Gondwana University, Gadchiroli

Choice Based Credit System (CBCS)

Syllabus

of

B.Sc. (Information Technology)- II Semester – III& IV

(Three Years Degree Course)

Prepared by

IT and Application Board

2018-2019

B.Sc. (I.T.)– II (Semester - III)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			Min. Passing (40%)
					IA	UE	Total	
Core Course (CC-VII)	UBITT301	ADVANCE ' C'	3	2	10	40	50	40
	UBITT302	OPERATING SYSTEM AND LINUX	3	2	10	40	50	
Core Course (CC-VIII)	UBITT303	DATABASE PROGRAMMING – ORACLE (SQL AND PL/SQL)	3	2	10	40	50	40
	UBITT304	FUNDAMENTAL OF WEB DESIGNING AND INTERNET	3	2	10	40	50	
Skill Enhancement Course(SEC-I)	UBITT305	SYSTEM ANALYSIS AND DESIGN	3	2	10	40	50	40
	UBITT306	STATISTICAL AND NUMERICAL METHODS	3	2	10	40	50	
Core Course IX Lab (based on Core VII and Core VIII)	UBITP307	Lab on UBITT301 and UBITT302	4 Prac. Per Batch	2	20	30	50	20
	UBITP308	Lab on UBITT303 and UBITT304	4 Prac. Per Batch	2	20	30	50	20
Ability Enhancement Compulsory Course(AECC-V)	UBITS309	Seminar	2	2	50	-	50	20
Non-CGPA Credit Course (NCCC- I)	UBITS310	Democracy and Good Governance	2	2	-	-	-	-
		Total		**20**	**150**	**300**	**450**	**180**

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.) – II (Semester –III)
Paper –I: ADVANCE 'C'

[Max. Marks: 40

UNIT I: Functions & String Handling
Function Definition, Library Functions, User Defined Functions, Need for user define Function, Advantages of functions, Function Prototype, Function Call, Types of User Defined Functions, Arrays & Functions, and Storage Classes.

UNIT II : Structure & Union
Structure & Union: Definition of Structure, Need of Structure, Declaring Structure, Period operator, Initialization of structure, Accessing Structure Elements, Array of Structure, Nesting of Structure, Introduction to Union, Characteristics of Union, Difference between Structure & Union, Enumeration.

UNIT III: Pointer
Pointer: Introduction to Pointer, Declaring Pointer Variables, Initialization of Pointer variable, Pointer operator, Pointer & Function (Call by Value & Call by Reference), Pointer & Arrays, Pointer & Strings, Pointer & Structure, Pointer to Pointer.

UNIT-IV:File Handling in C
Introduction, Opening & Closing File, Input & Output File handling functions, Error Handling During I/O Operations, Random Access to Files, Difference between Binary mode & Text Mode, Command Line Arguments.

Books:

1) E. Balagurusamy , " Programming in ANSI C",TMH, ISBN- 0-07-068182-1
2) Dr.S. B. Kishor , "Programming in C", Das GanuPrakashan, ISBN: 978-93-84336-21-9
3) B.L. Juneja, "Programming in C", Cengage Learning, ISBN 81-315-1429-3

References:

1) K.R.Venugopal&S.R.Prasad, " Mastering C ", ISBN- 0-07-061667-1
2) S.Shrivastav, " C in Depth", 1st Edition, ISBN 81-7656-107-X

B.Sc. (I.T.) – II (Semester – III)
Paper –II: OPERATING SYSTEM AND LINUX
[Max.Marks- 40

UNIT -I: Introduction to Operating System

Operating System: Introduction, Purpose, Function and Role of Operating System.
Types of OS: Concepts of Batch, Multi Programmed, Time Sharing, Parallel, Real Time andDistributed.
Computer System Structure: Computer System Operation, I/O Structure, I/O Interrupt, DMAStructure, Storage Structure and Storage Hierarchy.
Hardware Protection: Dual Mode Operation, I/O Memory and CPU Protection, GeneralSystem Architecture.

UNIT -II: Operating System Structure

System Components: Process , Main Memory, File I/O System, Secondary StorageManagement, Networking, Protection System, Command Interpreter System, Operating System Services, System Call.
Process and Job Control: Process and Types of Process, Process State, Operation on Process,File Manipulation Device Management, Information Maintenance, and Communication. **System Structure**: Simple Layered Approach

UNIT - III: Linux

Structure of Linux Operating System, Exploring the directory structure, Naming files and directories
Shell: Bourne, Korn and C-Shells

File System Commands: ls, mkdir, rmdir, cd, cat, mv, cp, rm, ln, pwd, more
Text editing with vi editor, System Administrator and his role.

UNIT- IV: Shell Scripts

Pipe and Filters: sort, grep, egrep **Permission modes:** chmod, chown, chgrp
Process: ps, kill
Communication Utilities, Shell Scripts: Variables, Arithmetic in Shell Script, Control flowstatements, Shell Parameters.

 Books:
1) Andrew S.Tanenbaum, "Modern Operating Systems" ,Second Edition, PHI, ISBN: 81-203-0974-X
2) Dr.S.B.Kishor, "Operating System",First Edition,ISBN:978-93-81660-11-9
3) Brian Proffitt, "Install Configure and Customize (Red Hat Linux 7)", PHI, ISBN-761531505
4) Grant Taylor, "Linux Complete" , BPB pub., ISBN : 81-7656-170-3

References:
1) Brain Proffitt, "Red Hat Linux 7",PHI.
2) Abraham Silbeschatz, "Operating System Concepts", Bell Labs Peter Baergalvin
   Replika Press Pvt. Ltd. Delhi, ISBN: 9971-51-388-9
3) "Teach Linux in 24 hours", SAMS Techmedia,ISBN:81-7635-499-6.

B.Sc. (I.T.) – II (Semester –III)

Paper - III: DATABASE PROGRAMMING - ORACLE (SQL AND PL/SQL)

[Max.Marks-40

UNIT I: Introduction to Oracle

Introduction to Oracle as RDBMS, Oracle as A Multi–User System, Logging in and Logging out of Oracle, Database Administrator (DBA): It's Role, Creation of User and Password. Structured Query Language SQL: History and Standardization of SQL, Benefits of SQL, Elements of SQL Languages: Database Objects, Reserve Words, Key Words, Literals, Variables and Data Types.

UNIT II: Commands

Data Definition Command: Create Table, Drop Table, Modify, Alter Table. Integrity Constraints: Data Manipulation Commands: Insert, Update, Delete, Select, **Aggregate Functions**: Character Functions and Number Functions, **Other Clauses**: Group By, Order By, Having, Union, Intersect, Minus, Predicates-Like, Between, Null, NotNull.

UNIT III: SQL and PL/SQL

Sub Queries, Views, Joins, Simple Reports Commands, PL/SQL Programming-Structure of PL/SQL, Variables, Dynamic Data type, Control Statements and Looping Statements, PL/SQL Cursors, Types of Cursors, Attributes of Cursors.

UNIT IV: Exceptions, Packages, Triggers

Exception Handling: User Defined, Predefined Exception, Functions, Function Specification, Procedure, Procedure Specification, Package, Package Specification, Package Body, Package Calling, Database Triggers, Syntax, Statement, Body, Restriction, Types.

Books:
1) Kevin Loney, Marlene Theriault, "Oracle 9i:DBA Handbook", TMH, ISBN:78-0-07-048674-4.
2) Dr. S. B. Kishor, "Oracle (SQL/PLSQL Programming)", Das GanuPrakshan, ISBN978-81-921757-5-1.
References:
1) Ivan Bayross "Commercial Application Development using Oracle Developer - 2000", BPB Publication, ISBN81-7029-899-7.
2) Feuerstein Steven "ORACLE PL/SQL PROGRAMMING" , O'Really Publication ,ISBN- 0596009771

B.Sc. (I.T.) - II (Semester-III)
Paper – IV: FUNDAMENTAL OF WEB DESIGINING AND INTERNET

[Max. Marks:40

UNIT-I: Introduction to Web Technology
Introduction to Internet, Basic Internwet terms in Internet Addressing, Internet Tools, Services of Internet, Introduction to World Wide Web, Components of Web, Types of Websites, Role of Web Browser and Web Server, Types of Web Browser, Types of Web Server, Flow of Web Information, Objective of the Website, Basic Interface Design, Various Types of URLs, Process of Web Publishing.

UNIT-II: Creating Static Web Pages with HTML
Introduction to HTML, Features of HTML, Advantages and Disadvantages of HTML, Features of Static and Dynamic Web Page.
Creating a Simple Static Web Page : Creating Web Page using HTML, Structure of HTML Document, HTML tags, tag attributes, Basic Elements : <html>,
<head>, <title>, <p>, <br>, <h1> to <h6>, <pre>, <marquee>, <hr>,
Text Formatting Tags, Using Colors for the Web, Physical and Logical Tags, SpecialCharacters.
Lists in HTML: Ordered List, Unordered List, Definition List and Nested List.
Tables: Components of a Table, Basic Table Tags and their related Attributes.

UNIT-III: Adding Links, Images, Background
Paths: Relative Path and Absolute Path,
Linking HTML Pages: Link Tag <a href…>, Kinds of Linking, Linking to URL's,Adding Images to HTML pages: Image formats for Internet and HTML, Image Tag and their related Attributes, Inline Images, Links to (external) Images, Images as Hyperlinks, Using Image as Background,Image Maps, Tags used for Image Mapping, Client-Side and Server-Side Image Maps.

UNIT-IV: Forms, Frames and Embedding Multimedia
Frames: Introduction to Frame, <frameset> and <frame> Tag with its Attributes, Creating Frames, Linking Frames, <noframes> tag, Complex Framesets, Floating or Inline Frame.
Forms : <Form> Tag and its Attributes, <Input> Tag and its Attributes,
Form Controls: Text Controls, Password Fields, Radio Buttons, Checkboxes, Reset and Submit Buttons, Form Control Selection, Option Processing and Text Area, Hidden Fields.
Embedding Multimedia: Introduction, Embedding Multimedia, Inserting Sound/Audio Formats, Inserting Video File Formats.

Books:
1) Sean McManus, " Web Designing in Easysteps",TMH,ISBN:9380071333566
2) Dr.S.B.Kishor,SandipGudelliwar, Rajani Singh, "WEB DESIGNING",DasGanuPrakashan, ISBN-978-93-81660-05-8
3) B.P.Nagpal, " Web Designingtechnology",S.Chand,ISBN:9788121927635

References:
1) "Internet Technology and Web Design", ISRD Group. TMH, ISBN0-07-107276-4
2) James L. Mohler and Jon M. Duff, "Designing Interactive Web Site ", Cengage Learning", ISBN-976-81-315-0570-0.

B.Sc. (I.T.) – II (Semester – III)
Paper –V:SYSTEM ANALYSIS AND DESIGN

[Max.Marks- 40

UNIT–I: Basic Concept
System Concept: System Concept, Electronic of the System, Types of system.
The System Development Life Cycle: Introduction, Consideration for Candidate Systems,Prototyping. **The Role of the System Analyst:** Introduction, Multi Faceted Role of the Analyst, The Analyst/User Interface, Rising Position in System Development.

UNIT-II: System Planning and Feasibility
System Planning and the Initial Investigation: Introduction, Base for Planning in SystemAnalysis, Initial Investigation.
Information Gathering: Introduction, Information Gathering Tools.
The Tools of Structured Analysis: Introduction, Tools of Structured Analysis, Pros and Cons ofeach Tool. **Feasibility Study:** Introduction, System Performance Definition, Feasibility Study.

UNIT-III: Cost Benefit Analysis and Design
Cost Benefit Analysis: Introduction, Data Analysis, Cost and Benefit Analysis, Procedure for CostBenefit Determination.
System Design: Introduction, The Process of Design **Input/output and Form Design:** Introduction,Input Design, Output Design, Form Design.

UNIT-IV: Implementation and Documentation
File Organization and Data Base Design: Introduction, File Structure, and File Organization,Database Design, Data Structure
System Implementation (System Testing and Quality Assurance): Introduction, The Test Plan,Quality Assurance, Levels of Quality Assurance, Role of Data Processing Auditor.
Software Documentation: Requirement Documentation, Architecture /Design Documentation,Technical Documentation, User Documentation, Marketing Documentation, Documentation Standard, Online Documentation.

Books:
1) Elias Award, "System Analysis and Design", Golgotha Pub., 2nd Ed, ISBN: 81751568-X
2) Edward, " System Analysis and Design", Tata McGraw Hill,ISBN:8120317270
3) Rajaraman, " Analysis and Design of Information System", PHI Publication, ISBN - 8120312270

References:
1) Kendall and Kendall, "System Analysis and Design ",PHI Publication, 5th Edition, ISBN 8120321553
2) S.B. Kishor, "Information System Analysis and Design", Das Ganuprakashan, ISBN 978-93-81660-17-1
3) Dennis, "System Analysis and Design", Wiley Publication, 3rd Ed. ISBN- 9788126508808
4) ISRD Group," Structured System Analysis and Design", TMH Pub. ISBN- 0070612048.

B.Sc. (I.T.)- II (Semester-III)
Paper -VI: STATISTICAL AND NUMERICAL METHODS
[Max. Marks-40

Unit-I: Introduction to Statistics
Meaning, Definition, Descriptive Statistics-Functions, Scope, Merits, Demerits, Functions and Importance of Statistics, statistical Data Collection - Primary And Secondary Data, Methods of Collecting Primary Data Presentation of Statistical Data - Classification; Tabulation; Frequency Distribution; Diagrams and Graphs.
Measures of Central Tendency (Arithmetic Mean, Median, Mode, Mode, Corrected Mean, Combined Mean, Geometric Mean, Harmonic Mean)

Unit-II: Dispersion and Skewness
Dispersion and Skewness: Range, Quartile Deviation, Mean Deviations, Standard Deviation, KarlPearson's and Bowley Coefficient of Skewness
Correlations Analysis: Simple, Two way.

Unit-III: Regression Analysis and Index Number
Regression Analysis: Simple, Arithmetic Mean and S.D **a**nd Equation Method.
Index Number: Laspeyre's Method, Paasche's Method. Dorbish&Bowley, Fisher Ideal Method,Marshall and Edgeworth Method.

Unit-IV: Introduction to Numerical Methods
Introduction to Numerical Methods: Approximation and Error in Computing, Significance ofError, Rounding off, Error in Computing, Data Errors, Conversion Error, Round off Error, Truncation Error, Modeling Error, Blunders, Absolute and Relative Error, Error Propagation, Conditional and Stability, Error Estimation, Minimizing the total error, Pitfalls and Precautions

Books:
1) Dr Rahul Sawlikar, "Basic of Computer and Statistical Technique", Das GanuPrakashan
2) S.S. Sastry, "Introducing methods of Numerical Analysis", PHI Pub, 3rd Ed, ISBN- 81-203-1266-X
3) Gupta &Kapoor, "Fundamental of Mathematical Statistics" , Sultan Chand &SonsPublication, 11th Edition, ISBN- 8180540049
4) A.K. Agrawal& Sahib Singh, "Fundamental of Statistics", PHI, 4TH Ed.

References:
1) Levin , "Statistics for Management", PHI Publication, Murray R. Splegel,
2) S.P.Gupta, "Statistical Method", Sultan Chand & Sons, ISBN-818054026X
3) E Balguruswary, "Numerical Methods", TMH, ISBN-0-07-463311-2
4) Francis Scheil, "Numerical Analysis", Schaum's Outline,2nd Ed, ISBN- 0-07-055221-5

B.Sc. (I.T.) – II (Semester –III)
Practical I(Based on UBITT301 and UBITT302)
(UBITP307)

ADVANCE 'C' (UBITT301)

1) A Program to find addition of two numbers using user defined function.
2) A Program to display "hello friends" using user defined function.
3) A Program to find factorial of a number using user defined function.
4) A Program to find power of a number using user defined function.
5) A Program to accept the list containing 10 numbers and pass it to function to print it.
6) A Program of passing individual elements of structure to function.
7) A Program of Passing complete structure to function.
8) A Program to enter the marks of 5 subjects of 3 students and also find the total marks of each student using structure with array.
9) A program to evaluation following series.

$$e^x = 1 + x + x^2/2! + x^3/3! + x^4/4! + \text{-------------} + x^n/n!$$

10) A program to define and accept the element of structure
    1) Empno.
    2) Name
    3) Basic pay and display the same structure along with DA, CCAand gross salary. DA and CCA are calculated as follows.
        DA= 91% of basic
        salary CCA= RS 100/-
        consolidation.
11) A Program to find the product and division of two numbers using pointer
12) A Program to find area of circle using pointer.
13) A Program to interchange the contents of two variables using call by value.
14) A Program to swap the contents of two variables using call by reference.
15) A Program to access the array element in different ways.
16) A Program to accessing two dimensional array elements using pointer.
17) A Program to print character string.
18) A Program to demonstrate structure pointer.
19) A Program to demonstrate pointer to pointer.
20) A program to Sort the string using Pointer.
21) A function length () which count the length (number of character in the given string.)
22) A function concat () with will concatenation the string t to the end of string s.
23) A program to simulate DOS TYPE command.
24) A program to count number of characters include uppercase and lowercase latter, digits, punctuations, space, words and number of lines in given file.
25) A program to create data file "Student.dat" having fields, Rollno, Name and Address
26) A program to read and display the contents of data file "Student.dat"

B.Sc. (I.T.) – II (Semester –III)
Practical II (Based on UBITT303 and UBITT304)
(UBITP308)

DATABASE PROGRAMMING- Oracle (SQL and PL/SQL) (UBITT303)

1) Create following Tables and Execute the respective PL/SQL blocks.
   A) Create table employee with the fields (empno, ename, job, hiredate, jadate&sal).
   B) Create table Math with fields (numb, square, cube &square_root).
   C) Create table Patient with fields (pname, age, prescription).
   D) Create table Musicalbum with fields (title, hero, singer, th).
   E) Create table Stu with fields (name & marks).
   F) Create table errorh with fields (error_no& description).
   G) Create a table DONAR where following fields(Donar no., donar name, city, age, Sex, Blood group, quantity of blood given, date of donation)

2) Write a PL/SQL block to accept employee number and display his/her job, joining date and salary of employee. Define the variable using %rowtype.
3) Write a PL/SQL block to accept three paper marks and display result if student scores more than 35 marks in each paper and also specify the class.
4) Write a PL/SQL block to find the square, cube, square root of nos.bet 1 & 25 using loop.
5) Write a program to divide a number by character number. If any error occurs it should be handled properly, and store the error number and its description in a table called errorh.
6) Write a PL/SQL block to accept and insert a valid data into the table patient. Write appropriate user defined exception.
7) Write a PL/SQL block, to display only title and quality of all album stored in the table musicalbum.
8) Write a PL/SQL to delete the records from table musicalbum where quantity is less than 4 using cursor.
9) Write a PL/SQL block to display the employee all having salary>somevalue. The value somevalue can be passing during execution or through bind variable.
10) Write a PL/SQL block to accept the title and display other information; it must handle Theexception properly.
11) Write a procedure to swap two numbers.
12) Write a procedure to insert values into a table stu. Write a PL/SQL, main program to call the procedure stu_insert.

13) Write a procedure to insert values into a table stu. Write a PL/SQL, main program to call the procedure stu_insert.
14) Write a function which is able to perform addition of two numbers.

15) Write a function which is able to perform addition of two numbers as well as addition of three number using default argument concepts.

16) Write a package, which contain two procedures.

17) A procedure which display the data of stu.

18) A procedure which store the data into the table stu.

19) Write trigger before inserting or updating a name into the table stu name will be automatically converted into uppercase.

20) Write a trigger on a table stu, that whenever user try to insert a marks of math either lessthan zero orgreater than 100 a trigger must fire before insertion or updating of records.

21) Use DONAR table and write a PL/SQL block to accept donar number and display the donar detail and find how many days it pass from the last donation.

22) Write a PL/SQL block to accept donar number, donar name, city, age, sex, blood group, quantity and date of donation and store the data into the table DONAR. Use user defined exception for handling various exception like donar name should not be blank, age of donar should be at least 18 years and so on. Also use STORAGE_ERROR exception to check storage is available or not.

23) Write a PL/SQL block to accept donar name and display the information of donar. If duplicate or no donar found then proper exception should be raised.

24) Create a procedure that displays the information of donar by accepting donar number.

25) Write a trigger which will not allow the user to work on table DONAR during period say 9 am to 9:30 am, on any day.

26) Write a trigger on a table Donar, that whenever user try to insert a quantity greater than 500 ml a trigger must fire before insertion or updation of records.

FUNDAMENTAL OF WEB DESIGNING AND INTERNET (UBITT304)

1) Demonstrate of Logical Format Tag.

2) Demonstrate of Physical (Formatting) style tag

3) Demonstration of Level of Headings

4) Demonstration of Block Alignment

5) Demonstration of ADDRESS tag.

6) Demonstrate the Font Face, Color and Size.

7) Demonstrate the <HR> Tag

8) Demonstrate the Alignment

9) Demonstrate the Scrolling tab using Mercury.

10) Demonstrate of Order List

12) DEMONSTRATE THE USE OF TABLE

COLLEGE

COLLEGE					
FYJC			SYJC		
ARTS	COMMERCE	SCIENCE	ARTS	COMMERCE	SCIENCE
58	150	90	75	200	100

13) PROGRAM FOR DESIGNING A SIMPLE FORM

NAME

ADDRESS

DOB

HOBBIES ☑SPORT

☑CHESS

SAVE

14) Demonstrate the Master page to link another page.
15) Demonstrate link to website.
16) Demonstrate to compose mail.
17) Demonstrate to show or load inline image say sunset.jpeg
18) Demonstrate of Image Hyperlink
19) Demonstrate of Basic table.
20) Demonstration of cell padding attributes
Demonstration of Link in the page.
21) A HTML Program to show static linking the web page should contain Title, Green background and a link which takes you to another page

24)PROGRAM FOR DESIGNING A SIMPLE FORM

********OUTPUT***********

NAME

ADDRESS

DOB

HOBBIES ☑SPORT

☑CHESS

SAVE

Practical Books:

1. **Dr. S. B. Kishor, Rajani Singh, Oracle (PL/SQL) Practical Solution,** published by RAJANI Prakashan, Nagpur in Sep. 2015 **(ISBN- 978-93-83619-64-1)**

2. **Dr. S. B. Kishor, PRACTICAL GUIDE FOR WEB DESINGNING WITH HTML,** published by RAJANI Prakashan in Feb. 2015 **(ISBN- 978-93-83619-38-2)**

B.Sc. (I.T.) – II (SEMESTER –III)
SEMINAR (UBITS309)

[Max. Marks: 50

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The seminarmustbebasedonsomecurrenttrendsrelatedtoIT/Computer Science/Computer Application.AStudentmustpresentthePowerPointpresentationalongwith Seminar Report.Studentsarerequestedtofollowthefollowingguidelineswhilechoosing &preparingtheir seminars.

Guidelines to B.Sc. (I.T.)Seminar

1) Name ofseminar topic must be latest to the current trends and should not be repeated.

2) Seminartopicistobeapproved by theconcernedguidebeforethedeadlineprescribed by universitytime-table.

3) Seminar should begiven in group of maximum 3 students.

4) Students areallowed to usegraphics/animation/audio-video aids forthepresentation.

5) Seminar work comprisedofInternal Examination Only.

6) Studentsarerequestedtosubmittheirseminarreportsonorbeforethedeadlinewiththe concern of their respective guide otherwise students will be responsible for any appropriateaction.

7) SeminarReportshouldbeprintedindoublelinespaceusingA4sizebondpaperswith a left margin of 1.5"and right margin of 1.0"with proper spiral bindingto be done. And at the end one must submit one copy of seminar report to department.

8) Students are requested to obtained necessary certificates and declaration to be duly enclosed in thereport.

B.Sc. (I.T.)– II (Semester - IV)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			Min. Passing (40%)
					IA	UE	Total	
Core Course (CC-X)	UBITT401	EVENT DRIVEN PROGRAMMING WITH VISUAL BASIC	3	2	10	40	50	40
	UBITT402	PC-MAINTENANCE AND TROUBLE SHOOTING	3	2	10	40	50	
Core Course (CC-XI)	UBITT403	COMPUTER FORENSIC SCIENCE	3	2	10	40	50	40
	UBITT404	OBJECT ORIENTED PROGRAMMING - C++	3	2	10	40	50	
Skill Enhancement Course(SEC-II)	UBITT405	PRINCIPLE OF MULTIMEDIA	3	2	10	40	50	40
	UBITT406	SOFT SKILLS	3	2	10	40	50	
Core Course XII Lab (based on Core X and Core XI)	UBITP407	Lab on UBITT401 And UBITT402	4 Prac. Per Batch	2	20	30	50	20
	UBITP408	Lab on UBITT403 and UBITT404	4 Prac. Per Batch	2	20	30	50	20
Ability Enhancement Compulsory Course(AECC-VI)	UBITS409	SEMINAR	2	2	50	00	50	20
Non-CGPA Credit Course (NCCC-II)	UBITN410	ENVIRONMENT SCIENCE	2	2	-	-	-	-
		Total		22	150	300	450	180

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.) – II (SEMESTER – IV)
Paper –I: EVENT DRIVEN PROGRAMMING WITH VISUAL BASIC
[Max.Marks-40

UNIT-I: Introduction to Visual Basic
Integrated Development Environment (IDE) – Features, Event Driven Programming.**Programming Constructs:** Data Types, Variable, Constant, Operators, System DefinedFunctions, Dialog Box and Creating User Interface
Control flow statement: if-then, select-case, for-next, while-Wend, do-loop statement, With-Endwith ,DoEvent.

UNIT-II: VB Control and Procedure
Visual Basic Control: Form, Label, Textbox, Frame, Checkbox, Option Button, ListBox,ComboBox, Timer, Scrollbar, Picture, Image, File Controls, Artwork Control
ActiveX Control: Tab Strip, Status Bar, Slider, Month View, DTPicker, Common Dialog
Procedure: Types of Procedure, Subroutine, Function, Module

UNIT-III: Menu, Interface and Array
Menu Editor, Creating Menus, Utility features provided by Menu Editor, Modifying Menu at Run Time, Pop-Up Menu, Creating Toolbar using Image List
Interface: SDI, MDI.
Array: One Dimensional Array, Built-in Array Function, For-Each Loop, Arrays Types.

UNIT-IV: ActiveX Data Object
Data & ADODC Control, Connecting ADODC to Bound Control, Use of ADO Object, ADO Architecture, ADO Object Methods for Editing, Updating and Searching Data Environment, Data Report,
Debugging and Error Handling: Types of Error, Debugging, Handling Run Time Error.

Books:
1) EvangelosPetroutsos , "Mastering Visual Basic 6", BPB, 2005 ISBN-81-7635-269-1.
2) Dr. S. B. Kishor, "Front End Development using Visual Basic",4thedn Das Ganuprakashan, ISBN : 978-93-81660-06-5
3) MoelJerke, "Complete Reference Visual Basic 6", TMH, 2004, ISBN -0-07-463666-9.
4) Steve Brown, "Visual Basic 6.0 Complete", Complete Idiot's Books, ISBN 978-0789718129

References:
1) Peter Norton's , "Visual Basic 6.0" ,SAMS tec-Media,2006,ISBN-81-7635-150-4
2) Michael Halvorson, " Learn Visual Basic 6.0 Now", PHI, ISBN 0-7356-0729-X
3) Michael Vine, "Visual Basic Programming – For Absolute Beginner", PHI, ISBN: 0761535535
4) Paul Sheriff , "Teaches Visual Basic 6",PHI,ISBN-978-8120315624

Paper II: PC MAINTANANCE & TROUBLESHOOTING
[Max.Marks-40

Unit I: Preventive Maintenance
Introduction, Need, Tools, Materials, Procedures : Active Hardware Maintenance, Active Software Maintenance, Passive Maintenance Procedures, Heat and Temperature Control, Dust and Pollution Control, EMI Electrostatic Discharge Control, Humidity and Corrosion Control, Preventive Maintenance Schedule, BIOS and CMOS, Working with the BIOS Setup Program.

Unit II: CPU and Monitor
History & Study of Different Types of CPUs, Terminology Used with CPU, Data Processing Inside CPU, RAM & ROM, Different Types of ROM, Virtual Memory, Installing and Removing Memory. Video Cards and Monitors, Display Resolution, Features, Video Driver, CRTs Working, LCDs Working, Monitor Resolution, Interfacing, Refresh Rate, Monitor Driver, Adjusting Display Settings in Windows

Unit III: Study of Drives
Study of Different Types of Drives, Hard Drive Interfaces- IDE, SCSI, SATA Hard Drive Performance, Installing Hard Drives, Partitioning, Disk Formatting, Common Hard Drive Problems. Installation of Operating System and Software: Installing Video Card, Installing The CD Rom Drive, Installing Key Board and Mouse, Installing Sound Card, Installing Modem, Installing the Motherboard, Installing the Power Supply.

Unit IV: Study of Printer, Formatting and Trouble Shooting
Printer Features, Printer Performance, Print Quality, Print Speed, Printer Types, Fruiter Working, Installation of Printer Driver, Cleaning a Printer, Common Printer Problems.
Formatting: Formatting PC, Backup of Data before Formatting, System Restore, Precautions for Formatting.
Trouble Shooting: Diagnostic and Repair Tools - Diagnostic Software Tools- Diagnostic Hardware Tools, Assembling and Disassembling PC. Troubleshooting Display Problems, Memory Troubleshooting, Power Supply Testing and Problems Troubleshooting, Cleaning and Trouble Shooting of Keyboards, Mouse, Front Panel Indicators and Speakers Troubleshooting.

Books:
1. Fundamentals of Computers - Raja Raman (Prentice Hall of India)), ISBN 81-203-2581-8
2. Basics of Computer Hardware - BPB Pub

References:
1. Mandeep S. Bhatia- "Fundamentals Of Computer Hardware", ISBN 81-87325-68-2
2. Troubleshooting Your Pcs for Dummies 3rd Edition – Dan Gookin, Willey Publishing, ISBN : 9780470230770

Paper III: COMPUTER FORENSIC SCIENCE

[Max Marks:40

UNIT I: Internet Crime

Internet Crime: Definition, Types of Internet Crime, Hacking and Cracking, Cyber Terrorism, Child Pornography, Stalking, Cyber Theft, Cyber Fraud, Phishing, Password Cracking, Evidence Collection, Email Tracing, Internet Fraud.

UNIT II: Security

Authentication: Requirements, Authentication Function, Message Authentication Codes, Hash Functions, Security of Hash Functions, Secure Hash Algorithm, Digital Signatures, Authentication Protocols , Digital Signature Standard, Electronic Signature, Biometric, Intrusion Detection Password Management, Viruses and Related Threat, Virus Counter Measure, Firewall Design Principles, Trusted Systems.

UNIT III: Cryptography

Cryptography: Encryption, Decryption, Encryption Techniques, Cipher Principles, Data Encryption Standard, Block Cipher Design, Principles and Modes of Operation, Public Key, Private Key, Domain Name, Steganography, Network Security. .

UNIT IV: Cyber Law

Cyber Law: Introduction, Definition of Cyber Law, Legal Identity, IT ACT: History of Information Technology Act 2000; IT Act and E-Mail, Copyright, Patent, Trade Marks.

Books:
1) Vakul Sharma, "Handbook of Cyber Laws ", McMillan ISBN 0333-93817-8.
2) Dr.S.B.Kishor, Ajay Kushwaha, "Computer Forensic Science", Das GanuPrakashan, ISBN-978-93-84336-09-7
3) KamleshAgrawala, Murli D. Tiwari,"IT and Indian Legal System", McMillan, ISBN 9780333 937921.
4) William Stallings "Cryptography and Network Security", Pearson, 4th Edition, ISBN 978-81-775-8774-6.

References:
1) William Stallings, "Cryptography and Network Security Principles and Practices" Pearson, 4th Edition, ISBN 81-7758-774-9.
2) William Stallings, "Network Security Essentials Application and Standards", Pearson, 4th Edition, ISBN 978-81-317-6175-5.

PAPER-IV: OBJECT ORIENTED PROGRAMMING –C++

[Max. Marks-40

UNIT -I: Object Oriented Concepts, Tokens, Expressions and Control Structures
Introduction: Basic Elements of Programming, Console I/O Operations,
Control Structures: Control and Looping Statements.
Function: Function Prototyping, Call and Return by Reference, Inline Function, Default and const arguments, function overloading, Arrays, Manipulators and Enumeration.

UNIT -II: Classes and Object
Object oriented Methodology: Basic Concepts/Characteristics of OOPs, Advantages and Application of OOPs, Procedural Programming Vs OOPs.

Classes and Objects: Specifying a Class, Creating Objects, Private and Public Data Members and Member Functions, Defining Inline Member Functions, Static Data Members and Member Functions, Arrays within Class, Arrays of Objects, Objects as Function Arguments, Returning Objects.

UNIT -III: Constructors, Destructors, Operators Overloading and Inheritance.
Constructors and Destructors: Introduction, Parameterized Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic Initialization of Objects, Copy Constructors, Dynamic Constructors, const Objects, Destructors.
Operators Overloading: Definition, Unary and Binary Overloading, Rules for Operator Overloading.
Inheritance: Defining Derived Classes, Types of Inheritance, Constructors and Destructors in Derived Classes.

UNIT -IV: Pointers Virtual and Friend Functions and File Handling
Pointers: Pointer to Objects, "this" Pointer, new" and "delete" Operators, Virtual Function, Friend Functions.
File Handling: Opening and Closing a File, File Modes, File Pointers and their Manipulation. Sequential Input and Output Operations, Error Handling during File Operations, Command Line Arguments.

Books:
1) E Balagurusamy, "Object Oriented Programming with C++ ", TMH,ISBN:- 13- 978-07-066907-9
2) Parimala N.," Object Orientation through C++", Macmillan India Ltd. Pub., ISBN:-0333 93202-1
3) Dr. S.B.Kishor, "Object Oriented Programming with C++" , Das Ganuprakashan, ISBN:978-93-84336-24-0

References:
1) K. R. Venugopal, Rajkumar, T. Ravishankar, "Mastering C++", TMH, ISBN: 0-07-463454-2.
2) D. Ravichandran, " Programming with C++",2nd Ed., TMH, ISBN: 978-0-07-49488-6

B.Sc. (I.T.)- II (Semester- IV)

Paper V : PRINCIPLE OF MULTIMEDIA

[Max Marks-40

UNIT I: Multimedia in use
Multimedia in use:-Introduction to multimedia, Definition, Elements of multimedia, Need ofmultimedia, Users of multimedia, Applications of multimedia, Benefits of using multimedia, (Training, Sales, Communication, Medicine), Problems with multimedia (Investment costs, Technical Barriers, Social & Psychological barriers, Legal problems) **System Components:-**Converging technologies, functions & subsystems (Input, Development & Output) **Development Tools:-**Developing applications, Commercial Tools, Standards.

UNIT-II: Images, Audio, Video
Images:-Image & Application Image Capture, Compression (Introduction, Text Conversion, Vectorisation, Image compression), standards (standards for encoding images, standards for compression bitonal images, JPEG, Fractals for compression) **Audio:-**Audio application, Audio Capture (Music & Voice in computer), Compression,Standards (Audiovisual telephony & Application) **Video:-**video application, video capture (Converting video for the computer, creating videos on the Desktop, Real-Time video), television (Broadcast TV and video standards, high definition television (HDTV), compression, Standards (Audiovisual telephony & Application), proprietary compression (Digital Video Interactive, Other proprietary, techniques)

UNIT -III: Adobe Photoshop
Introduction to Adobe Photoshop CS3, Working With Layers, Making Selections,Incorporating Color Techniques, Placing Type In An Image ,Using Painting Tools,Working With Special Layer Functions,Creating Special Effects With Filters, Enhancing Specific Selections, Adjusting Colors,Using Clipping Groups, Paths& Shapes,Transforming Type ,Liquefying An Image, Performing Image Surgery, Annotating and Automating An Image

UNIT – IV: Macromedia Flash
Introduction and How Flash Software Works, Steps to Do A Flash Movie, Basic Functions, Opening and Closing Files, Flash Windows, Window Control, Creating Objects, Drawing In Flash, Drawing Toolbar, Line Tool, Oval Tool, Rectangle Tool. Animation: Elements of Animation, Motion Twinning, Shape Twinning.

Books :

1) Judith Jeffcoate, "Multimedia in Practice", Pearson Education, ISBN-81-317-0715-6 .
2) Dr.S.B.Kishor,DayanandHiremath,"Media Management",M/S RajaniPrakashan, ISBN:978-81-927984-9-3
3) "Photoshop In Easy Steps", Kogent Learning Solution, Dream Tech ISBN : 978-93-5004-078-2

References:

1) Mark Elsom – Cook, "Principles of Interactive Multimedia", TMH, ISBN-0-07-058752-3

B.Sc. (I.T.)- II (Semester- IV)
Paper VI :SOFT SKILLS

Max Marks-40

UNIT -I: Self Analysis
SWOC Analysis: Strengths, Weaknesses, Opportunities, Challenges, Master Plans. Who am I?
Enthusiasm: How to be a Positive Person, Enthusiasm, Difference between Enthusiasm and Effort, Conducive Conditions for Enthusiasm.
Etiquette: Meaning, Good Manners, Speaking Politely, Greeting People, Introduction with Grace, Grooming Appropriately.

UNIT -II :Attitude
Personal Planning and Successes Attitude:
Personal planning, Evaluating Success, Setting Goals, Negative Thoughts, Positive Thoughts, Success Attitude, Optimism over Pessimism, Optimism over Cynicism, Interruptions into Opportunities, TIENS Pak 8 Positive Attitude for Success and Positive Boss Attitude.

UNIT -III :Time Management
Value of Time, Diagnosing Time Management, Reasons Why Time Management is Important, Weekly Planner to Do List, Prioritizing Work, Extempore

UNIT -IV: Leadership
Team Dynamics : Teamwork, Keys to Successful Teamwork, Benefits of Teamwork, Attitude(Psychology), Definition, Explicit, Implicit, Function, Conflict- Definition, Conflict Resolution.
Public Speaking : Importance of Listening and Responding, 5 steps to Better Listening-Receiving, Understanding, Remembering, Evaluating, Responding

Books:
1) Soft Skills Development by Prashant A. Dhanwalkar(Manusmare), SaiJyoti Publication.
2) Business Correspondence and Report Writing by R C Sharma and Krishna Mohan, Tata Mcgraw Hill.

Reference

1) Professional Communication Skills by Pravin Bhatia, S. Chand.
2) Developing Communication Skills by Pravin Bhatia and Meera Banerjee.
3) The Communicator by Board of Editors, Orient Black Swan Publication.

B.Sc. (I.T.) – II (Semester –IV)
Practical I(Based on UBITT401 and UBITT402)
(UBITP407)

Event Driven Programming with Visual Basic (UBITT401)

1) Design a form to accept First, Middle and Last Name and display the full name (Concatenate three text box) on Label when user clicks on Command Button.
2) Design an application that gives five choices of colors. Design an application to choose any one color using option button and change the Fore Color of Textbox.
3) Write an application to add and remove the name of city from combo box
4) Design a VB screen, to display current time in digital format continuously after every one second and change the background color of form.
5) Build the application, which marquee the caption of Form
6) Build the application, to convert the Fahrenheit temperature selected through scrollbar value into corresponding temperature is Celsius.
7) Build a application that collects marks for five different subjects. Calculate total, If total is >= 500 display message" You are allowed" otherwise display "You are not allowed."
8) A book stall gives discount on the books as per the following conditions,

No. of Books Purchased	Discount
<=5	Nil
>5 and <=10	10%
>10 and <=15	12%
> 15	20%

Create a form as follows to calculate the Discount
9) Build the VB application that converts a number entered into the Textbox to Octal, Hexadecimal and Decimal.
10) Build the application; to accept the password within time limit say 8 second otherwise display a message time elapsed.
11) Build the application using timer for personal appointment remainder while working with computer system.
12) Evaluate following sin(x) series
$$Sin(x) = x - x^3/3! + x^5/5! - x^7/7! + x^9/9! - \ldots\ldots.$$
13) Build the application, to change the color of Frame using RGB function from the values that are set by 3 Scroll bars.
14) Build a Calculator application to perform basic arithmetic operation
15) Build the application, to accept the temperature of Number of days passed in the current month and determines the highest and average temperature.
16) Demonstrate the working of data bound controls
17) Create a data bound control application to perform various data operation using DAO Control. Assume Database Name and Table Name is Donor having 4 fields Donor_Number, Donor_Name, Date_of_Birth, Donor_Blood and Sex.
18) Create a data bound control application to perform various data operation using ADO Control. Assume Database Name and Table Name is Donor having 4 fields Donor_Number, Donor_Name, Date_of_Birth, Donor_Blood and Sex.
19) Write an application to divide the number by another and it must be able to handle any error that may arise during run time.

PC Maintenance &Troubleshooting(UBITT402)

1) Study of various input devices.
2) To study and installation of keyboard.
3) To study and installation of mouse.
4) Study of various output devices.
5) To study the installation scanner.
6) To study the installation of printer.
7) To study the installation of multimedia.
8) Study of different operating system.
9) Study of booting process.
10) To study assembling and deassembling the PC.
11) To study of installation of configuring motherboard.
12) To study and installation of VGA adaptor.
13) To study and installation of SMPS.
14) To study the installation of software.
15) To study and installation of antivirus software
16) Procedure to cleanup Disk, Disk fragmentation
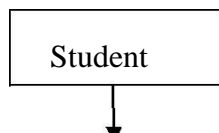17) Things to know while purchasing the computer.

B.Sc. (I.T.) – II (Semester –IV)
Practical II (Based on UBITT403 and UBITT404)
(UBITP408)

OBJECT ORIENTED PROGRAMMING –C++ (UBITT404)

1. Write a cpp program to find roots of quadratic equations.
2. Write a cpp program that will ask for a temperature in Fahrenheit and display in Celsius.
3. Write a cpp program which accepts marks of three subjects. Calculate total & average marks and also check student is pass or fail. (if average above or equal to 50 the „Pass"),
4. Design a menu driven program using switch case which accepts two integer values and program will display menus for addition, subtraction, multiplication, division and ask user to select appropriate choice.
5. Design inline functions for add and multiply of two integer numbers.
6. Write a cpp program to overload "sum()" function for add two integers, to add three real and add three integers.
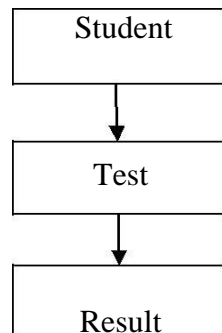7. Write a cpp program for following series.
   $$Sin\ X = X - X^3/3! + X^5/5! - X^7/7! + \ldots\ldots$$
8. Write a cpp program for following.
   $$Cos\ X = 1 - X^2/2! + X^4/4! - X^6/6! + \ldots\ldots$$
9. Design a class "Complex" with real and imaginary members also design appropriate member function to get and print complex numbers.
10. Design a class " Time" with hours and minutes as data members and to get and print data of Time class also design a sum() with object as arguments to add two objects of Time class.
11. Design a class "Employee" with appropriate members. Demonstrate array of objects.
12. Create a class " Complex" with real and imaginary members and to initialize them write
    overloaded constructor for i) Default constructor ii) Constructor with one parameter iii) Constructor with two parameters.
13. Create a constructor for "Integer "class with M and N as data members and constructor for initialize data members.
14. Design a class "String" with name and length as data members. Create a dynamic constructor to initialize object of any length can be created.
15. Create a class "Employee" with empno, ename, salary as data members and create Copy constructor to create objects from already created objects.
16. Write a cpp program to overload unary „++" and „- -" operator for "Sample" class with
    X,Y, Z of integer type.
17. Write a cpp program to overload binary „+" operator for Complex Class. (Complex class is already design).
18. Write a program to Single inheritance for following structure.
    Student Class (rollno, sub1, sub2) and Result class(total,avg)

```
        ┌──────────┐
        │ Student  │
        └────┬─────┘
             │
             ▼
        ┌──────────┐
        │          │
        └──────────┘
```

Result

19. Write a class for Multilevel Inheritance for following structure
        Student class (rollno),Test Class(sub1,sub2), Result Class(total, avg)

```
┌─────────────────┐
│     Student     │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│      Test       │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Result      │
└─────────────────┘
```

20. Write a program in show () and display () function are overridden. Demonstrate use of virtual function for runtime polymorphism.
21. Write a program which demonstrates the pure virtual function.
22. Write a cpp program in which use pointer to Sample class objects are used. Demonstrate it.
23. Write a cpp program which read contents from file and counts no. vowels and consonants in a file.
24. Write a cpp program which counts no. command line arguments on command line.
25. Write a cpp program which read a file and write contents of a file without white spaces into another file.
26. Write a cpp program which reads contents from a file and the even nos. are copied to "even.txt" and odd nos. are copied to "odd.txt" file.
27. Write a cpp program which demonstrates use of this pointer.

B.Sc. (I.T.) – II (SEMESTER –IV)
SEMINAR (UBITS409)

[Max. Marks: 50

The seminarmustbebasedonsome currenttrendsrelatedtoIT/Computer Science/Computer Application.AStudentmustpresentthePowerPointpresentationalong with Seminar Report. Students arerequestedto follow thefollowingguidelineswhilechoosing &preparingtheir seminars.

Guidelines to Seminar

1) Name ofseminar topic must be latest to the current trends and should not be repeated.

2) Seminartopicistobeapproved by thedepartmental allocatedguidebeforethedeadlineprescribed by universitytime-table.

3) Seminar can begivenin group of Maximum 3 students.

4) Students areallowed to usegraphics/animation/audio-video aids fortheirpresentation.

5) Seminar work will be evaluated by Internal examiner.

6) Studentsarerequestedtosubmittheirseminarreportsonorbeforethedeadlinewiththe concern of their respective guide otherwise students will be responsible for any appropriateaction.

7) SeminarReportshouldbesubmitted to department in following format,
A printedindoublelinespaceusingA4sizebondpaper, with a left margin of 1.5"and right margin of 1.0"with proper spiral bindingto be done. Only one copy need to be submit.

8) Students are requested to obtained necessary certificates and declaration to be duly enclosed in thereport.

B.Sc. (I.T.)- II (Semester- IV)

Paper : Environment Science

Syllabus and direction will be same as that of B.Sc. and visit www.unigug.org for detail.