated.

4. The *Project Report* shall be computer typed (**English**- British, Font Style -Times Roman, Size-12 point, **Hindi-** Font Style -Krutidev-10,Size-14) and printed on A4 size paper.

5. The *Project Report* shall be typed on one side only with double space with appropriate margin.

6. Use only standard abbreviations. Avoid abbreviations in the title. The full term for which an abbreviation stands should precede its first use in the text except in case of measurement units. The measurement units if any shall be followed consistently.

7. Maintain uniformity in writing the *Project Report* .

8. All copies of the *Project Report* are to be bound in colored hard cover (according to color code) of the *Project Report* .

9. The final submission of the *Project Report* shall be in 03 hard bound copies and 01 soft copy (MS Word) in a CD along with all the corrections and suggestions as recommended before.

THE TITLE OF THE PROJECT REPORT   IN THE OUTER COVER
SHALL LOOK EXACTLY LIKE THIS TITLE

(Font: Times New Roman, Size:16, Bold, Line Spacing: 1 ½, Centered)

{Here put a gap of 4 lines}

Project Report   submitted to
(Font: Times New Roman, Size: 12, Bold, centered)
{Here put a gap of one line}

<University's logo>

INSTITUTE OF OPEN AND DISTANCE EDUCATION
Dr. C.V. Raman University
Kota, Bilaspur (C.G.)
(Font: Times New Roman, Size: 14, Bold, centered)
{Here put a gap of one line}
For the award of the degree of
(Font: Times New Roman, Size: 12, Bold, centered)
{Here put a gap of one line}
PROGRAMME NAME
(Font: Times New Roman, Size: 14, Bold, centered)

{Here put a gap of two lines}
by
(Font: Times New Roman, Size: 12, Bold, centered)
{Here put a gap of two lines}
<NAME OF THE STUDENT>
(Font: Times New Roman, Size: 14, Bold, centered)
Registration No.: <>
(Font: Times New Roman, Size: 12, Bold, centered)
<Year>
(Font: Times New Roman, Size: 12, Bold, centered)
© *<Year><Name of the student>*.All rights reserved.
(Font: Times New Roman, Size: 10, Bold, Centered)

THE TITLE OF THE PROJECT REPORT   IN THE INNER COVER SHALL
LOOK EXACTLY LIKE THIS TITLE

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Project Report   submitted to

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INSTITUTE OF OPEN AND DISTANCE EDUCATION

Dr. C.V. Raman University

Kota, Bilaspur (C.G.)

(Font: Times New Roman, Size: 14, Bold, centered)

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For the award of the degree

of

(Font: Times New Roman, Size: 12, Bold, centered)

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PROGRAMME NAME

(Font: Times New Roman, Size: 14, Bold, centered)

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by

(Font: Times New Roman, Size: 12, Bold, centered)

{Here put a gap of two lines}

<NAME OF THE STUDENT>

(Font: Times New Roman, Size: 14, Bold, centered)

Under the Guidance of

(Font: Times New Roman, Size: 12, Bold, centered)

<NAME OF THE SUPERVISOR/S>

(Font: Times New Roman, Size: 14, Bold, centered)

<Year>

(Font: Times New Roman, Size: 12, Bold, centered)

©*<Year><Name of the student>.***All rights reserved.**

(Font: Times New Roman, Size: 10, Bold, Centered)

DECLARATION

I the undersigned solemnly declare that the Project Report entitled "**title of the work**" is based on my own work carried out during the course of my study under the supervision of < name of supervisor >.

I assert that the statements made and conclusions drawn are an outcome of my research work. I further certify that

i.   The work contained in the Project Report   is original and has been done by me under the general supervision of my supervisor (s).

ii.   The work has not been submitted to any other Institute for any other Degree/Diploma/Certificate in this University or any other University of India or abroad.

iii.   I have followed the guideline provided by the University in writing the Project Report.

iv.   I have conformed to the norms and guidelines given in the concerned Ordinance of the University.

v.   Whenever I have used materials (data, theoretical analysis, and text) from other sources, I have given due credit to them by citing them in the text of the Project Report   and giving their details in the references.

vi.   Whenever I have quoted written materials from other sources, I have put them under quotation marks and given due credit to the sources by citing them and giving required details in the references.

(Name & Signature of the Student)

Registration No.

CERTIFICATE

This is to certify that the work incorporated in the Project Report   entitled " title of the Project Report " is a record

of own work carried out by **<Name of Student >** under my supervision for the award of degree of **Programme**

Name   of Institute of Open and Distance Education   Dr. C.V. Raman University, Bilaspur (C.G.)-India.

To the best of my knowledge and belief the Project Report :

i.   Embodies the work of the candidate himself/herself,

ii.   Has duly been completed.

iii. Is up to the desired standard both in respect of contents and language for being referred to the examiners.

Supervisor-

(Name and signature of the Supervisor
With designation and Name of Organization)

(Signature of Academic Coordinator)

(Seal of IODE)

ACKNOWLEDGEMENT

Acknowledgements should be brief and should not exceed one page. Acknowledgements should be duly signed by the candidate. Gratitude may be expressed to only those who really contributed to the work directly or indirectly. Name of student should appear at the bottom of the page.

SAMPLE ACKNOWLEDGEMENT

It is a matter of immense pleasure to express the overwhelming sense of gratitude, devotion, incontestable regards to my esteemed & learned guides <…………….> who have striven to perfect my project report.

....

....

....

Finally, I express my indebtedness to all who have directly or indirectly contributed to the successful completion of my project work.

< Name of Student >

ANNEXURE-VIII

TABLE OF CONTENTS

Note