Gondwana University,
Gadchiroli

Choice Based Credit System (CBCS)

Syllabus
of

B.Sc. (Information Technology)- III Semester – V & VI

(Three Years Degree Course)

Prepared by

IT & Application Board

2019-2020

B.Sc. (I.T.)– III (Semester- V)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			
					IA	UE	Tota	Min. Passing (40%)
Discipline Specific Elective Course (DSEC-I)	**UBITT501.1** **UBITT501.2** **UBITT501.3**	**Choose Any Two** • **.NET FRAMEWORK AND C#.NET** • **THEORY OF COMPUTATIONAL ANALYZER** • **COMPUTER GRAPHICS**	3 3	**2** 2	**10** 10	**40** 40	50 50	**40**
Discipline Specific Elective Course (DSEC-II)	**UBITT502.1** **UBITT502.2** **UBITT502.3**	**Choose Any Two** • **DATA WAREHOUSING AND DATA MINING** • **PROJECT MANAGEMENT** • **DATABASE ADMINISTRATION AND DISTRIBUTED COMPUTING**	3 3	2 2	10 10	40 40	50 50	**40**
Discipline Specific Elective Course (DSEC-III)	**UBITT503.1** **UBITT503.2** **UBITT503.3**	**Choose Any TWO** • **DATA STRUCTURES** • **CORE JAVA** • **BIO-INFORMATICS**	3 3	2 2	10 10	40 40	50 50	**40**
Skill Enhancement Course(SEC-III)	**UBITT504.1** **UBITT504.2** **UBITT504.3** **UBITT504.4**	**Choose Any ONE** • **COMPUTERS FOR MANAGER** • **A CERTIFICATION COURSE FROM IIT SPOKEN TUTORIAL, MUMBAI** • **PERSONALITY DEVELOPMENT** • **ACCOUNTING & OFFICE MANAGEMENT**	1	2	50	-	50	**20**
Discipline Specific Elective Course Lab (DSEC-IV)	**UBITP505**	**Lab Based on DSEC-I**	4 Prac. Per Batch	2	20	30	50	**20**
Discipline Specific Elective Course Lab (DSEC-V)	**UBITP506**	**Lab Based on DSEC-III**	4 Prac. Per Batch	2	20	30	50	**20**
Ability Enhancement Compulsory Course (AECC-VII)	**UBITS507**	**SEMINAR (Skill Based)**	2	4	100	-	100	**40**
		Total		**22**	**250**	**300**	**550**	**220**

NOTE : 1) In a Group , If any student remains absent in one of the paper then candidate result will be considered as fail in that group even though he/ she has scored minimum passing marks in other paper of that group . Candidate need to appear in both the papers of that group.

2) In practical, Student must appear external practical examination conducted by university in order to clear the practical examination.

B.Sc. (I.T.) –III (Semester- V)

UBITT501.1

Paper- I (Elective -1) : .NET FRAMEWORK AND C#.NET

[Max. Marks-40

Unit-I

The .NET framework: Introduction, The Origin of .NET Technology, Common Language Runtime (CLR), Common Type System (CTS), Common Language Specification (CLS), Microsoft Intermediate Language (MSIL), Just-In –Time Compilation, Framework Base Classes.

Unit-II

C -Sharp Language (C#): Introduction, Features of C#, Data Types, Identifiers, Variables, Constants, Literals, Array and Strings, Object and Classes, abstract class, static class, sealed class, Inheritance and Polymorphism, Operator Overloading, Interfaces, Type conversion.

Unit-III

Delegates and Events : delegates, multicast delegates, events.
C# Using Libraries: Namespace- System, Input-Output, Multi-Threading, Managing Console I/O Operations, Windows Forms, Error Handling.

Unit-IV

Advanced Features Using C# : Web Services, Window Services, ASP.NET Web Form Controls, ADO.NET. Distributed Application in C#, Unsafe Mode, Graphical Device interface with C#. **.NET Assemblies and Attribute:**.NET Assemblies features and structure, private and share assemblies, Built-in attribute and custom attribute. Introduction about generic.

Books:-

1. Wiley," Beginning Visual C# 2008",Wrox
2. Fergal Grimes," Microsoft .NET for Programmers". (SPI)
3. Balagurusamy," Programming with C#", (TMH)

References:

1. Mark Michaelis, "Essential C# 3.0: For .NET Framework 3.5, 2/e, Pearson Education
2. Shibi Parikkar, " C# with .NET Frame Work" , Firewall Media.

B.Sc. (I.T.) – III (Semester - V)

UBITT501.2

PAPER- I (Elective-2) : THEORY OF COMPUTATIONAL ANALYZER

[Max. Marks: 40

UNIT-I: FINITE AUTOMATON

Finite State Machine: Finite automaton Model, Acceptance of Strings and Languages, Types of FA (Deterministic Finite Automaton, Non-Deterministic Finite Automaton, NFA with ε Moves, Two way Deterministic Finite Automaton), Construction of DFA, Construction of NFA, Equivalence between NFA and DFA, Conversion of NFA into DFA.

UNIT- II: REGULAR EXPRESSION&CONTEXT FREE GRAMMAR

Regular Expression: Manipulation of Regular Expression, Equivalence between RE and FA, Pumping Lemma for Regular Set, Regular Grammar, Types of Regular Grammar.
Context Free Grammar: Derivation Tree, Chomsky Normal Form, Greibach Normal Form, Ambiguity in Grammar, Useless Symbol.

UNIT- III: PUSH DOWN AUTOMATON AND TURING MACHINE

Push Down Automaton: Definition, Model, Acceptance of CFL, Equivalence between CFL and PDA, Construction of PDA, Conversion of PDA to CFG, Conversion of CFG to PDA, Pumping Lemma for CFL.
Turing Machine: Definition, Model, Acceptance of REL, Types of TM, Construction of TM, Linear Bounded Automaton.

UNIT- IV: INTRODUCTION TO COMPILER

Compiler : Definition of Compiler, Structure of Compiler, Lexical Analysis, Transition Diagram for Identifier and Constant, Syntax Analysis, Parse Tree Construction, Intermediate Code Generation, Code Optimization, Principle sources of Code Optimization, Book keeping, Error Handling, Types of Compiler.

Books :

1. J. D. Ullman and H. E. Hopcraft, "Introduction to Automata Theory, Languages and Computation", Narosa Publication, ISBN : 81-85015-96-1
2. A. V. Aho, and J. D. Ullman , Principle of Compiler Design, Narosa Publication, ISBN :81-85015-61-9
3. Dr. S.B. Kishor, "Theory of Computation", Das Ganu Publication, ISBN : 978-93-81660-15-7

References :

1. John C Martin, "Introduction to Languages and the Theory of Computation", Tata McGraw-Hill Publication, ISBN : 0-07-049939-X
2 K. L. P. Mishra and N. Chandrashekhar, "Theory of Computer Science", Prentice Hall of India , ISBN :81-203-1271-6

B.Sc.(I.T.) - III (Semester – V)

UBITT501.3

PAPER- I (Elective – 3): Computer Graphics

[Max. Marks: 40

UNIT – I: Introduction

Geometry & Line Generation – Introduction, Vectors, Pixels and Frames Buffers, Vector Generation, Character Generation, Displaying the Frame Buffer.

Graphics Primitive – Introduction, Display Devices, Primitive Operations, the Display File Interpreter, Normalized Device Coordinator, Display File Structure, Display Control, Text Line Style Primitive.

UNIT – II: **Polygons, Transformations & Segments**

Polygons – Introduction, Polygons, Polygon Representation, Entering Polygon, An Inside Test, Filling Polygons.

Transformations – Introduction, Matrices, Scaling Transformation, SIN & COS, Sum of Angles Identifier, Rotation, Homogeneous Coordinates and Translation, Rotation about an Arbitrary Point, Other Transformation, Display Procedures.

Segments – Introduction, the Segment Table, Segment Creation, Closing the Segments, Other Display File Structure, Raster Technique.

UNIT – III: Windowing & 3D Geometry

Windowing & Clipping - Introduction, Viewing Transformation, Viewing Transformation Implementation, Clipping, Clipping of Polygons, Adding Clipping to the System, Generalized Clipping, Position Relative to an Arbitrary Line Multiple Windowing.

Interaction – Introduction, Hardware, Input Devices Handling Algorithms, Event Handling, Sample Devices, Delectability Attributes, Simulating a Locator with a Pick, Pick with a Locator, Echoing, Interactive Technology.

Three Dimension Geometry – Introduction, 3D Geometry, Primitives and Transformation

UNIT – IV: Surface, Shading & Curves

Hidden Surface and Lines – Introduction, Back Face Removal, Pointers Algorithm, Collection of Polygons, Remembering the Style, Hidden Surface Check.

Shading – Introduction, Diffusion, Illustration, Point- Source Illustration, Specular Reflection, Transparency and Shadow.

Curves – Introduction, Curve Generation, Implementation, Interpolating Polygon, B-Spines and Curves.

Books:

1) Dr. S. B. Kishor ”Computer Graphics”, Das Ganu Publication
2) Steven Harrington, “Computer Graphics a Programming Approach ”, Tata McGraw-Hill, ISBN- 0-07-100472-6
3) Donald Hearn Baker, “Computer Graphics”, Pearson Education, ISBN-81-78-08-794-4

References:

1) Newman & Sproul, “Interactive Computer Graphics”
2) David F Rogers, “Procedural Elements for Computer Graphics”, Tata McGraw Hill, 2nd Ed, ISBN-0-07-047371-4

B.Sc. (I.T.) - III (Semester - V)

UBITT502.1

Paper- II (Elective -1): DATA WAREHOUSING AND DATA MINING

[Max. Marks : 40

UNIT I: DATA PROCESSING AND DATA WAREHOUSING

Data Processing: Data and Information, Value of Information, Quality of Information, Information Life Cycle, Need of Data Processing, Database Terminology, Types of Database, Database Approach, MIS, KMS, BI

Introduction to Data Warehousing: Data Warehousing Architecture, Data Warehousing Design Consideration, Components of Data Warehousing, Data Cleaning, Data Integration and Transformation, Data Reduction, Data Decentralization. Tools for Data Warehousing

UNIT II: OLTP AND OLAP SYSTEM

Introduction to OLAP definitions, Characteristics, Demand, Features, Advantages and Disadvantages and Functions. Working of OLAP, OLAP Operation: Roll Up, Drill Down, Dice, Slice, Pivot. Types of OLAP Server.

OLTP, Comparison between OLTP and OLAP

UNIT III: METADATA AND DATA MARTS

Metadata Definition, Granular Data, Data Marts Definition and Types, Data Requirements for Data Marts: External Data, Reference Data, Data Model for Data Mart, Steps in implementing a data mart, Maintenance of Data Marts, Performance Issues and Security in a Data Mart.

UNIT IV: DATA MINING

Introduction to Data Mining, From Data Warehousing to Data Mining, Data Mining Functions, Major Issues in Data Mining, Steps of Data Mining, Data Mining Algorithm : Database Segmentation, Link Analysis & Predictive Modelling, Data Mining Tools, Applications of Data Mining.

Text Books:

1. R. Kimball: The Data Ware House Life Cycle Tool Kit, Wiley Press, John Wiley and Sons ASIA) Pvt. Ltd.
2. J. Han and M. Kamber: Data Mining Concepts and Techniques, Elsevier Pub. Indian Reprint, 2004.
3. Dr. S. B. Kishor, Database Management System, Das Ganu Prakashan
4. C,S.R. Prabhu, Data Warehousing, PHI Learning Pvt. Ltd., Third Edition, 2013

Reference Books:

1. Introduction to Data Mining – Tan, Steinbach, Vipin Kumar, Pearson Education.
2. Fundamentals of Data Warehouses, Jarke, Vassiliou, 2nd Edition, Springer.
3. System Analysis and Design, Dr. S. B. Kishor, Das Ganu Prakshan
4. Data Mining- with Microsoft SQL Server 2000, Claude Seidman, Prentice Hall of India Pvt. Ltd. 2005

B.Sc. (I.T.) - III (Semester -V)

UBITT502.2

Paper- II (Elective-2) : PROJECT MANAGEMENT

[Max. Marks:40

UNIT- I: Project Management

Management Spectrum, the People, the Product, the Process, the Project, Project Manager-Role and Responsibilities, Project Estimation – Introduction, Decomposition Techniques-Software Sizing, Problem Based Estimation, Loc Based, FP Based Estimation.

Unit – II: Project Scheduling

Basic Concepts, Project Scheduling, Basic Principles, Relationship Between People and Effect, Effort, Effort Distribution, Definition A Task Network- CPM/PERT, Gantt Chart.

UNIT –III: Microsoft Project

Introduction : Microsoft Project, Menu Bar, **Using the Toolbars:** Using Tool Tips, Using the Standard Toolbar, Using the Formatting Toolbar, Open, Save, Save as Views, Changing to Calendar View, Changing the Look of the Calendar – (for Printing).Using the Gantt Chart **View:** Opening the Gantt Chart View, Using the Components of the Gantt Chart View, Moving the Border Between the Panes., Understanding the Project Information: Starting a New Project, Using the Project Information, Window.

Unit – IV: Advanced Microsoft Project

Understanding the Project Calendar: Setting up a Working Calendar, Using Default, Working Time, Creating a New Calendar, Changing Default Working Time, Changing Time for Individual Days, Entering a Shut-Down Period, Linking Your New Calendar to the Project, Understanding File Properties: Understanding Properties, Examining Properties, Using Save and Save as: Saving and Saving as, Saving a Project for the First Time, Saving for Future Up-Dates to the Project.

Books:

1) Elias M. Award, “System Analysis and Design”, Galgotia Publication
2) Newton,” Project Management Step By Step “,Pearson Publication,ISBN-9788131719152
3) Maylor, ”Project Management”, 3rd Ed., Pearson Pub., ISBN-9788177580365.

References:

1) Whiteen, Bentley, Dittman, “System Analysis and Design Methods”, McGraw-Hill
2) Royce,” Software Project Management”, Pearson Publ., ISBN- 978177583786

B.Sc.(I.T.) III (Semester –V)

UBITT502.3

Paper- II (Elective-3) : DATABASE ADMINISTRATION & DISTRIBUTED COMPUTING

[Max. Marks: 40

UNIT-I: Introduction to Oracle Database Administration : Introduction to Relational Database Management System, Database Modeling and Relational Database Design, Creating Database, Background Processes, Internal Database Structure, Database File Layout, Database Space Usage Overview, Resizing Data File. Basic SQL and PL/SQL Concepts Terminology, Using Procedure Builders, Data Manipulation Language (DML), Data Definition Language (DDL), PL/SQL Programming.

UNIT-II: Oracle Database Architecture and Administration : Oracle Database Architecture, Design, Creation, Management of Oracle Database and Related Database Schemes, Data Dictionary Views and Standard Packages, Maintaining the Control, Redo Log Files, Managing Tables Paces and Data Files, Storage Structure and Relationships, Managing Tables, Indexes, Managing Data Integrity, Managing Password Security and Resources, Managing Users, Privileges, Roles.

UNIT-III: Fundamentals : Introduction to Distributed Computing System, Distributed Computing System Model, Advantages of Distributed Computing System, Introduction to Distributed Operating System, Introduction to Distributed Computing Environment.

UNIT-IV: Message Passing : Introduction, Characteristics of Good Message Passing System, Issues in IPC by Message Passing, Synchronization, Buffering, Multidatagram Messages, Encoding and Decoding of Message Data Process Addressing, Failure Handling, Group Communication.

Books:

1.) Oracle Press, “ORACLE DBA Handbook”, Tata McGraw Hill Pub, ISBN-978-0-07-048674-7

2) Groff Weinberg, “The Complete reference SQL”, Tata McGraw Hill Pub, ISBN-978-0-07-052850-5

References:

1) P.K .Sinha, “Distributed Operating System”, PHI publication, ISBN-8120313801

2) Martin Gruber, “Understanding SQL”, BPB Pub, ISBN-81-7029-644-7

B.Sc. (I.T.) – III (Semester –V)

UBITT503.1

Paper-III (Elective- 1) : Data Structures

[Max Marks-40

UNIT 1: Introduction to Data Structures

Data Structure: Introduction, Definition, Fundamentals of DS, Operations on Data Structure.

Arrays: Introduction, Types of Arrays, Memory/Storage Representation of One and Two Dimensional Array, Multidimensional Array, Declaration of Array

Sorting- Definition of Sorting, Comparison of Sorting Method, Insertion Sort, Selection Sort, Merging.

Searching- Definition**,** Type of Searching (Binary Search, Linear Search)

UNIT 2: Stacks and Queues

Stacks: Introduction and Definition, Application of Stack, Various Representation of Stack, Operation on Stack (Push and Pop), Hierarchy of Operations, Representation of Arithmetic Expression (Infix, Prefix, Postfix), Multiple Stack.

Queues: Introduction, Applications of Queue, Various Representations of Queue, Operations on Queue, Concept of Deque, Priority Queues and Circular Queue.

UNIT 3: Recursion and Linked List

Recursion: Introduction, Recursion Properties, Applications of Recursion (Factorial, Addition of Two Number, Power of a Number, Fibonacci Series, Multiplication of Two Number, Tower of Hanoi), Advantages and Disadvantages of Recursion.

Linked List: Introduction, Dynamic Memory Management and Definition of Linked List, Applications of Linked List and Representation of Linked List, Memory Allocation, Garbage Collection and Free List, **Operations on Linked List:** Inserting, Removing, Searching, Concept of Double Linked List.

UNIT 4: Tree and Graphs

Trees: Introduction**,** Definition of Trees, Binary Tree, Type of Binary Tree, Operation on Binary Tree, Traversal of Binary Tree, Binary Search Tree (BST), Expression Trees, Memory Representation of Binary Tree, Threaded Binary Tree, AVL Tree, B-Tree.

Graphs: Definition of Graph, Various Terminology Used in Graph, Sequential Representation of Graph, Path Matrix, Spanning Tree, and Minimum Spanning Tree (Kruskal‟s Algorithm, PRIM‟S Algorithm), Traversing a Graph.

Books:

1) Lipschutz Schaum‟s, “Data Structure”, Outline Series,TMH,ISBN-0-07-060168-2.
2) Dr. S.B. Kishor, “Data Structure”, Das Ganu, ISBN :978-81-921757-4-4
3) D. Samanta, “Classical Data Structure”, PHI, ISBN:8120318749

References:

1) Tenenbaum,” Data Structures Using C and C++”, Second Edition, PHI, ISBN-81317-0328-2

2) Deshpande and Kakade, “C and Data Structure”, Dramatic Publication, ISBN-81-7722424-7.

B.Sc. (I.T.) - III (Semester -V)
UBITT503.2

Paper- III (Elective- 2): CORE JAVA

[Max Marks : 40

UNIT – I: Introduction to Java

History of Java, Features of Java, JDK Environment, Java Virtual Machine, Garbage Collection **Programming Concepts of Basic Java:** Identifiers and Keywords, Data Types in Java, Java coding Conventions, Expressions in Java, decision making and looping control statements, Arrays.

UNIT – II: Objects and Classes

Object Fundamentals and Classes, Pass by value, „this" reference, Data Hiding and Encapsulation, Overloading, Overriding ,Constructors, Finalization, Inheritance.

Language Features: Scope rules, static data member, static methods, static blocks, Modifiers of a Class, Methods, Data Members and Variable, Abstract Classes, Interfaces, Packages, Importing Packages and Classes, User define packages.

UNIT – III: Exception Handling & Multithreading

Types of Exceptions try, catch, finally, throw, throws, creating your own exception.

Multithreading: Multithreading Concept, Thread Life Cycle, Creating multithreading Application, Thread Priorities, Thread synchronization.

UNIT – IV: Abstract Window Toolkit & Streams and File I/O

Abstract Window Toolkit: Components and Graphics, Containers, Frames and Panels, Layout Managers- Border Layout, Flow Layout, Grid Layout, Card Layout, AWT all Components, Event Delegation Model, Event Source and Handlers, Event Categories, Listeners, **Applets :**Applet Life Cycle, Applet Context, Inter applet communication.

Streams and File IO: Files and Stream, Stream classes, Reader Writer classes, File class, Serialization and de-serialization.

Books:

1) Cay S Horstmann Gary Cornell, "Core JAVA 2 Vol -1, 2", The Sun Micro Systems Press, New Delhi, *ISBN*-13: 978-0470105559
2) Dr. S. B. Kishor, Dr. Rajani Singh, "Programming in JAVA", Das Ganu Publication.
3) Peter Van der Liden, "Just Java", The Sun Micro Systems Press, New Delhi, *ISBN*,0130897930
4) E. Balaguruswamy, "Programming with Java - A Primer", The Sun Micro Systems Press, New Delhi, *ISBN*81-265-0931-7

References:

1) Deitel and Deitel, "Java How to Program", Prentice Hall Upper Saddle River, New Jersey 07458 (US). ISBN 0-13-034151-7
2) Jerry R Jackson Alan L, "Java by Example 1.2", McClellan Publication

B.Sc. (I.T.) - III (Semester-V)
UBITT503.3

Paper-III (Elective- 3) : BIO-INFORMATICS

[Max Marks:40

UNIT - I: Introduction
Historical Overview and Definition, Biological Classification and Nomenclature, Bioinformatics Applications, Major Databases In Bioinformatics, Molecular Biology and Bioinformatics, Central Dogma of Molecular Biology.
Information Search and Data Retrieval: Tools For Web Search, Data Retrieval Tools, Data Mining of Biological Databases.

UNIT –II: Genome Analysis and Gene Mapping, Alignment of Pairs of Sequences
Genome Analysis, Genome Mapping, The Sequence Assembly Problem, Genetic Mapping and Linkage Analysis, Physical Maps, Cloning The Entire Genome, Genome Sequencing, Application of Genetic Maps, Sequence Assembly Tools, Identification of Genes In Contigs, The Human Genome Project, Methods of Sequence Alignment, Using Scoring Matrices, Measuring Sequence Detection Efficiency.

UNIT –III: Alignment of Multiple Sequences and Phylogenetic Analysis and Tools for Similarity Search and Sequence Alignment
Methods of Multiple Sequence Alignment, Evaluating Multiple Alignments, Applications of Multiple Alignments, Phylogenetic Analysis, Methods of Phylogenetic Analysis, Tree Evaluation, Automated Tools For Phylogenetic Analysis. FASTA, BLAST, Filtering and Gapped BLAST, FASTA and BLAST Algorithms Comparison.

UNIT –IV: Gene Identification and Prediction, Protein Classification and Structure Visualization Protein Structure Prediction, Drug Discovery
Basics of Gene Predication, Pattern Recognition, Gene Prediction Methods, Gene Prediction Tools, Overview of Protein Structure, Protein Structure Visualization, Structure Based Protein Classification, Protein Structure Visualization Databases and Tools, Protein Identification and Characterization, Primary Structure Analysis and Predication, Secondary Structure Analysis and Prediction, Drug Discovery technology and strategy.

Books:

1) S.C.Rastogi, N.Mendiratta, P.Rastogi, “Bioinformatics, Methods and Applications”,TM, ISBN: 81-203-3062-5.

2) M. Lesk, “Introduction to Bioinformatics”, Oxford University Press, ISBN:10-0-19-568525-3.
3) Bergeron Bryan, “Bioinformatics Computing”, PHI, ISBN: 81-203-2258-4.

References:

1) Jean-Michael Claverie and Cedric Notredame, “Bioinformatics, A Beginner"s Guide”,WILEY-Dream-Tech, ISBN: 81-265-0380-7.

B.Sc. (I.T.) - III (Semester-V)
UBITT504.1

Paper-IV (Elective 1): COMPUTERS FOR MANAGER

[Max Marks: 50

Unit I

History of Internet, Internet Applications, Introduction to MIS, structure of MIS, ERP, CRM, SCM.

Unit II

Business Intelligence, Business Analytics: Online Analytical Processing Reporting and Querying, Online Analytical Processing.

Unit III

Data Text Web Mining and Predictive Analytics, Text Mining, Web Mining, Predictive Analytics.

Unit IV

Data Visualization, Geographic Information Systems (GIS), Virtual Reality, Real-Time Business Intelligence (BI), Competitive Intelligence (CI), the Role of Scorecards and Dashboards in Performance Management.

Books:

1. Computer for Manager, Dr. S. B. Kishor, Dr. Niyaz Sheikh, Dr. Chitra Dhawale, Dr. Rajani Singh, Das Ganu Publication
2. System Analysis and Design, E. Award, Galgotha Publication 2nd Edition ISBN: 81751568X.

B.Sc. (I.T.) - III (Semester-V)

UBITT504.2

Paper-IV (Elective 2) :A CERTIFICATION COURSE FROM IIT SPOKEN TUTURIAL

[Max Marks : 50

Enroll and study any one course from IIT Spoken Tutorial, Mumbai.

Note: - Submit Certificates/Marksheet before the Start of Final Practical Examination of Gondwana University, Gadchiroli

B.Sc. (I.T.) - III (Semester-V)

UBITT504.3

Paper-IV (Elective 3) : PERSONALITY DEVELOPMENT

[Max Marks: 50

UNIT- I

Spoken English Basic Course : Improve accuracy in Grammar, Expand vocabulary, Tenses, Prepositions, Modals, Voices, Direct/Indirect Speech, Adverbs, Adjectives.

Interpersonal skills: Introduction to Interpersonal Relations, Analysis of Life position.

UNIT-II

Communication Skills: Introduction to Communication, Flow of Communication, Listening, Barriers of Communication, How to overcome barriers of communication

Stress Management: Introduction to Stress Causes of Stress, Impact Management Stress, And Managing Stress.

UNIT -III

Group Dynamics &Team Building: Group Dynamics, Importance of groups in organization, Team Interactions in group, How to build a good team?

Personality Development: Inner Personality Development, Role of motivation & body language, Filling the GAP- Grooming, Attitude, Personality.

Creative Thinking: Express creativity in everyday situations, Know the creative thinking process, and Develop a positive attitude.

UNIT-IV

Business Writing: Use of Simple structure while writing, apply a positive tone in business communication.

Time Management: Time as a Resource, Identify Important Time, Management Wasters, Techniques for better Time Management.

Motivation: Introduction to Motivation, Relevance and types of Motivation.

Books:

1) Vijay Agrawal ,"Personality Development for Students ", Paperback, 1st Edn , ISBN:9789382419259,938241925X
2) Sourav Das ," The Personality Development Book"

Reference:

1) BarunMitra ,"Personality Development and Soft skills", Oxford publications
2) "Soft skill Development", SaiJyoti publications, Prashant A. Dhanwalkar, S.R.Sharma,Gunjan Sharma

Paper-IV (Elective 4) :ACCOUNTING & OFFICE MANAGEMENT

Unit1: Concept of Office Management.

Meaning and definition of office, importance of office, Functions of Modern office, Sections and function of office departments, Meanings and definitions of Management ,Functions of management, Meaning and definitions of office management, Approach of office management 1)Conventional office Management 2)Artistic office management 3)Scientific officemanagement,Principlesofofficemanagement,Functionsofofficemanagement

Unit2: Office Organizing

Meaning and definition of office organization, Importance of office organization Principles of office organization, Types of office organization, Meaning and definition of Delegation of Authority, Responsibility, Importance, features and factors of delegation of authority and responsibility, Principles of Delegation of Authority and responsibility, Problems in Delegation of Authority and responsibility, Job specialization, Job analysis and Job description, Meaning and Importance of organizational Relationship, Meaning of Span of Authority, Informal Organization, Conflict in Organization, Causes of organizational change.

Unit.3: Office Communication

Meaning and definition of Communication, Importance of Communication, Features of Communication, Elements of Communication, Scope of Communication, Types and Media of communication, Principles of communication, Barriers in communication, Meaning, definition and principles of coordination, Relation between coordination and communication.

Unit. 4: Office Manuals

Meaning and definition of office Manuals, Purpose of office manual, Importance of office Manual, Types of Office Manual, Manual in use, Contents of Office manuals, Sources of Manual materials, Procedure of preparation of Office manual, Distribution revision and maintenance of office manuals, Evaluation of Office manuals, Advantages and Disadvantages of office manual

Books:

1) Introduction To Computers, Dr Darrell W Hajek, **ISBN-10:** 1545236461
2) Bank Financial Management, , Indian Institute of Banking and Finance, McMillan Education Publication

B.Sc. (I.T.) – III (Semester –V)

UBITP505

Practical I Based on DSEC-I

.NET FRAMEWORK AND C#.NET based Practical's.

1 Write a program in C# to check whether given program is even or odd.

2. Write a program in C# to swap two numbers.

3. Write a program in C# to check whether the entered number is leap year or not.

4. Write a program in C# to display ATM transactions.

5. Write a program in C# to find a number using Pythagoras theorem

6. Write C# code to declare a variable to store the age of a person.

7. Write C# code to display the asterisk pattern as shown below:

*****
*****
*****
*****
*****

8. Write a C# program that prompts the user to input three integer values and find the greatest value of the three values.
9. Write a C# program that determines a student"s grade

ifavg<35 then "fail" otherwise
avg>=35 and avg<50 then "third"
avg>=50 and avg<60 then "second"
avg>=60 and avg<90 then "first" else "merit"

10. Write C# program to print the table of characters that are equivalent to the Ascii codes from 1 to 122.

11. Write a program in C# to create a function to input a string and count number of spaces are in the string.
12. Write a program in C# to calculate the sum of elements in an array
13. Write programs using conditional statements and loops:
    i. Generate Fibonacci series.
    ii. Generate various patterns (triangles, diamond and other patterns) with numbers.
    iii. Test for prime numbers.
    iv. Generate prime numbers.
    v. Reverse a number and find sum of digits of a number.
    vi. Test for vowels.
    vii. Use of for each loop with arrays.
14. Object oriented programs with C#
    i. Program using classes.
    ii. Program with different features of C#
    iii. Operator Overloading

B.Sc. (I.T.) – III (Semester –V)

UBITP506

Practical II Based on DSEC - III

DATA STRUCTURES based Practical's.

1) To delete an element from K^{th} position of Array.
2) To insert an element ITEM at K^{th} position of Array.
3) To insert an element Item in Sorted Array.
4) To implement the operation of Push, Pop and to know the status of stack.
5) An algorithm to check the status of stack.
6) To find factorial of a number using Recursion.
7) To find multiplication of two number using Recursion.
8) To simulation the game of Tower of Hanoi using recursion.
9) To implement the operation of insertion and deletion on Queue.
10) A menu driven program to implement the operation of addition, deletion, searching, traversing, reversion, sorting, counting number of nodes and at the end erasing the link list.
11) Implementation of stack using linked list.
12) Implementation of Queue using linked list.
13) To create binary search tree, traverse it and find number of leaves and total nodes in the Tree.
14) To arrange the list of number in a Sorted order using Merge Sort.
15) To arrange the list of number in the Sorted order using Quick sort.
16) To check all the element of list is in sorted order or not.
17) To search an element using sequential or linear search .At the end display time required to search an element including number of comparison.
18) To search an item position in sorted list (Binary search).

CORE JAVA based Practical's

1. WAP to Display "Hello World" on to the console.
2. WAP to create a class contains two methods with the same name but with different signature.(Method overloading)
3. WAP for method overriding where calculate () method of super class is overridden by the calculate () method of sub class.
4. WAP to use super class reference to call the calculate () method.
5. WAP to explain the concept of Constructor and Parameterized constructor.
6. WAP to explain the concept of Inheritance.
7. WAP to access the super class method and instance variable by using super key from subclass.
8. WAP to prove that the default constructor of the Super class is available to Subclass by default.
9. WAP to create an Abstract class with an abstract method and then create a concrete class which provides the implementation to abstract methods of abstract class.
10. WAP to implement Multiple Interfaces simultaneously.
11. WAP to explain the concept of „this" keyword.
12. WAP to create a thread and explain the use of the methods run () and start ().
13. WAP to create an Applet and uses all the methods of Applet.
14. WAP to create a Frame and has a button that response to the user action.
15. WAP to explain any one Layout Mechanism used in Java.
16. WAP to Bypass the generated exception from present method to the caller method by using throws keyword.
17. WAP to develop an Applet to print the Life Cycle Methods of applet on the HTML page.
18. Write programs for following
    i) Inheritance (all types)
    ii) Interfaces
    iii) Using Delegates and events
19. Write program to demonstrate exception handling

B.Sc. (I.T.) – III (SEMESTER –V)

UBITS507

SEMINAR (Skill Based)

[Max. Marks: 100

The seminar must be based on some current trends related to IT / Computer Science / Computer Application. A Student must present the Power Point presentation along with Seminar Report. Students are requested to follow the following guidelines while choosing & preparing their seminars.

Guide lines to B.Sc. (I.T.) Seminar

1) Name of seminar topic must be latest to the current trends and should not be repeated but can be extended from previous semester.

2) Seminar topic is to be approved by the concerned guide before the deadline prescribed by university time-table.

3) Seminar should be given individually.

4) Students are allowed to use graphics / animation / audio-video aids for their presentation.

5) Seminar work comprised ONLY Internal examination.

6) Students are requested to submit their seminar reports on or before the dead line with the concern of their respective guide otherwise students will be responsible for any appropriate action.

7) Seminar Report should be typed / printed in double line space using A4 size bond papers with a left margin of 1.5”and right margin of 1.0” with proper spiral binding to be done.

8) Students are requested to obtain necessary certificates and declaration to be duly enclosed in the report.

B.Sc. (I.T.)– III (Semester- VI)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			
					IA	UE	Total	Min. Passing (40%)
Discipline Specific Elective Course (DSEC-VI)	**UBITT601.1** **UBITT601.2** **UBITT601.3**	**Choose Any TWO** • **WEB TECHNOLOGY** • **DATA COMMUNICATION AND CLOUD COMPUTING** • **COMPUTER ARCHITECUTRE AND ORGANISATION**	3 3	2 2	10 10	40 40	50 50	**40**
Discipline Specific Course (DSC-I)	**UBITT602**	**PROJECT**	4 Prac. Per Week	4	50	50	100	**40**
Discipline Specific Elective Course (DSEC-VII)	**UBITT603.1** **UBITT603.2** **UBITT603.3** **UBITT603.4**	**Choose Any TWO** • **PYTHON PROGRAMMING** • **COMPUTATIONAL LINGUISTIC** • **IMAGE PROCESSING & ANALYSIS** • **SOFTWARE ENGINEERING**	3 3	2 2	10 10	40 40	50 50	**40**
Skill Enhancement Course (SEC-IV)	**UBITT604.1** **UBITT604.2** **UBITT604.3** **UBITT604.4**	**Choose Any ONE** • **MEDIA MANAGEMENT** • **ANY ONE CERTIFICATION COURSE FROM MOOC's** • **E-WASTE MANAGEMENT** • **PRINCIPLE OF MANAGEMENT**	1	2	50	-	50	**20**
Discipline Specific Elective Course (DSEC-VIII)	**UBITP605**	**Lab based on DSEC-VI**	4 Prac. Per Batch	2	20	30	50	**20**
Discipline Specific Elective Course (DSEC-IX)	**UBITP606**	**Lab based on DSEC-VII**	4 Prac. Per Batch	2	20	30	50	**20**
Ability Enhancement Compulsory Course(AECC-VIII)	**UBITS607**	**Project Based SEMINAR**	2	4	100	-	100	**40**
		Total		**22**	**250**	**300**	**550**	**220**

NOTE :

1) **In a Group , If any student remains absent in one of the paper then candidate result will be considered as fail in that group even though he/ she has scored minimum passing marks in other paper of that group . Candidate need to appear in both the papers of that group.**
2) **In practical/Project, Student must appear external practical/Project examination conducted by university in order to clear the practical examination.**

B.Sc. (I.T.) - III (Semester-VI)
UBITT601.1

Paper-I (Elective 1): WEB TECHNOLOGY

[Max. Marks:40

Unit I: Introduction to Web and Internet
Client and server, web browsers, web server, web pages, different types of protocols. **Internet Security:** Secure Transaction, Privacy issues, computer crimes and its types. **Security Issues:** Security threats like damage to data, loss of data and unauthorized use of data.
Security Procedure: Firewall, Encryption, Password, Access control list, Digital Certificate.

Unit II: Cascading Style Sheets (CSS): Advantages of CSS, Disadvantages of CSS, Defining a Style, Inline style sheet, Embedded Style sheet, External style sheets.
Style sheet properties : Font, Color, background, creating group, text, Box properties, span tag.

Unit 3: Java Script
Introduction, Advantages, Disadvantages, working of JavaScript, structure of JavaScript program, Variable, Datatypes, Operators and Expression, decision making – if else, switch, loops (for, for…in, while, do…while),break and continue, arrays.
Java Script document object model : String object, Maths object, Date object, Number object, Boolean object.

Unit 4: VB Script: Introduction, Benefits and limitations, Working of VB script, Variables, Datatypes, Operators, Conditional and Looping statements, Arrays, Procedure and functions.
Built in Functions : variant function, math function, formatting function, string manipulation function.

Books:

1. JavaScript Programming for the absolute beginner by Harris (PHI).
2. Dr. S. B. Kishor ,"Web Designing", Das Ganu Prakashan ,ISBN-978-93-81660-05-08.

References :

1. NIIT "Building Web Applications" , Prentice Hall of India , ISBN-81-203-2714-4

B.Sc.(I.T.) - III (Semester - VI)

UBITT601.2

Paper-I (Elective 2): DATA COMMUNICATION AND CLOUD COMPUTING

[Max. Marks: 40

UNIT I: Data Communication

Data Transmission- Concept and Terminology, Analog and Digital Data Transmission, Transmission Impairment, Transmission Media. **Data Encoding–** Digital Data, Analog Data, Digital Signal, Analog Signal. **Digital Data Communication-** Asynchronous and Synchronous Transmission, Error Detection Technique, Interfacing. **Data Link Controls** – Line Configuration, Flow Control, Error Controls, Data Link Control Protocols. **Multiplexing–** Frequency Division Multiplexes, Synchronous Time Division Multiplexing.

UNIT II: Data Communication Network

Circuit Switching- Communication Network, Circuit Switching, Single Node Network, Digital Network Concept, Concept Signaling. **Packet Switching-** Packet Switching Principal, Virtual Circuit and Datagram, Routing, Traffic Controls, X.25.**LAN and MAN–** LAN, MAN Technology, Bus, Tree, Star, Ring Topology, and Medium Access Control Protocols.

UNIT III: Communication Architecture

Protocols and Architecture- Protocol, The Layered Approach, OSI Model, TCP/IP Protocol Suite, System Network Architecture. Internetworking – Principles of Internetworking, The Bridge, Routing With Bridge, Connectionless Internetworking, Connection Oriented Internetworking.

UNIT IV: Cloud Computing Basics

Cloud Computing Overview: Applications, Cloud computing services, cloud computing Deployment Models. **Your Organization and Cloud Computing:** Benefits, limitations, Security issues, Regular issues. **Cloud Computing with the Titans-** Google. **Hardware & Infrastructure:** Clients, Security, Network, Services.

Books:

1) Willam Stalling “Data and Computer Communication”, PHI, ISBN-81-7808-442-2
2) Dr. S. B. Kishor, “Data Communication with Cloud Computing Basics”, Das Ganu Prakashan, ISBN-978-93-81660-99-7.
3) Forouzan, ”Data Communication and Network”, TMH, ISBN-0-07-049935-7

References:

1) Tim Mather, SubraKumarsamy,” Cloud Security and Privacy”, ISBN:0596802765
2) Toby Velte, Anthony Velte, “Cloud Computing A Practical Approach”, McGraw-hill, ISBN - 0071626948.

B.Sc. (I.T.) - III (Semester-VI)

UBITT601.3

PAPER–I (Elective – 3): COMPUTER ARCHITECTURE AND ORGANIZATION

[Max Marks:40

Unit-1 :Principle of computer design : Software and hardware interaction, layers in computer architecture, machine language instructions, addressing modes, instruction types, central processing unit, instruction set selection, instruction and execution cycle.

Unit-2:Control Unit: Data path and control path design, microprogramming hardwired control, concept of pipelining in CPU , RISC v/s CISC, superscalar processors.

Unit-3: Memory subsystem: Storage technologies and terminologies, memory array organization, memory hierarchy, interleaving, cache memory and virtual memory including architectural aids to implement these.

Unit-4 : Input/ Output Processing : Bus Interface, Data transfer techniques, I/O interrupts and channels,. Performance evaluation: SPEC marks, Transaction Processing Benchmarks.

Books :

1. Computer Architecture and Organization by Tenenbaum
2. Computer Architecture and Organization by J. P. Hayes. 3. Parallel Processing by Hwang

References :

1. Computer Organization by Hamacher, Vranesic, Zaky (TMH)

B.Sc.(I.T.) – III (Semester –VI)
UBITT602

PROJECT

[Max. Marks-100

Instruction

Towards the end of the second semester of study, a student will be examined in the course "Project Work".

A. Project Work may be done individually or in groups (**Maximum 3 students**) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individual student.

B. The Project Work should be done using the tools covered in **B.Sc.(I.T.)**

C. The Project Work should be of such a nature that it could prove useful or be relevant from the System-oriented/Application/commercial / management angle.

D. The project work will carry 100 marks.

E. The external viva-voce examination for Project Work would be held as per the Examination Time Table of the final year of study, by a panel of one external and one Internal examiner.

Types of Project

The Applications Areas of project - Financial/Marketing/Database Management System/ Relational Database Management System/E-Commerce /Internet/ Manufacturing/ web Designing/Hardware and Software interaction based etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide. The project guide must be a person having minimum Qualification M.Sc. (Computer Science/IT) / MCA/ M.Sc. (Maths/Electronics/Statistics/Physics + Post B.Sc. Dip. In Comp. Sc. & Appl.) The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the following form:

1. Title of the project
2. Objectives and Hypothesis of the Project
3. Project Category (DBMS/RDBMS/OOPS/Web Designing/Internet etc.)
4. Tools/Platform, Languages to be used

5. A complete Structure of the program:
    i. Analysis.
    ii. Numbers of Modules.
    iii. Data Structures or Tables
    iv. Process Logic.
    v. Types of Report Generation.
6. Scope of future Application.

Project Report Formulation.

1. Title Page.
2. Certificate Page.
3. Declaration Page.
4. Acknowledgment Page.
5. Index or Content Page.
6. Documentation.
    i. Introduction/Objectives.
    ii. Preliminary System Analysis.
    iii. Source Code.
    iv. Input screen & Output Screen.
    v. Features of Project and its limitations.
    vi. Future Scope of the project.
    vii. Bibliography

Distribution of Mark of Project on the basis of following				
Module	**Maximum Marks**		**Min. Marks for Passing**	
	IA	**UE**	**IA**	**UE**
a) Synopsis relevance with that of final work	10	10	4	4
b) Project Work	10	10	4	4
c) Project Report	10	10	4	4
d) Presentation of Project Work	20	20	8	8
Total	**50**	**50**	**20**	**20**

B.Sc. (I.T.) - III (Semester-VI)

UBITT603.1

Paper –III (Elective – 1) : PYTHON PROGRAMMING

[Max Marks: 40

UNIT - I: Introduction to Python, Features, basic syntax, Writing and executing simple program, Basic Data Types, Declaring variables, Performing assignments, arithmetic operations, **Input-Output :** Printing on screen, reading data from keyboard.

UNIT –II: Sequence Control – Precedence of operators, Type conversion. **Conditional Statements:** if, if-else, nested if –else **Looping**: for, while, nested loops, **Control statements:** Terminating loops, skipping specific conditions **String Manipulation:** declaring strings, string functions. **Manipulating Collections:** Lists, Tuples. Dictionaries – Concept of dictionary, techniques to create, update& delete dictionary items.

UNIT –III: Functions: Defining a function, calling a function, Advantages of functions, types of functions, function parameters, Formal parameters, Actual parameters, and anonymous functions, global and local variables. **Modules:** Importing module, Creating & exploring modules, Math module, Random module, Time module,

UNIT –IV: Exception Handling: Exception, Except clause, try and finally clause, user defined exception. **OOPs Concept:** Class and Object, attributes, Inheritance, Overloading, Overriding, Data hiding.

Regular Expression and Python, Networking and multithreaded programming : sockets, threads and process.

Books:

1) Charles Dierbach, Introduction to Computer Science using Python, Wiley, 2013

2) James Payne ,Beginning Python: Using Python 2.6 and Python 3, Wiley India, 2010

3) R. NageshwarRao , “Core Python Programming”, Dream Tech

References:

1. Paul Gries , Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to Computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014

2. AdeshPandey, Programming Languages – Principles and Paradigms, Narosa, 2008

B.Sc. (I.T.) - III (Semester - VI)
UBITT603.2

Paper –III (Elective 2): COMPUTATIONAL LINGUISTICS
[Max. Marks : 40

UNIT – I

Prolog - Introduction to Prolog, Converting English to Prolog facts and Rules, Goals, Prolog Terminology, Matching in Prolog, Cut, Backtracking, Fail, Recursion, Lists and Control Structure.

Introduction to A.I. - Definition of AI, AI Technique, Tic-Tact-Toe, Level of the Model, Criteria for Success, Problems and Problems Spaces, Defining the Problem.

UNIT – II

Problem Solving - Problem Characteristic, State Space Search, Production Systems, Control Strategies, Depth-First, Breadth-First Search, Production System Characteristics, Issues in Design of Search Programs.

Heuristic Search - Hill Climbing, Best-First Search, Problem Reduction, Constraint Satisfaction, Means-Ends Analysis.

UNIT – III

Knowledge Representation – Representation and Mapping, Approaches to Knowledge Representation, Issues in Knowledge Representation, Representing Simple Facts in Logic, Conversion to Clause Form, Basis of Resolution, Resolution in Prepositional Logic, Resolution in Predicative Logic, Unification Algorithm.

Representing Knowledge using Rules - Declarative Knowledge, Forward versus Backward Reasoning, Matching, Control Knowledge.

UNIT – IV

Natural Language Understanding - Concept of Understanding, Natural Language Processing Introduction, Steps in the Process, Syntactic Analysis, Semantic Analysis, Discourse and Pragmatic Processing, Statistical Natural Language Processing, Spell Checking, Pattern Recognition.

Learning – Learning Introduction, Rote Learning, Learning in Problem Solving, Discovery, Analogy, Formal Learning Theory.

Books:

3) Rich, Knight, Nair, "Artificial Intelligence", TMH, 3rd Ed, ISBN 9780070087705
2) Dan W Patterson "Introduction to Artificial Intelligence and Expert Systems" ,PHI ,ISBN- 8120307771
3) NJ Nilsson, "Principles of AI", Narosa Pub. House, 1990, ISBN-8185198292

References:

1) Peter Jackson, "Introduction to Expert Systems", AWP, MA, 1992
2) RJ Schalkoff, "Artificial Intelligence - an Engineering Approach", McGraw Hill Int Ed,Singapore, 1992

B.Sc.(I.T.) - III (Semester – VI)

UBITT603.3
PAPER-III (Elective 3) : Image Processing & Analysis

[Max. Marks: 40

UNIT –I: Digital Image Introduction:
Motivation and Perspective, Scenes and Images, Application: Components of Image Processing System. **Visual Preliminaries:** Brightness Adaptation and Contrast- Acuity and Contour, Texture and Pattern Discrimination, Shape Detection and Recognition- Perception of Color. **Image Formation:** Geometric Model, Basic Transformations, Perspective Projection, Camera Calibration- Photometric Model.
Digitization: Sampling, Quantization, Visual Detail in the Digital Image, Digital Image, Elements of Digital Geometry.

UNIT-II: Image Processing Image Enhancement:
Contrast Intensification, Smoothing, Image Averaging, Mean Filter, Ordered Statistic Filter, Edge Preserving Smoothing Low Pass Filtering. Image Sharpening, High, Pass Filtering, Homomorphic Filtering. **Restoration:** Minimum Mean, Square Error Restoration, Least Square Error Restoration ,Constrained, Least Square Error Restoration.

UNIT-III : Image Compression Error Criterion:
Lossy Compression methods, loss –less compression, Huffman coding, Run length coding-Block coding, Quad Tree coding- contour coding. **Registration:** Geometric Transformation, Plane toPlane Transformation, **Multi-Valued Image Processing:** Processing of color Images, Processing of Satellite Image, and Medical Image Processing. **Segmentation:** Region Extraction-Pixel based Approach, Feature Thresholding, Optimum Threshold, Threshold Selection Methods, Multi-level Thresholding, LocalThresholding.

UNIT-IV: Image Analysis and Feature Extraction Edge and Line Detection:
Edge Detection, Derivation operators, Pattern Filling Approach, Morphologic Edge Detection, Edge Linking and Edge Following, Edge elements Extraction by Thresholding, Edge Detector Performance, Line Detection, Corner Detection. **Recognition:** Deterministic Methods, Clustering, Statistical Classification, Mathematical Recognition, Syntactic Recognition, Grammar, Recognition Strategy, Tree search, Graph Matching.

Books:
1) B. Chand and D. Dutta Majumder ,Digital Image Processing and analysis, PHI(2001),ISBN-81-203-1618-5
2) Milan Sonka, ”Image Processing Analysis and Machine Vision”, PWS Pub.2nd Ed. ISBN-81-315-0300-3
References:
1) Adrian Low, Computer vision and Image Processing, McGraw Hill (1991)
2) Kenneth R. Castle man, Digital Image Processing ,PHI

B.Sc. (I.T.) - III (Semester-VI)
UBITT603.4

Paper-III (Elective 4): SOFTWARE ENGINEERING

[Max. Marks:40

UNIT - I: INTRODUCTION TO SOFTWARE ENGINEERING

Introduction to Software Engineering: The Evolving Role of Software, Changing Nature of Software, Software myths. **A Generic view of process:** Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

UNIT - II: PROCESS MODELS

Process Models: The waterfall model, Incremental process models, Evolutionary process models, The Unified process. **Software Requirements:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document. **Requirements engineering process:** Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

UNIT - III: SYSTEM MODELS

System Models: Context Models, Behavioral models, Data models, Object models, structured methods. **Design Engineering:** Design process and Design quality, Design concepts, the design model. **Creating an architectural Design:** Software architecture, Data design, Architectural styles and patterns, Architectural Design.

UNIT - IV: TESTING STRATEGIES

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. **Product metrics:** Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance. **Metrics for Process and Products:** Software Measurement, Metrics for software quality.

Books:

1. Software Engineering, A practitioner‟s Approach- Roger S. Pressman, 6th edition McGraw Hill International Edition.

2. Software Engineering- Sommerville, 7th edition, Pearson education.

3. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers

Reference:

1. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.

2. Systems Analysis and Design- Shely Cashman Rosenblatt,Thomson Publications.

3. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies

B.Sc. (I.T.) - III (Semester-VI)
UBITT604.1
Paper-IV (Elective 1): MEDIA MANAGEMENT

[Max. Marks:50

Unit I
Principles of media management and their significance. Media as an industry and profession.

Unit II

Ownership patterns of mass-media in India: sole proprietorship, partnership, private limited companies, Public limited companies, trusts, co-operatives, religious institutions (societies) and franchises (chains).

Unit III

Foreign equity in Indian media (including print media) and Press Commissions on Indian newspaper. Management structure, Organizational structure. Functions of different departments: General Administration, Editorial, Finance.

Unit IV

Circulation (sales promotion); Marketing (Advertising), Human Resource and Production. Economics of print and electronic media.

Books:

1. Media Management: Leveraging Content for Profitable Growth
Andrej Vizjak, Max Josef Ringlstetter Springer Science & Business Media, 10-Dec-2002
2. Scott Basham ,"Pagemaker in Easy Steps", Dream Tech, ISBN : 978-81-7722-0001
3. Kogent Learning Solution ,"Corel Draw In Easy Steps", Dream Tech ISBN : 978-81-7722-960-8
4. "Photoshop In Easy Steps", Kogent Learning Solution, Dream Tech ISBN: 978-93-5004-078-2

B.Sc. (I.T.) - III (Semester-VI)
UBITT604.2

Paper-IV (Elective 2): ANY ONE CERTIFICATION COURSE FROM MOOC's

[Max. Marks: 50

Enroll and study any one course from MOOC's.

Note: - Submit Certificates/Marksheet before the Start of Final Practical Examination of Gondwana University, Gadchiroli

B.Sc. (I.T.) - III (Semester-VI)
UBITT604.3
Paper-IV (Elective 3): E-WASTE MANAGEMENT

[Max. Marks: 50

UNIT – I
Sources, Composition and characteristic of hazardous waste, Hazardous Waste (Management and Handling) Rules, 1989 and amendments, Federal Hazardous Waste Regulations under RCRA, Superfund, CERCLA and SARA. Toxicology, public health impact, Protocols, issues and challenges in transportation of hazardous waste.

UNIT – II
Characterization of medical waste- Bio-medical wastes (Management and Handling) Rules, 1998, Amendments and guidelines, segregation, packaging, storage, transport of infectious waste. Techniques of Bio-medical waste management. Health and safety rules. Protocols, issues and challenges in transportation of Biomedical waste.

UNIT – III
Treatment method- Autoclave, Hydroclave, Microwave, Chemical Disinfection, Solidification and stabilization, Bioremediation, Thermal Conversion Technologies, accumulation and storage of hazardous waste, land disposal of hazardous waste, other treatment and disposal method. Common Hazardous Waste Treatment facilities (TSDF).

UNIT – IV
E-waste: Introduction, toxicity due to hazardous substances in e-waste and their impacts, domestic e-waste disposal, e-waste management, technologies for recovery of resource from electronic waste, guidelines for environmentally sound management of e-waste, occupational and environmental health perspectives of recycling e-waste in India.

Books:

1. Tchobanoglous G., Theisen H., Viquel S.A., "Integrated Solid Waste Management: Engineering, Principles and Management issues", Tata McGraw Hill Publishing Company Ltd., New Delhi.
2. CPHEEO Manual on Municipal Solid Waste Management.

References:

1. Peavy H.S., Rowe D.R., Tchobanoglous G., "Environmental Engineering", Tata McGraw Hill Publishing Company Ltd., New Delhi.
2. Cunningham W.P., Cunningham M.A., "Principles of Environmental Science", Tata McGraw Hill Publishing Company Ltd., New Delhi.
3. Johri R., "E-waste: implications, regulations, and management in India and current global best practices", TERI Press, New Delhi.
4. Krishnamoorthy B., "Environmental Management, Text Book and Cases", PHI Learning (P) Ltd., New Delhi.

B.Sc. (I.T.) - III (Semester-VI)
UBITT604.4

Paper-VI (Elective 4) : PRINCIPLE OF MANAGEMENT

[Max Marks: 50

Unit-I: Nature of Management

Meaning, Definition, Nature, Purpose, Importance and functions. Management as an Art, Science & Profession- Management as Social System Concepts of Management- Administration - Organization.

Unit-II: Evaluation of management

Contribution of F.W.Taylor, Henry Fayol, Elton Mayo chesterBarhard and Peter Drucker to the management (i.e School of management thought) Indian Management Thought.

Unit-III: Functions of Management

Planning: Meaning, Need and Importance, Types, Levels, Advantages & Limitations. Forecasting – Need & Techniques, Decision-making: Types- process rational decision making

and techniques of decision making. Organizing: Elements of Organizing and Processes. Types of Organizations, Delegation of authority. Need difficulties in delegation Decentralization.

Unit-IV:Recent Trends in Management:

Social Responsibility of environment friendly Management. Management of Change, Management of Crisis, Total Quality Management, Stress Management, International Management.

Books Recommended

1. Essentials of Management – Horold Koontz and ItenizWeibrich –McGraw-Hill‟s International
2. Management Theory and Practice- J. N. Chandan
3. Principal of Management – S. B. Kishor, Das GanuPrakashan
4. Essential of Business Administration – K. Aswathapa Himalaya Publishing House

5.Principles and Practice of Management- Dr. L.M. Prasad, Sultan chand a & Sons – New Delhi

6. Principles of Management ByTripathi and Reddy- Tata McGraw Hill

B.Sc. (I.T.) – III (Semester –VI)

UBITP605

Practical I Based on DSEC-VI

Web Technology based Practical's

1) Write a JavaScript to find absolute number.
2) Write a JavaScript to Demonstration of Typeof operand.
3) Write a JavaScript to check whether entered number is positive or Negative or Zero.
4) Write a JavaScript code to demonstrate to switch case.
5) Write a JavaScript to find the sum of first N natural numbers
6) Write a JavaScript to find sum of each digit of a number.
7) Write a JavaScript to demonstrate of Array objects for accepting and displaying list of names in descending order.
8) Write a JavaScript to Check entered String is palindrome or not.
9) Write JavaScript to demonstrate a Date Objects for displaying current day and check current year is leap or not.
10) Write a JavaScript to demonstration of eval function.
11) Design a program for displaying marks and percentage of student in JavaScript using event handling.
12) Write a vbScript program to find the factorial of given number.
13) Write a vbScript to demonstrate the program to find largest among two number.
14) Write vbScript to create dialog boxes.
15) Demonstration of array in vbScript.

B.Sc. (I.T.) – III (Semester –VI)

UBITP606

Practical - II Based DSEC-VII

Python Programming based Practical's

1) Write a Python program which can compute the factorial of a given numbers.
2) Write a Python program to find Armstrong number between 100 to 999.
3) Write a Python program to find sum of prime numbers between 1 to 100.
4) Write a Python program to find reverse of given number.
5) Write a Python program to check if a given positive integer is a power of three.
6) Write a Python program to check if a number is a perfect square
7) With a given integral number n, write a Python program to generate a dictionary that contains (i, i*i) such that is an integral number between 1 and n. Suppose the following input is supplied to the program 8 then the output should be {1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}
8) Define a class which has at least two methods:
   a) getString : to get a string from console input
   b) printString: to print the string in upper case.

   Also please include simple test function to test the class methods.
9) Write a program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphanumerically.

   hello world and practice makes perfect and hello world again

   Then, the output should be:

   again and hello makes perfect practice world
10) Write a program that accepts a sentence and calculate the number of letters and digits.

Suppose the following input is supplied to the program:

hello world! 123

Then, the output should be:

LETTERS 10

DIGITS 3

Computational Linguistic based Practical's

1. Write a prolog program to add two numbers.
2. Write a prolog program to find the maximum value.
3. Write a prolog program to show factorial of numbers.
4. Write a prolog program to show the operation of fail in prolog.
5. Write a prolog program to calculate the area of circle and circumference.
6. Write a prolog program to show the operation of cut in prolog.
7. Write a prolog program to show the Fibonacci series.
8. Write a prolog program to show the family database and search for value.

B.Sc. (I.T.) – III (Semester –VI)

UBITS607

Project Based SEMINAR

[Max. Marks: 100

The seminar must be based on the Project Topic choose by him/her. A Student must present the Power Point presentation along with Seminar Report. Students are requested to follow the following guidelines while choosing & preparing their seminars.

Guide lines to B.Sc. (I.T.) Seminar

1) Seminar must be of the Project Topic and should not be repeated.
2) Seminar topic is to be approved by the concerned guide before the deadline prescribed by university time-table.
3) Seminar should be given individually.
4) Students are allowed to use graphics / animation / audio-video aids for their presentation.
5) Seminar work comprised ONLY Internal examination.
6) Students are requested to submit their seminar reports on or before the dead line with the concern of their respective guide otherwise students will be responsible for any appropriate action.
7) Seminar Report should be typed / printed in double line space using A4 size bond papers with a left margin of 1.5”and right margin of 1.0” with proper spiral binding to be done.
8) Students are requested to obtain necessary certificates and declaration to be duly enclosed in the report.