

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 Gol, 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 comprises:

- **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 learner 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.

EVALUATION 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: cvrusd@gmail.com

LEARNER SUPPORT DESK:

Phone: 07753-253872, 07753-253873, 8359050061

Email: cvrusd@gmail.com

PROGRAMME GUIDE

DISTANCE EDUCATION PROGRAMMES

MASTER OF SCIENCE IN COMPUTER SCIENCE (M.SC.-CS)

- 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.cvrु.ac.in

MASTER OF SCIENCE IN COMPUTER SCIENCE (M.Sc.-COMPUTER SCIENCE)

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 /Project Marks		Assignments	
				Max	Min	Max	Min	Max	Min
FIRST SEMESTER									
1MSCCS1	Fundamentals of Computers & Information Technology	2	100	70	25	-	-	30	11
1MSCCS2	Operating System	3	150	70	25	50	18	30	11
1MSCCS3	Programming Methodology & Programming in C	3	150	70	25	50	18	30	11
1MSCCS4	Computer Networks & Internet	3	100	70	25	-	-	30	11
1MSCCS5	Computer Architecture	3	100	70	25	-	-	30	11
Total aggregate required to pass		14	600	350	140	100	40	150	60
SECOND SEMESTER									
2MSCCS1	Objects Oriented Programming with C++	3	150	70	25	50	18	30	11
2MSCCS2	DBMS & SQL (With MS Access / MS SQL Server)	3	150	70	25	50	18	30	11
2MSCCS3	Discrete Mathematics	3	100	70	25	-	-	30	11
2MSCCS4	Programming with VB.Net	3	150	70	25	50	18	30	11
2MSCCS5	DATA STRUCTURE WITH C++	3	150	70	25	50	18	30	11
2MSCCS6	Minor Project	3	100	70	-	-	25	30	11
Total aggregate required to pass		18	800	420	168	200	100	180	72
THIRD SEMESTER									
3MSCCS1	Compiler Design	2	100	70	25	-	-	30	11
3MSCCS2	Java Programming	3	150	70	25	50	18	30	11
3MSCCS3	Software Engineering	3	100	70	25	-	-	30	11
3MSCCS4	Multimedia Tools And Application	3	150	70	25	50	18	30	11
3MSCCS5	Artificial Intelligence And Expert System	3	100	70	25	-	-	30	11
Total aggregate required to pass		14	600/600	350	140	100/100	36/40	150	60
FOURTH SEMESTER									
4MSCCS1	Computer Graphics	3	100	70	25	-	-	30	11
4MSCCS2	Data warehousing & Mining	3	100	70	25	-	-	30	11
4MSCCS3	Advanced Java Programming	3	150	70	25	50	18	30	11
4MSCCS4	RESEARCH METHODOLOGY	3	100	70	25	-	-	30	11
4MSCCS5	Major Project	6	200	-	-	150	54	50	19
Total aggregate required to pass		18	650/700	280	112	200/250	80/100	170	68

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 COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - FUNDAMENTALS OF COMPUTERS **Assig. Max.M: 30 Min. M: 11**
& INFORMATION TECHNOLOGY
COURSE CODE: 1MSCCS1, 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. COMPUTER FUNDAMENTAL :- PRADEEP K SINHA
2. ESSENTIALS OF INFORMATION TECHNOLOGY :- A.MANSOOR
3. FUNDAMENTALS OF COMPUTERS :-V.RAJARAMAN
4. COMPUTERS FUNDAMENTAL AND INFORMATION TECHNOLOGY:-RAMESH BANGIA



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SEMESTER- First Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - OPERATING SYSTEM **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 1MSCCS2, **CREDIT:-3** **Practical Max. M: 50 Min. M: 18**

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- First Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - PROGRAMMING METHODOLOGY **Assig. Max.M: 30 Min. M: 11**
& PROGRAMMING IN C
COURSE CODE: 1MSCCS3, **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.

UNIT-IV

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

UNIT-V

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()

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

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”- Henryry Mulish, Herbert L. Cooper.

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.



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SEMESTER- First Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE Theo. Max. M: 70 Min. M: 25
COURSE: - COMPUTER NETWORK & INTERNET Assig. Max. M: 30 Min. M: 11
COURSE CODE: 1MSCCS4, 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. Douglas, "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



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

SEMESTER- Third Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE Theo. Max. M: 70 Min. M: 25
COURSE: - COMPUTER ARCHITECTURE Assig. Max. M: 30 Min. M: 11
COURSE CODE: 3MSCCS4, CREDIT:-3

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 (μ p), 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

SECOND SEMESTER



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SEMESTER- **Second Semester**

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - OBJECT ORIENTED PROGRAMMING WITH C++ **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 2MSCCS1, **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

UNIT-IV

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

UNIT-V

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

The C++ I/O System Basics - The C++ I/O System basics, C++ predefined streams, Formatting using the ios members, 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,

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

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.

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.
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:

```
*****  
*****  
****  
**  
*
```

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.



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SEMESTER- Second Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **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: 2MSCCS2, **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

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

READINGS: SELF LEARNING MATERIAL

ADDITIONAL READINGS:

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

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- 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 COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - DISCRETE MATHEMATICS **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 2MSCCS3, **CREDIT:** - 3

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 Mathematics, Akerkar & Akerkar, Pearson



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SEMESTER- Second Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE Theo. Max. M: 70 Min. M: 25
COURSE: - PROGRAMMING WITH VISUAL BASIC .NET Assig. Max. M: 30 Min. M: 11
COURSE CODE: 2MSCCS4, 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 centre.
7. Write a windows application for tree view.
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 COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - DATA STRUCTURE WITH C++ **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 2MSCCS5, **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 (\tilde{O}) Notation :, Big Theta ($\tilde{\Theta}$) 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 (Deque), 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 Organization.

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 Prakhshn

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. A program in C++ to perform Push and Pop operations.
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 (C++).
13. To arrange the list of number in the Sorted order using Quick sort (C++).
14. A program to check all the element of list is in sorted order or not.
15. A program in C++ to search an item position in sorted list (Binary search).

THIRD SEMESTER



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SEMESTER- Third Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - Compiler Design **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 3MSCCS1, CREDIT:-3

UNIT - I

Automata Introduction to Finite Automata, Structure Representation, Automata and Complexity, Alphabets, String, Language Informal Picture of Finite Automata, Deterministic Finite Automata, Nondeterministic Finite Automata, An Application.

UNIT - II

Introduction To Compiler, Overview of Compilation, Process , Typical Compiler Structure, Implementing A Compiler . Programming Language Grammars, Elements of A Formal Language Grammar, Derivation, Reduction & Syntax Trees, Ambiguity Regular Grammar & Regular Expression – Context Free Grammar.

UNIT - III

Scanning & Parsing Techniques – The Scanner, Regular Grammar and Fsa, Top Down Parsing, Parsing Algorithm, Top Down Parsing Without Backtracking, Predictive Parsers, Bottom Up Parsing, Parsing, Lr Parsers, Shift Reduce Parsing .

UNIT - IV

Symbol Table Organization, Memory Allocation – Static & Dynamic Memory Allocation, Compilation Control Transfer, Procedure Calls, Conditional Execution, Iteration Control Construct.

UNIT - V

Lexical Syntax Errors, Semantic, Major Issues In Optimization, Optimizing , Transformations, Local Optimization, Program Flow Analysis, Global Optimization.

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Introduction To Automata Theory, Language And Comutation - John E - Hopcroft, Rajeev Motwani, Jeffery D. Ullman 2nd Edition
2. Compiler Construction Principles & Practice – D.M. Dhamdhare 2nd Edition
3. Principles Of Compiler Design – Affred V. Aho, Jeffery D. Ullmancompilers Principles, Techniques And Tools – Affred V. Aho Ravi Sethi, Jeffery D. Ullman



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SEMESTER- Third Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - JAVA PROGRAMMING **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 3MSCCS2, **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 “CSV TU” 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.



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

SEMESTER- Third Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - SOFTWARE ENGINEERING **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 3MSCCS3, 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

UNIT-V

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 COMPUTER SCIENCE
COURSE: - MULTIMEDIA TOOLS AND APPLICATIONS
COURSE CODE: 3MSCCS4, CREDIT:-3

Theo. Max. M: 70 Min. M: 25
Assig. Max. M: 30 Min. M: 11
Practical Max. M: 50 Min. M: 18

UNIT-I

Multimedia: Needs and areas of use, Development platforms for multimedia–DOS, Windows, Linux. Identifying Multimedia elements – Text, Images, Sound, Animation and Video, Making simple multimedia with PowerPoint.

Text – Concepts of plain & formatted text, RTF & HTML texts, using common text preparation tools, Conversion to and from of various text formats, using standard software, Object Linking and Embedding concept, Basics of font design, overview of some fonts editing and designing tools, Understanding & using various text effects.

Images – importance of graphics in multimedia, Vector and Raster graphics, image capturing methods – scanner, digital camera etc. various attributes of Images – size, color, depth etc, Various Image file format – BMP, DIB, EPS, CIF, PEX, PIC, JPG, TGA, PNG and TIF format – their features and limitations, graphic file formats conversions, processing images with common software tools such as Photoshop, Paint Shop pro, Corel draw etc..

UNIT-II

Sound: Sound and its Attributes, Mono V/s Stereo sound, Sound channels, Sound and its effect in multimedia, Analog V/s Digital sound, Basics of digital sounds-Sampling, Frequency, Sound Depth, Channels, Sound on PC, Sound standards on PC, Capturing and Editing sound on PC, Overview and using some sound recording, editing software. Overview of various sound file formats on PC – WAV, MP3, MP4, Ogg Vorbis etc.

Animation: Basics of animation, Principle and use of animation in multimedia, Effect of resolutions, pixel depth, Images size on quality and storage. Overview of 2-D and 3-D animation techniques and software- animation pro, 3D studio & Paint Shop pro animator Animation on the Web – features and limitations, creating simple animations for the Web using GIF Animator and Flash.

UNIT-III

Video: Basics of Video – Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, DirectX Introduction to AV/DV and IEEE1394 cards, Digitization of analog video to digital video, Interlacing and non-interlacing, Brief note on various video standards – NTSC, PAL, SECAM, HDTV, Introduction to video capturing Media & instrument – Videodisk, DVCAM, Camcorder, Introduction to digital video compression techniques and various file formats – AVI, MPEG, MOV Real Video.

Brief Introduction to video editing and movie making tools – Quick time, video for windows & Adobe premier.

UNIT-IV

Authoring tools for CD Based Multimedia: Type of multimedia authoring tools, key factors of selecting CD based multimedia authoring tools, Planning and distribution of a multimedia project. Multimedia development team & skills requirement, Stages in designing & producing multimedia products for CD, Testing of product, distribution of multimedia product, various formats of CD's and DVD's.

UNIT - V

Multimedia on the Web: Bandwidth relationship, broadband technologies, Text in the web – Dynamic and embedded font technology, Audio on the Web – Real Audio and MP3/MP4, Audio support in HTML, Graphics–HTML safe color palate, Interlaced V/s Non interlaced model, Graphics support in HTML, Image Map, Video on the Web – Streaming video, Real Video, MPEG and SMIL, Virtual Reality on the Web.

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Multimedia: Making It Work (4th Edition) – by Tay Vaughan, Tata Mcgraw Hills.
2. Multimedia In Action – James E Shuman – Vikas Publishing House.
3. Multimed i Basics – Volume – 1 Technology, Andreas Holzinger, Firewall Media(Laxmi Publications Pvt. Ltd) New Delhi.



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

SEMESTER- Third Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE
COURSE: - ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM
COURSE CODE: 3MSCIT5, CREDIT:-3

Theo. Max. M: 70 Min. M: 25
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, Cryptarithmic 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, Extensions 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, Semantic 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, Pragma

FOURTH SEMESTER



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

SEMESTER- **Fourth Semester**

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE
COURSE: - COMPUTER GRAPHICS
COURSE CODE: 4MSCCS1, CREDIT:-3

Theo. Max. M: 70 Min. M: 25
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 transformations, 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

UNIT-V

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. D.Hearn and M.P.Baker - Computer 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 COMPUTER SCIENCE
COURSE: - DATA WARE HOUSING & MINING
COURSE CODE: 4MSCCS2, **CREDIT:-3**

Theo. Max. M: 70 Min. M: 25
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, Paulraj 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 COMPUTER SCIENCE **Theo. Max. M: 70 Min. M: 25**
COURSE: - ADVANCED JAVA PROGRAMMING **Assig. Max. M: 30 Min. M: 11**
COURSE CODE: 4MSCCS3, 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.

LABWORK

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

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

List of Practical's

1. Write a program for Arithmetic Exception?
2. How can you check NumberFormat() 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 COMPUTER SCIENCE

Theo. Max. M: 70 Min. M: 25

COURSE: - RESEARCH METHODOLOGY

Assig. Max. M: 30 Min. M: 11

COURSE CODE: 4MSCCS4, CREDIT:-3

UNIT I

Nature of Social Research: Importance and uses, Difference between Pure and Applied Research, Identification of Research Problem, Research Design.

UNIT II

Hypothesis, Concepts and Variables, Typologies, Hypotheses Formulation and testing, Sampling Method.

UNIT III

Tools and Techniques of Data Collection,
Observation: Characteristics of observation, Kinds of observation, merits and Demerits, Questionnaire, Scheduled and Interviews, Sampling and Survey technique.

UNIT IV

Nature of study: Case study, technique, Role and importance of case studies, Pilot studies and pannel studies.

UNIT V

Theory Formation in Social Scinces , Survey Analysis, Types, Merits, Demertis, Report writing, Purpose and contents of a Report.

READINGS: SELF LEARNING MATERIAL.



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SEMESTER- Fourth Semester

PROGRAMME: - MASTER OF SCIENCE IN COMPUTER SCIENCE
COURSE: - MAJOR PROJECT
COURSE CODE: 4MSCCS5, CREDIT:-6

Project. Max. M: 150 Min. M: 54
Viva Max. M: 50 Min. M: 19

All the candidates of M.Sc.(CS) 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.cvrु.ac.in) under Project Guidelines for student section.

COUNSELING AND STUDY STRUCTURE

Course Code	Name of the Course	Credit	TOTAL STUDY HOURS	Counseling and Study Structure (hours)			
				FACE TO FACE	SELF STUDY	PRACTICAL	ASSIGNMENT
FIRST SEMESTER							
1MSCCS1	Fundamentals of Computers & Information Technology	2	60	8	34	-	18-
1MSCCS2	Operating System	3	90	12	33	18	27
1MSCCS3	Programming Methodology & Programming in C	3	90	12	33	18	27
1MSCCS4	Computer Networks & Internet	3	90	12	51	-	27
1MSCCS5	Computer Architecture	3	90	12	51	-	27
Total aggregate required to pass		14	420	56	140	36	40
SECOND SEMESTER							
2MSCCS1	Objects Oriented Programming with C++	3	90	12	33	18	27
2MSCCS2	DBMS & SQL (With MS Access / MS SQL Server)	3	90	12	33	18	27
2MSCCS3	Discrete Mathematics	3	90	12	51		27
2MSCCS4	Programming with VB.Net	3	90	12	33	18	27
2MSCCS5	DATA STRUCTURE WITH C++	3	90	12	33	18	27
2MSCCS6	Minor Project	3	90	12	-	-78	
Total aggregate required to pass		18	540	72			
THIRD SEMESTER							
3MSCCS1	Compiler Design	2	60	8	34	-	-18
3MSCCS2	Java Programming	3	90	12	33	18	27
3MSCCS3	Software Engineering	3	90	12	51	-	27
3MSCCS4	Multimedia Tools And Application	3	90	12	33	18	27
3MSCCS5	Artificial Intelligence And Expert System	3	90	12	51	-	27
Total aggregate required to pass		14	420				
FOURTH SEMESTER							
4MSCCS1	Computer Graphics	3	90	12	51		27
4MSCCS2	Data warehousing & Mining	3	90	12	51		27
4MSCCS3	Advanced Java Programming	3	90	12	33	18	27
4MSCCS4	RESEARCH METHODOLOGY	3	90	12	51		27
4MSCCS5	Major Project	6	180	24-	-	156	54
Total aggregate required to pass		18	540				

STUDY MODULES AND BOOKS INFORMATION

Course Code	Name of the Course	Credit	Module to be Used
1MSCCS1	Fundamentals of Computers & Information Technology	2	Module Prepared by CVRU
1MSCCS2	Operating System	3	Module Prepared by CVRU
1MSCCS3	Programming Methodology & Programming in C	3	Module Prepared by CVRU
1MSCCS4	Computer Networks & Internet	3	Module Prepared by CVRU
1MSCCS5	Computer Architecture	3	Module Prepared by CVRU
Total aggregate required to pass		14	
2MSCCS1	Objects Oriented Programming with C++	3	Module Prepared by CVRU
2MSCCS2	DBMS & SQL (With MS Access / MS SQL Server)	3	Module Prepared by CVRU
2MSCCS3	Discrete Mathematics	3	Module Prepared by CVRU
2MSCCS4	Programming with VB.Net	3	Module Prepared by CVRU
2MSCCS5	DATA STRUCTURE WITH C++	3	Module Prepared by CVRU
2MSCCS6	Minor Project	3	Module Prepared by CVRU
Total aggregate required to pass		18	
3MSCCS1	Compiler Design	2	Module Prepared by CVRU
3MSCCS2	Java Programming	3	Module Prepared by CVRU
3MSCCS3	Software Engineering	3	Module Prepared by CVRU
3MSCCS4	Multimedia Tools And Application	3	Module Prepared by CVRU
3MSCCS5	Artificial Intelligence And Expert System	3	Module Prepared by CVRU
Total aggregate required to pass		14	
4MSCCS1	Computer Graphics	3	Module Prepared by CVRU
4MSCCS2	Data warehousing & Mining	3	Module Prepared by CVRU
4MSCCS3	Advanced Java Programming	3	Module Prepared by CVRU
4MSCCS4	RESEARCH METHODOLOGY	3	Module Prepared by CVRU
4MSCCS5	Major Project	6	Module Prepared by CVRU
Total aggregate required to pass		18	

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	1MSCCS1 1MSCCS2 1MSCCS3 1MSCCS4 1MSCCS5	<ul style="list-style-type: none"> • April 30 (for January Session) • October 31 (for July Session)
Second Semester	2MSCCS1 2MSCCS2 2MSCCS3 2MSCCS4 2MSCCS5	<ul style="list-style-type: none"> • October31 (for January Session) • April30 (for July Session)
Third Semester	3MSCCS1 3MSCCS2 3MSCCS3 3MSCCS4 3MSCCS5	<ul style="list-style-type: none"> • April 30 (for January Session) • October 31 (for July Session)
Fourth Semester	4MSCCS1 4MSCCS2 4MSCCS3 4MSCCS4 4MSCCS5	<ul style="list-style-type: none"> • October31 (for January Session) • April30 (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 Programme 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 कार्यक्रम 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.

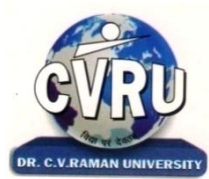
सत्रीय कार्य की एक प्रतिलिपि अपने पास रखें ताकि किसी अनहोनी घटना से बचा जा सके।

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.

CVRU-IODE Programme Guide 2018-19 – Faculty of Information Technology
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),Multiresolution 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

Title Page 18-24
Headings / subheadings 12-16
Text 12
Footnotes 8-10

Font size For Hindi

18-24
16-20
14
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, ¾ - 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.

ANNEXURE-III (Outer cover)

**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)

ANNEXURE-IV (Inner cover)

**THE TITLE OF THE PROJECT REPORT IN THE INNER 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}

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)

{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)

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)

ANNEXURE-V

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.

ANNEXURE-VI

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)

ANNEXURE-VII

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 >

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Abstract /Preface	I
List of Tables: <i>(If applicable)</i>	II
List of Figures : <i>(If applicable)</i>	III
List of Abbreviations/Symbols <i>(If applicable)</i>		IV
Chapter-I	Introduction
Chapter-II	Review of Related Literature
Chapter-III	Research Methodology
Chapter-IV	Observation And Analysis
Chapter-V	Result, Conclusions and Suggestions
Bibliography	As per style given in reference section of text of the project report.
Appendixes	Questionnaire/Formula/Diagnosis/Any Supporting Documents	other

