

# **Program Syllabus Booklet**

**Bachelor of Science in Information Technology  
(B.Sc. IT- 306)**



**Session: 2016-17**

**University College of Computer Applications  
Guru Kashi University, Talwandi Sabo**



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### **Introduction about Program**

B.Sc. Information Technology is a three-year undergraduate course in Computer Applications. As the IT industry is rapidly developing all over the world, candidates who have completed this course can find a lot of job opportunities in the IT field. Both private and public sector firms are providing IT jobs for these graduates. The B.Sc. degree in IT is awarded for completing a program of study in the field of software development, software testing, software engineering, web design, databases, programming, and computer networking and computer systems.



<b>Semester: 1st</b>										
Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	A300101	Fundamentals of Computers and Information Technology	T	3	1	0	4	50	50	100
2	A300102	Programming Using C	T	3	1	0	4	50	50	100
3	306101	Principles of Management Systems	T	3	1	0	4	50	50	100
4	A300104	Communication Skills-I	T	3	1	0	4	50	50	100
5	A300105	S/W Lab-I(Fundamentals of Computers and Information Technology)	P	0	0	8	4	60	40	100
6	A300106	S/W Lab-II(C programming)	P	0	0	8	4	60	40	100
Total No. of Credits				24						

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**Semester: 2<sup>nd</sup>**

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	A300201	Fundamentals of Web Technology	T	3	1	0	4	50	50	100
2	A300202	Data Structures	T	3	1	0	4	50	50	100
3	A300203	Programming Using C++	T	3	1	0	4	50	50	100
4	306201	Management Information Systems	T	3	1	0	4	50	50	100
5	A300205	S/W Lab-III (Programming Using C++)	P	0	0	4	2	60	40	100
6	A300206	S/W Lab-IV(Data Structures)	P	0	0	8	4	60	40	100
7	A300207	S/W Lab – V (Fundamentals of Web Technology)	P	0	0	4	2	60	40	100
Total No. of Credits				24						

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**Semester: 3rd**

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks	
				L	T	P					
1	A300301	Digital Electronics	T	4	1	0	5	50	50	100	
2	A300302	Discrete Mathematics	T	4	1	0	5	50	50	100	
3	A300303	Operating Systems	T	4	1	0	5	50	50	100	
4	A300304	System Analysis & Design	T	4	1	0	5	50	50	100	
5	A300306	S/W Lab-VI (Operating Systems)	P	0	0	8	4	60	40	100	
6	306301	S/W Lab-VII(Workshop on PHP)	P	0	0	8	4	60	40	100	
Total No. of Credits							28				

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**Semester: 4<sup>th</sup>**

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	A300401	Computer System Architecture	T	4	1	0	5	50	50	100
2	A300402	Database Management Systems	T	4	1	0	5	50	50	100
3	306401	Advanced Internet Technologies	T	4	1	0	5	50	50	100
4	306402	Visual Basic Programming	T	4	1	0	5	50	50	100
5	A300405	S/W Lab-VIII (Database Management Systems )	P	0	0	8	4	60	40	100
6	306406	S/W Lab-IX(Workshop on Visual Basic)	P	0	0	8	4	60	40	100
Total No. of Credits				28						

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**Semester: 5th**

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	A300501	Introduction to Java	T	4	1	0	5	50	50	100
2	A300502	Computer Networks	T	4	1	0	5	50	50	100
3	306501	Artificial Intelligence	T	4	1	0	5	50	50	100
4	A300503	Software Engineering	T	4	1	0	5	50	50	100
5	A300505	S/W Lab-X (Java)	P	0	0	8	4	60	40	100
6	306502	S/W Lab-XI(Workshop on Multimedia)	P	0	0	8	4	60	40	100
Total No. of Credits				28						

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**Semester: 6th**

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	A300601	Computer Graphics	T	4	1	0	5	50	50	100
2	306601	Parallel Processing	T	4	1	0	5	50	50	100
3	306602	Network Security	T	4	1	0	5	50	50	100
4	A300604	S/W Lab-XII(Major Project)	P	0	0	4	2	60	40	100
5	A300605	S/W Lab-XIII (Computer Graphics)	P	0	0	6	3	60	40	100
6	306603	S/W Lab – XIV (Workshop on C#.Net)	P	0	0	4	2	60	40	100
7	306604	Seminar	P	NA	NA	NA	2	100	NA	100
Total No. of Credits				24						

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**Course Name: Fundamentals of Computer and Information Technology**

**Course Code: A300101**

**Semester: 1<sup>st</sup>**

**Credits 04**

**L T P**

**3 1 0**

### **Course Contents**

#### **UNIT - I**

**Computer Fundamentals:** Block diagram of a computer, characteristics of computers and generations of computers.

**Number System:** Bit, byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other, representation of characters, integers and fractions.

**Binary Arithmetic:** Addition, subtraction and multiplication.

**Computer Codes:** weighted and non-weighted code, BCD, EBCDIC, ASCII, Unicode.

#### **UNIT – II**

**Input Devices:** Keyboard, Mouse, Joy tick, Track Ball, Touch Screen, Light Pen, Digitizer, Scanners, Speech Recognition Devices, Optical Recognition devices – OMR, OBR, OCR

**Output Devices:** Monitors, Printer and its Types.

**Memories:** Units of Memory, Main Memories - RAM, ROM and Secondary Storage Devices - Hard Disk, Compact Disk, DVD.

**Introduction to Computer Terms like:** Hardware, Software.

#### **UNIT - III**

**Computer languages:** Machine language, assembly language, higher level language, 4GL, Introduction to Compiler, Interpreter, Assembler, Assembling, System Software, Application Software.

**MS Word:** Introduction, Creating & Editing Word Document. Saving Document, working with Text: Selecting, Formatting, Aligning, Finding Replacing Text, Bullets & Numbering, Header & Footer, Working with Tables, Properties Using spell checker, Grammar, AutoCorrect Feature, Graphics: Inserting Pictures, Clipart, Drawing Objects, Setting page size and margins; Printing documents. Mail-Merge.

#### **UNIT – IV**

**MS-Excel:** Environment, Creating, Opening, & Saving Workbook, Range of Cells, Formatting Cells, Functions: Mathematical, Logical, Date Time, Auto Sum, Formulas.



Graphs: Charts. Types & Chart Tool Bar, Printing: Page Layout, Header and Footer Tab.

**MS PowerPoint:** Environment, Creating and Editing presentation, Auto content wizard using built-in templates, Types of Views: Normal, Outline, Slide, Slide Sorter, Slide Show, Creating, customized templates; formatting presentations, AutoShapes, adding multimedia contents, printing slides.

**Internet:** Basic Internet terms: Web Page, Website, Home page, Browser, URL, Hypertext, Web Server, Applications: WWW, e-mail, Instant Messaging, Videoconferencing.

**Text Books:**

1. Sinha P.K. (2002). *Foundations of Computing*. First Edition. BPB.
2. Sanders D. H (1988). *Computers Today*, Fourth Edition .McGraw Hill.
3. Rajaraman V. (1996). *Fundamentals of Computers*, Second Edition. Prentice Hall of India, New Delhi.
4. Jain Satish (1999). *Information Technology*, Paperback Edition, BPB.
5. Srivastva Chetan. *Fundamentals of Information Technology*, Third edition. Kalayani Publishers.
6. L. Larry & L. Nancy. *Computers*, Twelfth edition . PrenticeHall



**Course Name: Programming Using C**

**Course Code: A300102**

**Semester: 1<sup>st</sup>**

**Credits 04**

**L T P**

**3 1 0**

### **Course Contents**

#### **UNIT - I**

**Introduction:** ANSI C standard, Overview of Compiler and Interpreters, Structure of C Program, Programming rules, Execution.

**Basic structure of C program:** Character set, Identifiers and keywords, constants, variable, Data types, input and output, type conversion.

**Operators and expressions:** Arithmetic, Unary, Logical and Relational operators, assignment operators, Conditional operators, type conversion. Library functions.

#### **UNIT - II**

**Input/ Output in C:** Formatting input & output functions.

**Decision making statements** – if, else if.

**Control statements:** branching, looping using For, While and Do-While statements, nested control structures, switch, break and continue statements.

#### **UNIT - III**

**Arrays:** Definition, declaration, assignment, one dimensional and two dimensional arrays.

**Strings:** input/output of strings, string handling functions, table of strings.

**Pointers:** pointer data type, pointer declaration, initialization, accessing values using pointers.

**Functions:** prototype, definition and call, formal and actual arguments, methods of parameter passing to functions, recursion versus iteration.

#### **UNIT – IV**

**Structures and unions:** using structures and unions, comparison of structure with arrays and union.

**Files:** opening and closing files, Basic I/O operation on files.

**Storage Classes:** automatic, external, static and register variables.

#### **Text Books:**

1. Kanetkar P.Yashvant .*Let us C*, Seventh Edition. BPB Publications, New Delhi.
2. Balagurusamy E. *Programming in C*.Tata Mc Graw Hill.



3. G.S. Byron. *Programming in C*, Second Edition. McGraw Hills.
4. Kernighan & Richie. *the C Programming Language*, Second Edition. PHI.
5. Salaria R. S. *Problem Solving and Programming in C*, Second Edition. PHI.





**Course Name: Principles of Management Systems**

**Course Code: 306101**

**Semester: 1<sup>st</sup>**

**Credits: 04**

**L T P**

**3 1 0**

### **Course Contents**

#### **UNIT-I**

**Introduction:** Definition of Management, its nature and purpose, Management: Science or art, Function of managers, Levels of management, Fayol's general principles of management.

**Management and society:** social responsibility of managers.

**Planning:** nature and purpose of planning, Planning versus forecasting, types of plans, steps in planning, the planning process.

#### **UNIT- II**

**Decision making:** characteristics and importance, Programmed and non-Programmed decisions, Steps in the process of decision making.

**Organizing:** nature and purpose of organizing, formal and informal and informal organization, Organizational levels and span of management.

**Human resource management and selection:** definition of staffing, the systems approach to HRM, Recruitment and selection: sources of manpower supply, Selection process & techniques.

#### **UNIT-III**

**Motivation and motivators, type of motivation.** Theories of motivation: Maslow's hierarchy of needs theory, Herzberg's Hygiene theory, McClelland's needs theory.

**Leadership:** definition and characteristics, Leadership theories: trait approaches to leadership, behavioral approach, situational or contingency approach to leadership, Leadership styles.

#### **UNIT- IV**

**Communication:** meaning, characteristics and importance, Elements of communication, the communication process, Types of communications, barriers and breakdowns in communication, making communication effective.

**The system and process of controlling:** characteristics and importance of control, the basic control process, requirements for an effective control system.

**References:**



**GURU KASHI  
UNIVERSITY**  
PUNJAB - INDIA

1. Prasad L.M. *Principles & Practice of Management*. Sultan Chand & Sons.
2. K. Harold, W. Heinz. *Essentials of Management*. Tata McGraw-Hill Publishing.





**Course Name: Communication Skills – I**

**Course Code: A300104**

**Semester: 1<sup>st</sup>**

**Credits: 04**

**L T P**

**3 1 0**

**Course Contents**

**UNIT – I**

**English Language:** Sentence, Parts of speech, Tenses, Active passive voice, Direct Indirect speech, Creative writing & vocabulary, Comprehension passage, Reading of Biographies of at least 10 IT business personalities.

**UNIT – II**

**Business communication:** Types, Medias, Objectives, Modals, Process, Importance Understanding Barriers to communication & ways to handle and improve barriers.

**Listening skills:** Its importance as individual and as a leader or as a worker, Types of listening and Traits of a good listener, Note taking, barriers to listening & remedies to improve listening barrier.

**UNIT – III**

**Non Verbal Communication:** understanding what is called nonverbal communication, its importance as an individual, as a student, as a worker and as a leader, its types.

**Presentation skills:** It's Purpose in business world, how to find material for presentation, How to sequence the speech with proper introduction and conclusion, How to Prepare PPT & Complete set of required body language while delivering presentation.

**UNIT – IV**

**Reading skills:** to enhance independent reading, Comprehension Passages, News / Magazine articles on stereotype topics, Poems – Abu Ben Adhem, The Tiger

**Writing skills:** Importance of reading and writing, improving writing skills through Basic cohesive paragraph writing, resume writing, Job application writing/acceptance letter.

**Text Books:**

1. RODRIGUEZ M.V. *Effective Business Communication*.
2. Allen W. Standard. *Living English Structure*. Orient Longman
3. Raman Meenakshi, Singh Parkash. *Business Communication*, Paperback Edition. Oxford University Press.





**Course Name: S/W Lab-I (Fundamentals of Computer and Information Technology)**

**Course Code: A300105**

**Semester: 1<sup>st</sup>**

**Credits: 04**

**L T P**

**0 0 8**

### **Course Contents**

**MS Windows:** Familiarizing with windows operating system; using built-in accessories; managing files and folders using windows explorer; working with control panel; installing hardware and software, Installation of MS Office.

**MS Word:** Salient features of MS WORD, Starting and quitting of MS WORD, File, Edit, View, Insert, Format, Tools, Tables, Window, Help options and all of their features, Options and sub options etc. Transfer of files between MS WORD and other word processors and software packages.

**MS Excel:** Spread Sheet. Getting started with Excel worksheet, Entering data into work sheet, Editing cell addressing, Ranges and range names, Commands, Menus, Copying and moving cell contents, Inserting and deleting rows and columns, Column width control, Cell protection, Printing reports, Creating and displaying graphs, Statistical functions.

**MS Power Point:** Salient features of POWER POINT, File, Edit, View, Insert, Format, Tools, and Slide Show.

**Internet:** Navigating with Internet Explorer; surfing the net, using search engines; using email.



**Course Name: S/W Lab –II (C Programming)**

**Course Code: A300106**

**Semester: 1<sup>st</sup>**

**Credits: 04**

**L T P**

**0 0 8**

**Course Contents**

1. Program to find sum of two numbers.
2. Program to test whether an entered number is even, odd or zero.
3. Program to test whether an entered number is prime number or not.
4. Program to print N terms of a Fibonacci Series.
5. Program to find the reverse of number.
6. Program to check whether a given Number or a given string is palindrome or not.
7. Program to reverse a given string.
8. Program to check whether a given number is prime or not.
9. Program to find the prime numbers up to N.
10. Program to print:  
\*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*
11. Program to search a string in an array using read-data.
12. Program to find the frequency of vowels in a given string.
13. Program to find the frequency of each character in a given string.
14. Program to find greatest in a matrix using subroutine.
15. Program for Matrices Addition and subtraction.
16. Program for Matrix Transpose.
17. Program to find sum of rows and column of a matrix.
18. Program to find sum of both diagonals of the matrix.



**Course Name: Fundamentals of Web Technology**

**Course Code: A300201**

**Semester 2<sup>nd</sup>**

**Credits: 04**

**L T P**

**3 1 0**

**Course Contents**

**UNIT – I**

**HTML:** Introduction, HTML Tags, Commonly used HTML Commands, Structure of HTML Program, Formatting, Text Styles, and Text Effects.

**HTML:** HTML Lists, Types of lists, adding graphics to HTML Document..

**UNIT – II**

**HTML:** Creating tables, Linking documents, Frames.

**HTML Forms:** Properties and Methods, Button, Text, Text Area, Checkboxes, radio buttons, select and option elements.

**UNIT – III**

**Web Development:** Web site, Web page, Static Website and Dynamic Website. **HTML:** Web Server, Web Client/ Browser.

**DHTML:** Cascading Style Sheets, Class, External Style Sheets.

**Introduction to Java Script:** How & Where to put the JavaScript Code, JavaScript Statements, Comments, Variables, Operators, Control Statements, Loops, Popup Boxes, Functions.

**UNIT – IV**

**Purchasing a Domain Name & Web Space:** Domain Name & Web Space, Getting a Domain Name & Web Space (Purchase or Free), Uploading the Website to Remote Server.

**Internet:** Basic Concepts, Communicating on the Internet, Internet Domains, Establishing connectivity to the Internet, Client IP Address, IP Address.

**Text Books:**

1. Ivan Bayros. *Web Enabled Commercial Application Development Using HTML, DHTML, JavaScript, PHP*, Fourth Revised Edition. BPB publication.
2. Wilton Paul, Mc Peak Jeremy. *Beginning Java Script*. Wrox
3. Jones Don, Scott Mark & Villarsrick. *E-Commerce for Dummies*. Hungry Minds



**Course Name: Data Structures**

**Course Code: A300202**

**Semester 2<sup>nd</sup>**

**Credits: 04**

**L T P**

**3 1 0**

**Course Contents**

**UNIT – I**

**Introduction:** definition, various types of data structures, data structure operations, algorithms complexity and Time Space Trade-off.

**Arrays and Records:** Linear arrays, Representation of linear arrays in memory, Operations on Array, Multidimensional arrays and its implementation, Pointers, pointer arrays, Records.

**UNIT – II**

**Stacks:** Stacks, array representation of stacks, operation on stacks, Polish Notation, Notation conversion, evaluation of postfix expression, Applications of Stack.

**Queues:** Queues, implementation, operations on queue, De queues, Priority queues.

**UNIT – III**

**Linked Lists:** Linked lists, Representation in memory, traversing link lists, operations on link list, overflow and underflow, Memory allocation, Header link list, two way lists.

**Trees:** Basic terminology, Binary trees and its representation, complete binary tree, extended binary tree, linked representation of binary tree, traversing binary tree, searching binary tree, and Binary search trees.

**UNIT – IV**

**Sorting and Searching:** Definitions, bubble sort, insertion sort, selection sort, quick sort, merge sort, radix sort, heap sort, Quick Sort, Linear Search, Binary Search.

**Graphs:** representation of graph, types of Graph, adjacency matrices, path matrix, Graph traversal: Breadth first search. Depth first search, shortest path problem, Warshall's algorithm, Dijkstra algorithm.

**Text Books:**

1. Lipschutz Seymour. *Theory and Problems of Data Structures*. Schaum's series.
2. Baluja G.S. *Data structures through C++*. PHI.



**Course Name: Programming Using C++**

**Course Code: A300203**

**Semester 2<sup>nd</sup>**

**Credits: 04**

**L T P**

**3 1 0**

### **Course Contents**

#### **UNIT - I**

**Introduction to C++:** Oriented Programming, OOP Paradigm, Characteristics of OOP Language, Advantages and disadvantages of OOP over its predecessor paradigms. Tokens: Identifier, Keywords, Constants, And Operators: Arithmetic, relational, logical, And conditional and assignment.

**Data Types:** Variable declaration, expressions, Type conversion. Statements: Input and output statements, stream I/O, Conditional and Iterative statements, breaking control statements.

#### **UNIT - II**

**Storage Classes:** Automatic, Static, Extern, Register.

**Arrays:** Arrays as Character Strings, Structures, Unions, Enumerations.

**Functions:** Prototyping, Definition and Call, Parameter Passing by value, Parameter Passing by address and Parameter Passing by reference, Constant functions, Constant and default arguments, recursion.

#### **UNIT - III**

**Classes and Objects:** Class Declaration and Class Definition, Defining member functions, inline functions, this pointer, Object as function arguments, array of objects, functions returning objects, Static data members and Static member functions, function overloading, Friend functions and Friend classes. Constructors & Destructors: properties, types of constructors.

#### **UNIT - IV**

**Inheritance:** Defining derived classes, inheriting private members, types of inheritance, Types of base classes, Polymorphism: Methods of achieving polymorphic behavior, early binding, virtual functions, late binding, pure virtual functions and abstract base class.

**Operator overloading:** overloading binary and unary operator, operator overloading using friend function, function overloading. Files and streams: Classes for file stream operations, opening and closing of files, reading and writing files.



**Text Books:**

1. Balagurusamy E. *Object Oriented Programming with C++*. Tata McGraw-Hill.
2. Lafore Robert. *Object Oriented Programming in C++*. Galgotia Publications.
3. Schildt Herbert. *The Complete Reference C++*. Tata McGraw-Hill





**Course Name: Management Information System**

**Course Code: 306201**

**Semester 2<sup>nd</sup>**

**Credits: 04**

**L T P**

**3 1 0**

**Course Contents**

**UNIT-I**

**Introduction to system:** Basic System Concepts, Types of Systems, the system approach, Information System: Definition & Characteristics, Types of information, role of information in decision making, sub-systems of an information system: EDP and MIS management levels, EDP/MIS/DSS.

**UNIT-II**

**An overview of management information system:** definition & characteristics, components of MIS, frame work for understanding MIS: information requirements & levels of management, Simon's model of decision-making, structured v/s un-structured decisions, formal vs informal systems.

**UNIT-III**

**Developing Information systems:** Analysis & Design of information Systems: Implementation & Evaluation, pitfalls in MIS Development.

**UNIT-IV**

**Functional MIS:** A study of personnel, financial and production MIS, introduction to e-business systems, e-commerce-technologies, applications, decision support systems for planning, control and decision-making.

**Text Books/ References:**

1. Kanter J. *Management Information Systems*.PHI.
2. Gordon B. Davis, Olson M.H. *Management Information Systems- Conceptual foundations, structure and development*. McGraw Hill.
3. O'Brien James A. *Management Information Systems*.Tata Mc Graw-Hill.
4. Senn James A. *Analysis & Design of Information Systems*, Second edition. McGraw Hill.
5. Murdick Robert G., Ross Joel E. & Claggett James R. *Information Systems for Modern Management*.PHI.
6. Lucas.*Analysis, Design & Implementation of Information System*. McGraw Hill.



**Course Name: S/W Lab- III (Programming using C++)**

**Course Code: A300205**

**Semester 2<sup>nd</sup>**

**Credits: 02**

**L T P**

**0 0 4**

**Course Contents**

1. Write a program to print 1  
12  
123  
1234  
123452.
2. Write a program to print 1  
22  
333  
4444  
55555
3. Write a program generate the prime numbers.
4. Write a program addition of two square matrices.
5. Write a program multiplication of two matrices.
6. Write a program to subtract two matrices.
7. Write a program to find whether the number is even odd.
8. Write a program to find greatest out of three number using &&operators.
9. Write a program to find whether the number is palindrome or not.
10. Write a program to print even number Series.
11. Write a program to print odd number Series.
12. Write a program to print prime number Series.
13. Write a program to find whether the number is prime or composite.
14. Write a program to find length of given Character string.
15. Write a program to find the reverse of number.
16. Write a program to add string2 intostring1.
17. Write a program to compare two strings.
18. Write a program to copy sring2 intostring1.
19. Write a program to find volume of (I) cylinder (II) cone.
20. Write a program to find factorial of number.





21. Write a program to add, multiply, subtract, divide two numbers using nested if-else in C++.
22. Write a program to implement switch case in C++.
23. Write a program to implement for loop, while loop and do-while loop in C++.
24. Write a program to enter record of 50 students.
25. Write a program to implement call by value.
26. Write a program to show call by reference in C++.
27. Write a program to create structure in C++.
28. Write a program to find the area of circle, rectangle and polygon by using structure.
29. Write a program to create classes in C++.
30. Write a program that uses a class where the member functions are defined inside a class.
31. Write a program that uses a class where the member functions are defined outside a class.
32. Write a program to demonstrate the use of static data members.
33. Write a program to demonstrate the use of keyword const data members.
34. Write a program using constructors in C++.
35. Write a program using destructors in C++.
36. Write a program using multiple constructors in C++.
37. Write a program using Copy constructor in C++.
38. Write a program to demonstrate the single inheritance.
39. Write a program to demonstrate the multilevel inheritance.
40. Write a program to demonstrate the multiple inheritances.
41. Write a program showing hierarchal inheritance in C++.
42. Write a program to implement function overloading.
43. Write a program to demonstrate the overloading of binary arithmetic operators.
44. Write a program showing operator overloading in C++.
45. Write a program to demonstrate the use of function template.
46. Write a program to demonstrate the use of class template.
47. Write a program showing Exception handling in C++.
48. Write a program to read and write data from a file in C++.
49. Write a program to demonstrate the reading and writing of mixed type of data.
50. Write a program to demonstrate the reading and writing of objects.



**Course Name: S/W Lab-IV (Data Structures)**

**Course Code: A300206**

**Semester 2<sup>nd</sup>**

**Credits: 04**

**L T P**

**0 0 8**

**Course Contents**

1. Write a program to insert an element into an array
2. Write a program to delete an element from an array.
3. Write a program to implement linear search algorithm
4. Write a program to implement binary search algorithm
5. Write a program to implement bubble sort algorithm.
6. Write a program to implement selection sort algorithm.
7. Write a program to implement PUSH operation in stacks.
8. Write a program to implement POP operation in stacks.
9. Write a program to implement Queues.
10. Write a program to insert an element in the beginning of the link list.
11. Write a program to insert an element in the middle of the link list.
12. Write a program to insert an element in the end of the link list.
13. Write a program to delete an element from the beginning of the link list.
14. Write a program to delete an element from the end of the link list.
15. Write a program for implementation of a graph.
16. Write a program for implementation of binary search tree.



**Course Name: S/W Lab-V (Fundamentals of Web Technology)**

**Course Code: A300207**

**Semester 2<sup>nd</sup>**

**Credits: 02**

**L T P**

**0 0 4**

**Course Contents**

1. Design the page with an attractive background color, text color and background image.
2. Design the page with an attractive color combination, with suitable headings and horizontal rules.
3. Write an HTML document with an example of Ordered List and Unordered List.
4. Write an HTML document with an example of Table format to print your Bio-Data.
5. Write an HTML document with an example of Table format to print your Telephone Bill.
6. Develop a complete web page using Frames and Frameset.
7. Write an HTML code for designing the subscription form of mail account in the e-mail website with appropriate fields.
8. Write an example of Style Sheet.
9. Design a webpage with colors in bg color, text and link, try out different sizes.
10. Design a single page web site for a university containing a description of the courses offered, it should also contain some general information about the university such as its history.
11. Write a HTML code for specifying the heading BS or cities in the HTML document.
12. Write a HTML Code for Nested list.
13. Write HTML code to develop a web page having background in blue and title "Welcome to my home page" in red other color.
14. Create an HTML document of giving details of your name, age, and telephone no, address and enrolment no, aligned in proper order.
15. Design a web page that provides links to five different web pages or to entirely different websites.



**Course Name: Digital Electronics**

**Course Code: A300301**

**Semester 3<sup>rd</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Introduction:** Overview of number system and codes. Elements and functions of digital Logic gates, Gate propagation delay time, logic gates applications.

**UNIT-II**

**Boolean algebra:** Boolean operations, SOP and POS forms, Detection and correction codes, detecting and correcting an error.

**UNIT-III**

**Combinational logical circuits:** design of Binary Adder, Serial, Parallel, and Carry look ahead type. Full subtractor, code converters, MUX and DEMUX, encoders and encoders.

**Sequential logic circuits:** Flip flop: RS, JK, Bachelor slave JK, D and T flip-flops using NAND gates.

**UNIT-IV**

**Counters:** Design of asynchronous and synchronous, up down and programmable counters.

**Registers:** shift registers, various types and their applications.

**Text Books:**

1. Mano D. Morris. *Digital Circuits of Logic Design*. PHI.
2. Bartee T.C. *Digital and Electronic Circuits*. McGraw Hill.
3. Malvino. *Digital Computer Electronics*. Career Education.
4. Floyd T.L. *Digital Fundamentals* Pearson Education.
5. Jain R.P. *Modern Digital Electronics*. McGraw Hill Education India.
6. Tauls and Schillings. *Digital Integrated Electronics*. McGraw-Hill Education.



**Course Name: Discrete Mathematics**

**Course Code: A300302**

**Semester 3<sup>rd</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Set theory, Relations and functions:** Set notations and description, subsets, basic set operations. Venn diagrams, laws of set theory, partition of sets, min sets, duality principle, basic definitions of relations and functions, graphics of relations, properties of relations; injective, surjective and bijective functions, composition.

**UNIT-II**

**Combinations:** Rule of products, permutations, combinations.

**Algebra of Logic:** Propositions and logic operations, truth tables and propositions generated by set, equivalence and implication laws of logic, mathematical system, and propositions over a universe, mathematical induction, quantifiers.

**UNIT-III**

**Recursion and recurrence:** The many faces of recursion, recurrence, relations, and some common recurrence relations, generating functions.

**UNIT-IV**

**Graph theory:** Various types of graphs, simple and multigraphs, directed and undirected graphs, Eulerian and Hamiltonian graph, graph connectivity, traversals, graph optimizations, Graph coloring, trees, spanning trees, rooted trees, binary trees.

**Text Books:**

1. Doerr A & Kenneth L. *Applied Discrete Structure of Computer Science*. Galgotia Publications.
2. Swami M.N.S & Thisiraman E. *Graphics Networks and Algorithms*. John Wiley & Sons.
3. Tremblay J.P and Manohar R., *Discrete Mathematical Structure with Application to Computer Science*, McGraw Hill.



**Course Name: Operating Systems**

**Course Code: A300303**

**Semester 3<sup>rd</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Introduction to Operating System:** its need and Operating System services; Operating System classification, single user, multiuser, simple batch processing, Multiprogramming, Multitasking, Parallel system, Distributed system, Real time system.

**UNIT-II**

**Process Management:** Process Concept, Process scheduling.

**CPU Scheduling:** Basic concepts, Scheduling Criteria, Scheduling Algorithms.

**UNIT-III**

**Memory Management:** Logical Versus Physical addresses space, Swapping Partition, paging and segmentation, concepts of Virtual Memory.

**File Management:** File concept, access methods, Directory Structure, file protection. Allocation methods: Contiguous, linked and index allocation.

**UNIT-IV**

**Deadlocks:** Deadlock Characteristics, Prevention, Avoidance, Detection and Recovery, critical section, semaphores, combined approach to deadlock handling.

**Security:** Authentication, Program Threats, System Threats, and Encryption.

**Text Books:**

1. SilberschatzGalvin.*Operating System Concepts*.John Wiley & Sons Inc.
2. Milan Milenkovic.*Operating System*.McGraw Hill Education.
3. Deital H.M. *An Introduction to Operating System*, Addison Wesley.
4. Stalling, W.*Operating System*. PHI.



**Course Name: Systems Analysis and Design**

**Course Code: A300304**

**Semester 3<sup>rd</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**System Concepts:** Definition, characteristics, elements & types of system. System development life cycle: Recognition of need: Feasibility study, system analysis, introduction

**UNIT-II**

**Tools for Structure design and Information finding Techniques:** Information collection, interviews, questionnaires, observation, record searching and document analysis, analysis tools, data flow diagram, data dictionary, decision tree, structured English and decision table.

**UNIT-III**

**System Design:** The process and stages of systems design, input/output and file design;

**UNIT-IV**

**System Implementation:** System implementation, system testing, implementation process and implementation methods, system maintenance.

**Text Books:**

1. AwadElias N. System. *Analysis and Design*. Galgotia. Publications.
2. Sen James A. *Analysis and Design of Information System*. Tata McGraw Hill



**Course Name: S/W Lab-VII OS Lab**

**Course Code: A300306**

**Semester 3<sup>rd</sup>**

**Credits: 04**

**L T P**

**0 0 8**

**Course Contents**

**Practical to Learn Unix/Linux commands:**

1. Write down the Steps to Install Linux Operating System.
2. Write down the Steps to Install XP Operating System.
3. Write and explain the File Related commands.
4. Write and explain the Directory Related commands.
5. Write and explain the Process and status information commands.
6. Write and explain the Text related commands.
7. Write and explain the command to set the File Permissions.
8. Write a shell Program for Numerical Calculations in Linux.
9. Write a shell program to create a table in Linux.
10. Write a shell program to identify Even and Odd Number in Linux





**Course Name: S/W Lab-VII (Workshop on PHP)**

**Course Code: 306301**

**Semester 3<sup>rd</sup>**

**Credits: 03**

**L T P**

**0 0 8**

### **Course Contents**

**Note: Install wamp on window based systems to make it virtual server to run PHP.**

1. Create a basic web page to show use of head, title, and body tag.
2. Create a web page to show use heading and text formatting tags.
3. Create a web page to show use img, ul, ol and anchors.
4. Create a web page to show use tables and div tags.
5. Create a web page using class, id and inline styles.
6. Create a web page to create a form.
7. Create a web page to show an alert using java script.
8. Show the use of get Element ById in java script.
9. Create a web page using variables, loop and Conditions in java script.
10. Create a web page using Switch in java script.
11. Create a web page to show use of jquery.
12. Create a web page to implement get & post in Ajax.
13. Create a web page to print your name using PHP.
14. Create a web page to show use of all data types in PHP
15. Create a web page to show use loops & Conditional Statements.
16. Create a web page to show use arrays in PHP.
17. Create database and tables in MySQL.
18. Fetch and display data from MySQL table in a web page using PHP.
19. File upload to server using PHP.
20. Working with cookies and session.



**Course Name: Computer System Architecture**

**Course Code: A300401**

**Semester 4<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Introduction to Computer Organization & Design:** Computer Organization, computer design, Computer Architecture, Instruction codes, op-codes, Computer Registers, Common Bus System, Computer Instructions, Timing and Control, Instruction Cycle, Memory reference instructions CPU: Stack Organization, Addressing Mode.

**UNIT-II**

**Control Unit Architecture:** I/O Architecture: Transfer of Information among I/O devices, I/O Bus and memory Modules, I/O versus Memory Bus, Isolated versus Memory Mapped I/O.

**UNIT-III**

**Data Transfer Modes:** Asynchronous data transfer Modes of Transfer, DMA, Input output Processor, CPU, Memory and I/O ports.

**UNIT-IV**

**Memory System:** Storage technologies, Memory hierarchy, Memory mapping, Main memory and Auxiliary memory, Associative and Cache memory introductory study of 8-bit Microprocessor.

**Text Books:**

1. Mano M.M. *Computer System Architecture*..PHI.
2. J.P.Hayes. *Computer Organization and Architecture*.TMH.
3. Stallings. *Computer System Architecture*.PHI



**Course Name: Database Management Systems**

**Course Code: A300402**

**Semester 4<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**An overview of the DBMS:** Concept of database system, Database Administrator and his Responsibilities, Physical and Logical data independence.

**Three level Architecture of database system:** The external level, conceptual level and the internal level.

**UNIT-II**

**Introduction to Data Models:** Entity Relationship Model, Hierarchical, Network and Relational Model, Comparison of Network, Hierarchical and Relational Model.

**UNIT-III**

**Relational data model:** Relational database, relational algebra and calculus, SQL dependencies, functional, multi valued and join, Normalization.

**UNIT-IV**

**Database protection:** Recovery, concurrency, security, integrity and control. Distribute database: Structure of distributed database, design of distributed databases.

**Text Books:**

1. Date C.J. *An Introduction to Data Base Systems*. Narosa Publications.
2. KorthF. Henry. *Database System Concepts*. McGraw Hill.
3. Prakash Naveen. *Introduction to Database Management*. TMH.
4. Desai C.Bipin. *An Introduction to Database System*. Galgotia Publications.
5. Ullman. *Principles of Database Systems*. Galgotia Publications.



**Course Name: Advance Internet Technology**

**Course Code: 306401**

**Semester 4<sup>th</sup>**

**Credits 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Introduction:** Introduction to Internet, Word Wide Web, Introduction to Connection Oriented Networks and Connectionless Networks, Transmission Control Protocol, User Datagram Protocol.

**UNIT-II**

**Routing Technology:** CDP, ARP, Static Routes, Dynamic Routes, RIP, IGRP, PPP with CHAP Authentication, ISDN, IPX, Introduction to the Switch, Frame Relay, Telnet, VLAN, VTP, OSPF Routes.

**UNIT-III**

**Internet Application:** Datagram Congestion Control Protocol, Mobile IP; Mobile Data; Real Time Protocol; Multimedia over Packet Networks (ITU-T Recommendations H.323, H.245).

**UNIT-IV**

**Selected Topics:** Hypertext Transfer Protocol (HTTP); Electronic Mail; Domain Name Service; File Transfer; IPv4, IPv6 Infrastructure Architecture.

**References:**

1. Prasad K. *Principles of Digital Communication Systems and Computer Networks*. Charles River Media.
2. Stevens Richard W.(1994). *TCP/IP Illustrated, Volume 1: The Protocols*. Addison-Wesley.
3. Peterson L. Larry and Davie Bruce S.(2003).*Computer Networks a Systems Approach*, 3rd Edition. Morgan Kaufmann.



**Course Name: Visual Basic Programming**

**Course Code: 306402**

**Semester 4<sup>th</sup>**

**Credits 05**

**L T P**

**4 1 0**

### **Course Contents**

#### **UNIT-I**

**Introduction to Visual Basic:** The Visual Basic Program Development Process; The Visual Basic Environment; Opening a Visual Basic Project; Saving a Visual Basic Project; Running a Visual Basic Project. Visual Basic Fundamentals: Constants; Variables; Data Types and Data Declarations; Operators and Expressions; String Expressions; Library functions, Branching and Looping Statements, Relational Operators and Logical Expressions; Branching with the if-Then Block; Branching with if-Then -Else Blocks.

#### **UNIT-II**

**Selection:** Select-case; Looping with for-Next; Looping with Do-Loop; Looping with While-Wend Visual Basic Control Fundamentals: Visual Basic Control Tools; Control tool Categories; Working with controls; Naming Forms and Controls; Assigning Property Values to Forms and Controls; Executing Commands. Display Output Data (Labels and Text Boxes); Entering Input data; selecting Multiple Features(Check Boxes); selecting Exclusive Alternatives(Option Button and Frames). Assigning Properties Collectively (The with Block); Generating Error Messages; Creating Times Events; Scrollbars, Menus and Dialog Boxes: Building Drop-down Menus; accessing a Menu from the Keyboard; Menu Enhancements; Submenus; Pop-up Menus; Dialog Boxes; Input Box.

#### **UNIT-III**

**Executing and Debugging a New Project:** Syntax Errors; Logical Errors; Setting break Points; Defining Watch Values; Stepping Through a Program; User Induced Errors; Error Handlers. Procedures: Modules and Procedures; Sub Procedure; Event Procedures; Function.

#### **UNIT-IV**

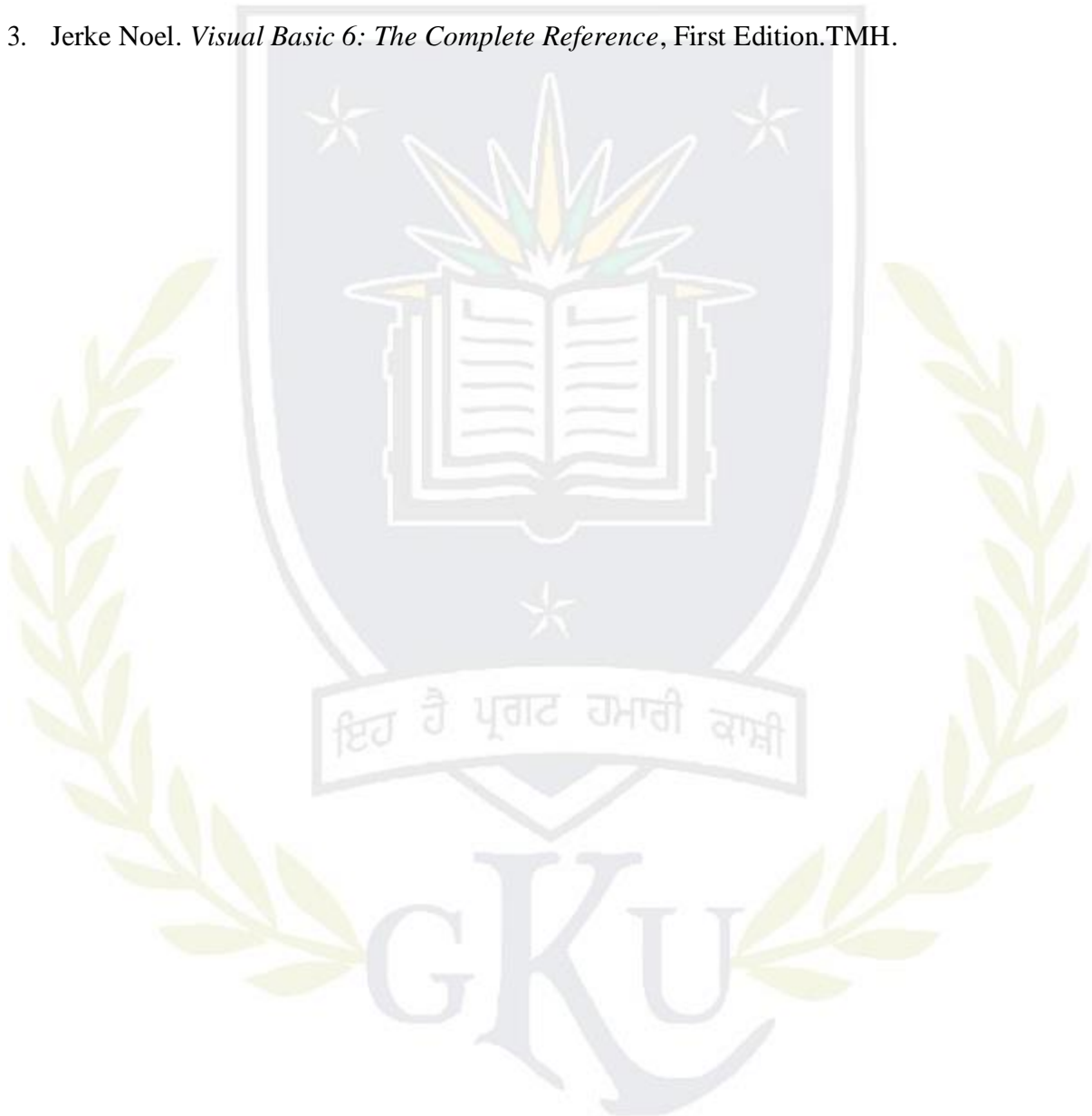
**Arrays:** Array Characteristics; Array declarations; Processing Array Elements; Passing Arrays to Procedures; Dynamic Arrays; Array-Related Functions; Control Arrays, Data Access using ADO: Data Access Technology with VB; The ActiveX Data Object Model; Advantages of ADO and OLEDB; Connecting to a Data Source; Retrieving from a Data



Source; Sorting and Searching Data; Updating Data; Creating Dynamic Record Sets; Using Cursors; Cursor Types; Locking; Accessing ADO Data Control.

**Text Books/ References:**

1. Cornell Gary. *Visual Basic 6 from the Ground Up*, Paperback Edition. TMH
2. Schneider I. David. *Essentials of Visual Basic 6.0 Programming*, First Edition. Prentice Hall.
3. Jerke Noel. *Visual Basic 6: The Complete Reference*, First Edition. TMH.





**Course Name: S/w Lab -VIII (Data Base Management Systems)**

**Course Code: A300405**

**Semester 4<sup>th</sup>**

**Credits: 04**

**L T P**

**0 0 8**

**Course Contents**

1. Various Queries using commands of SQL
2. To implement the concept of Sub query.
3. To implement the concept of Indexes and views.
4. Programs using control Structure of PL/SQL – if-else, for, do-while, while
5. Programs using implicit and explicit cursors
6. Program to create stored procedure
7. Program to create a Package.
8. Program to create a Triggers.



**Course Name: S/ W Lab-IX (Workshop on Visual Basic)**

**Course Code: A300406**

**Semester 4th**

**Credits 04**

**L T P**

**0 0 8**

**Course Contents**

**Develop an Application using Visual Basic:**

1. Bank transactions management
2. Hotel Management
3. Gas agency management
4. Office automation
5. Railway reservation
6. Computerization course registration
7. Hostel management
8. Hospital management
9. Inventory management
10. Competitive examination database
11. Airline reservation
12. Transport management
13. College admission
14. Library management





**Course Name: Introduction to Java**

**Course Code: A300501**

**Semester 5<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

### **Course Contents**

#### **UNIT-I**

**Introduction to Java:** Introduction to java, Java History, Java Features; How Java Differs from C and C++; Comments in java, Java Program Structure, Implementing a Java Program, Java Virtual Machine, Command Line Arguments, Programming Style.

Java and Internet, Java and World Wide Web, Web Browsers; Hardware and Software Requirements; Java Support Systems, Java Environment, Java Tokens, Java Statements.

#### **UNIT-II**

**Constants, Variables and Data Types:** Introduction; Constants, Variables, Data Types, Introduction to Operators, Expressions, Operator Precedence, Decision Making, Branching and Looping: Decision making and branching Statements, Looping Statements, Labeled loops, Jumping Statements.

#### **UNIT-III**

**Classes, Objects and Methods:** Introduction, Defining a Class, Data member, member function, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods.

**Arrays, Strings, Vectors:** Arrays, Jagged Arrays, Strings, String functions, Vectors, Wrapper Classes.

**Inheritance:** Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalizer Methods, Abstract Methods and Classes, Visibility Control.

#### **UNIT-IV**

**Interfaces:** Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables, Implementing Multiple Inheritance using Interfaces.

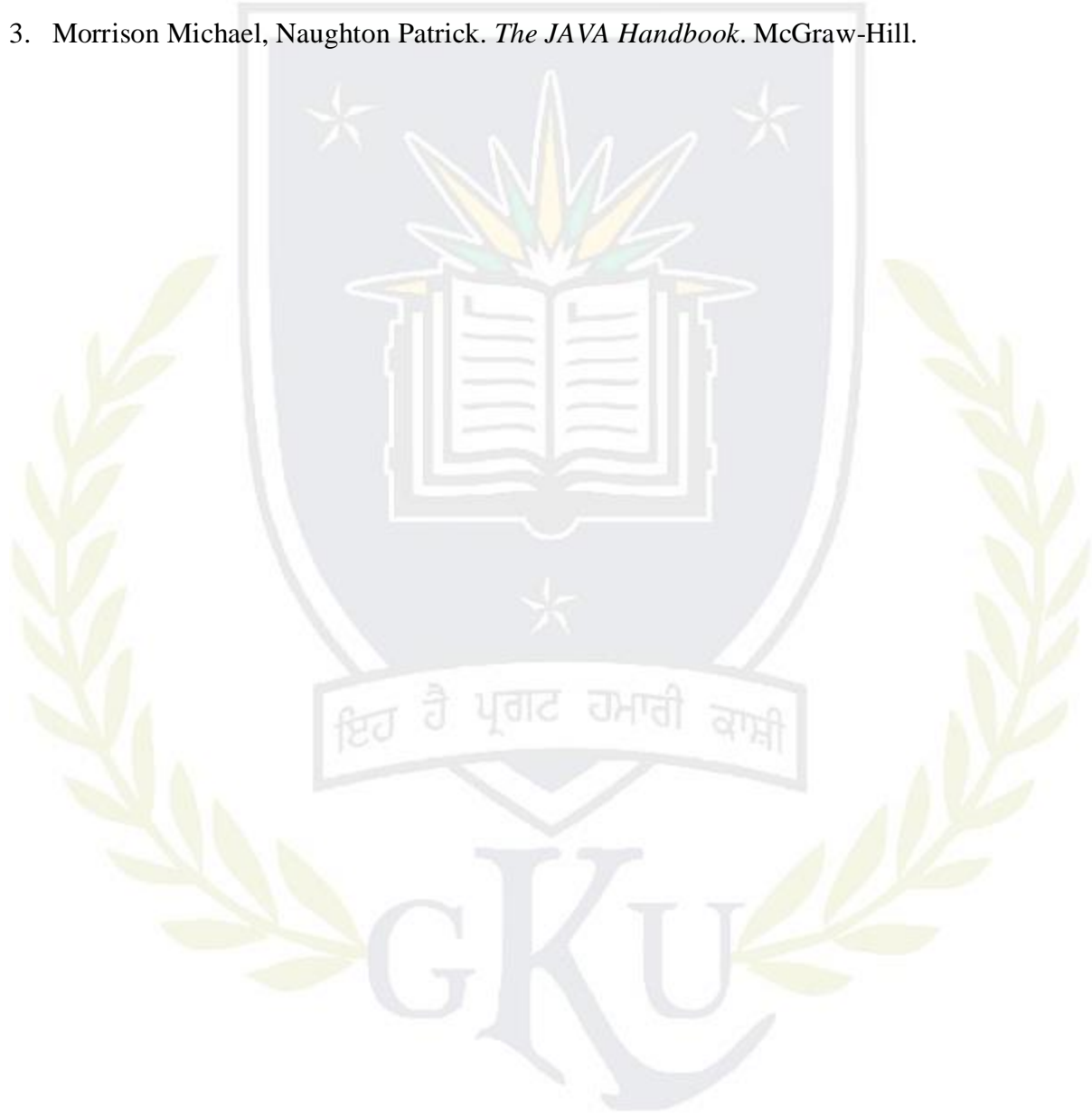
**Packages:** Introduction; System Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes. Managing Errors and Exceptions: Introduction; Types of Errors; Exceptions, Exception Handling using Try, Catch and Finally block: Throwing Our Own Exceptions,



Using Exceptions for Debugging. Applet Programming: Introduction; How Applets Differ from Applications; Applet LifeCycle; Creating an Executable Applet.

**Text Books:**

1. Balaguruswamy E. *Programming with JAVA*, McGraw-Hill Education.
2. Hughes Merlin, Shoffner Michael, and Hamner Derek. *Java Network Programming*. Manning Publications.
3. Morrison Michael, Naughton Patrick. *The JAVA Handbook*. McGraw-Hill.





**Course Name: Computer Networks**

**Course Code: A300502**

**Semester 5<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Data communications concepts:** Digital and analog parallel and serial synchronous and asynchronous, simplex, half duplex, full duplex, multiplexing.

**Communication channels:** Wired transmissions: Telephone lines, leased lines, switch line, coaxial cables, base band, broadband, optical fiber transmission.

**UNIT-II**

**Wireless transmission:** Microwave transmission, infrared transmission, laser transmission, radio transmission, and satellite transmission communication switching techniques; Circuit switching, message switching, packet switching.

**UNIT-III**

**Network reference models:** Network topologies, OSI references model, TCP/IP reference model, comparison of OSI and TCI reference model, Data link layer design issue: Services provided to the network layer, framing, error control, flow control, HDLC, SDLC, data link layer in the internet (SLIP, PPP).

**UNIT-IV**

**MAC sub layer:** CSMA/CD, IEEE standards, FDM, TDM, CDMA. The Network Layer: Design Issues, Routing Algorithms: Optimality principled, shortest path routing, Concept of Internet Working.

**Text Books:**

1. Tannenbaum S. Andrew. *Computer Networks*. PHI.
2. S.K. Bansandra. *Computer Today*. Galgotia Publications.
3. Black, Ulysee. *Data Communication System*. PHI.
4. Stalling. *Data and Computer Communications*. PHI.



**Course Name: Artificial Intelligence**

**Course Code: 306501**

**Semester 5<sup>th</sup>**

**Credits: 04**

**L T P**

**4 0 0**

**Course Contents**

**UNIT-I**

**Introduction:** What are AI, Importance of AI, and Early work in AI, Applications of AI, Knowledge and its definition.

**Knowledge Representation:** Propositional logic, FOPL, Properties of Well-formed formulas, Conversion to Clausal form, Inference rules.

**UNIT-II**

**Structured Knowledge:** Introduction, Associate frame structures, Conceptual dependencies and scripts. **Knowledge Organization and Manipulation:** Concepts, Uninformed or Blind search, Pattern Recognition, Recognition Classification process, Classification patterns.

**UNIT-III**

**Expert System:** Definition, Rule based architecture, Knowledge acquisition and validation, MYCIN Expert System.

**UNIT-IV**

**Knowledge Acquisition:** Types of learning, General Learning model, Performance measures.

**Text Books/References:**

1. Patterson Dan W. *Introduction to Artificial Intelligence and Expert Systems*. PHI Publication
2. Jackson Peter. *Introduction to Expert System*. Addison Wesley.



**Course Name: Software Engineering**

**Course Code: A300503**

**Semester 5<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Software:** Characteristics, Components, Applications, and Software Process Models: Waterfall, Spiral, Prototyping, Fourth Generation Techniques, Concepts of Project Management, Role of Metrics & Measurements.

**UNIT-II**

**S/W Project Planning:** Objectives, Decomposition techniques: S/W Sizing, Problem based estimation, Process based estimation, Cost Estimation Models: COCOMO Model, The S/W Equation.

**UNIT-III**

**System Analysis:** Principles of Structured Analysis, Requirement analysis, DFD, Entity Relationship diagram, Data dictionary.

**S/W Design:** Objectives, Principles, Concepts, Design methodologies: Data design, Architectural design, procedural design, Object oriented concepts

**UNIT-IV**

**Testing fundamentals:** Objectives, principles, testability, Test cases: White box & Black box testing.

**Testing strategies:** verification & validation, unit test, integration testing, validation testing, system testing

**Text Books:**

1. Pressman S Roger. (1992). *Software Engineering, A Practitioner's Approach*, Third Edition. McGraw Hill.
2. Fairley E.R.(1985).*Software Engineering Concepts*. McGraw Hill.
3. Jalota Pankaj (1992). *An Integrated Approach to Software Engineering*. Narosa Publishing House.



**Course Name: S/W Lab –X (Java)**

**Course Code: A300505**

**Semester 5<sup>th</sup>**

**Credits: 04**

**L T P**

**0 0 8**

**Course Contents**

1. Introduction to JAVA, Class, Object, Package, Applet
2. Write a Java programs which does the creation of Class and object.
3. Usage of import statement and package declaration in java programs.
4. Declaring variables of various data types and their effect by changing the access modifiers like private, public, protected, default.
5. Write a program which makes use of Comparison Operators.
6. Write a program which makes use of Arithmetic Operator.
7. Write a program which makes use of Logical Operators.
8. Write a program which make use of control Statement like if, while, do while.
9. Write Java programs, which make use of Statement like Try, catch, finally.
10. Write a Java program, which make use of control Statement like Try, catch, finally, throw, and throws.
11. Write code snippets which make usage of Method Overloading, Using super, this, super (), this () in Java Programs.
12. Write code snippets which make usage of method Overriding.
13. Write code snippets which make Applet.
14. Write code snippets which make usage of recursion.
15. Write code snippets which make usage of Thread.
16. Write code snippets which make usage of Thread Synchronization.
17. Write code snippets which make usage of String Methods.
18. Write code snippets which make usage of Swing Package.



**Course Name: S/W Lab –XI (Workshop on Multimedia)**

**Course Code: 306502**

**Semester 5<sup>th</sup>**

**Credits: 04**

**L T P**

**0 0 8**

### **Course Contents**

1. Procedure to create an animation to represent the growing moon.
2. Procedure to create an animation to indicate a wall bouncing on steps.
3. Procedure to simulate movement of a cloud.
4. Procedure to draw the fan blades and to give proper animation.
5. Procedure to display the background given through your name.
6. Procedure to create an animation with the following features:  
WEL COME
  - Letter should appear one by one.
  - The fill Color of the text should change to a different Color after the display of full word.
7. Procedure to simulate a ball hitting another ball.
8. Procedure to create an animated cursor using STARTDRAG (“SS”, TRUE);  
MOUSE.HIDE ();
9. Procedure to design a visiting card containing at least one graphic and text information.
10. Procedure to take a photographic image. Give title for the image and put the border. Write your names. Write the of institution and place.
11. Procedure to prepare a cover page for the book in your Course area. Plan your own design.
12. Selecting your own background for organization.
13. Picture so that it given an elegant look.
14. Procedure to picture preferably on a plain background of a color of your choice-  
Positioning Includes rotation and scaling.
15. Procedure to remove the arrows and text from the given photographic image.
16. Procedure to type a word and apply the effects shadow embosses.
17. Procedure to use appropriate tools(s) from the toolbox cut the object from three files  
, organizes them in a single file and applies feather effects.
18. Procedure to display the background given through your name using mask.



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19. Procedure to make anyone of one of the parrots black and white in a given picture.
20. Procedure to change a circle into a square using flash







**Course Name: Computer Graphics**

**Course Code: A300601**

**Semester 6<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Input devices:** Keyboard, Touch panel, light pens, Graphic tablets, Joysticks, Trackball, Data glove, Digitizers, Image scanner, Mouse, Voice & Systems. **Hard copy devices:** Impact and non-impact printers, such as line printer, dot matrix, laser, inkjet, electrostatic, flatbed and drum plotters.

**UNIT-II**

**Video Display Devices:** Refresh cathode ray tube, raster scan displays, random scan displays, color CRT, monitors, direct view storage tube, flat, panel displays; 3D viewing devices, raster scan systems, random scan systems, graphics monitors and workstations.

Scan conversion algorithms for line, circle and ellipse, Bresenham's algorithms, area filling techniques, character generation

**UNIT-III**

**2 Dimensional Graphics:** Cartesian and Homogeneous coordinate system, Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Two-dimensional viewing transformation and clipping (line, polygon and text).

**UNIT-IV**

**3 Dimensional Graphics:** Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Mathematics of Projections (parallel & perspective). 3D viewing transformations and clipping.

**Text Books:**

1. Hearn D. and Baker M.P. (1995). *Computer Graphics*, Second Edition. PHI, New Delhi.
2. Foley J.D., Dam A.V. (1994). *Introduction to Computer Graphics*, Second Edition. Addison Wesley Publishing.
3. Plastock R.A. and Kalley G.(1986). *Computer Graphics*. McGraw Hill.



**Course Name: Parallel Processing**

**Course Code: 306601**

**Semester 6<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Introduction:** Definition of PP, Feature of PP, Advantages and disadvantages of PP, Synchronous - vector/array, SIMD, MIMD. Hardware taxonomy: Flynn's classifications, Handler's classifications.

**UNIT-II**

**Abstract parallel computational models:** Combinational circuits, Sorting network, PRAM models, Performance Matrices: Laws governing performance measurements. Matrices - speedups, efficiency, communication overheads.

**UNIT-III**

**Parallel Processors:** Taxonomy and topology - shared memory multiprocessors, distributed memory networks. Parallel Programming: Shared memory programming, distributed memory programming, object oriented programming, functional programming.

**UNIT-IV**

**Scheduling and Parallelization:** Scheduling parallel programs, Parallelization of sequential programs. Parallel programming support environments.

**References:**

1. Quinn M. J. (1994). *Parallel Computing: Theory and Practice*. McGraw Hill, New York.
2. Lewis T. G. and El-Rewini H. (1992). *Introduction to Parallel Computing*. Prentice Hall, New Jersey
3. Lewis T. G.(1994) *Parallel Programming: A Machine-Independent Approach*. IEEE Computer Society Press . Los Alamitos.



**Course Name: Network Security**

**Course Code: 306602**

**Semester 6<sup>th</sup>**

**Credits: 05**

**L T P**

**4 1 0**

**Course Contents**

**UNIT-I**

**Introduction:** Overview of computer networks, seven-layer architecture, TCP/IP suite of protocols, MAC protocols for high-speed LANS, MANS and wireless LANs (For Example, FDDI, and DQDB.)

**UNIT-II**

**Fast Access Technologies:** (For Example, ADSL, Cable Modem, etc.) IP Multicasting, Multicast routing protocols. IPv6: Basic Protocol, extensions and options, neighbor discovery, Mobility in networks. Mobile IP.

**UNIT-III**

**TCP Extension for high-speed networks,** Network security at various layers. Secure-HTTP, SSL, Authentication header, key distribution protocols, Digital signatures, digital certificates.

**UNIT-IV**

**Cryptography:** Introduction to cryptography, features, symmetric and asymmetric cryptography

**Text Books/Reference Books:**

1. W. R. Stevens. *TCP/IP Illustrated, Volume 1: The Protocols*. Addison Wesley.
2. R. Wright. *TCP/IP Illustrated, Volume 2: The Implementation*. Addison Wesley.
3. W.R Stevens. *TCP/IP Illustrated, Volume 3: TCP for Transactions, HTTP, NNTP and the Unix domain protocols*. Addison Wesley.



**Course Name: S/W Lab-XII (Major Project)**

**Course Code: A300604**

**Semester 6<sup>th</sup>**

**Credits: 02**

**L T P**

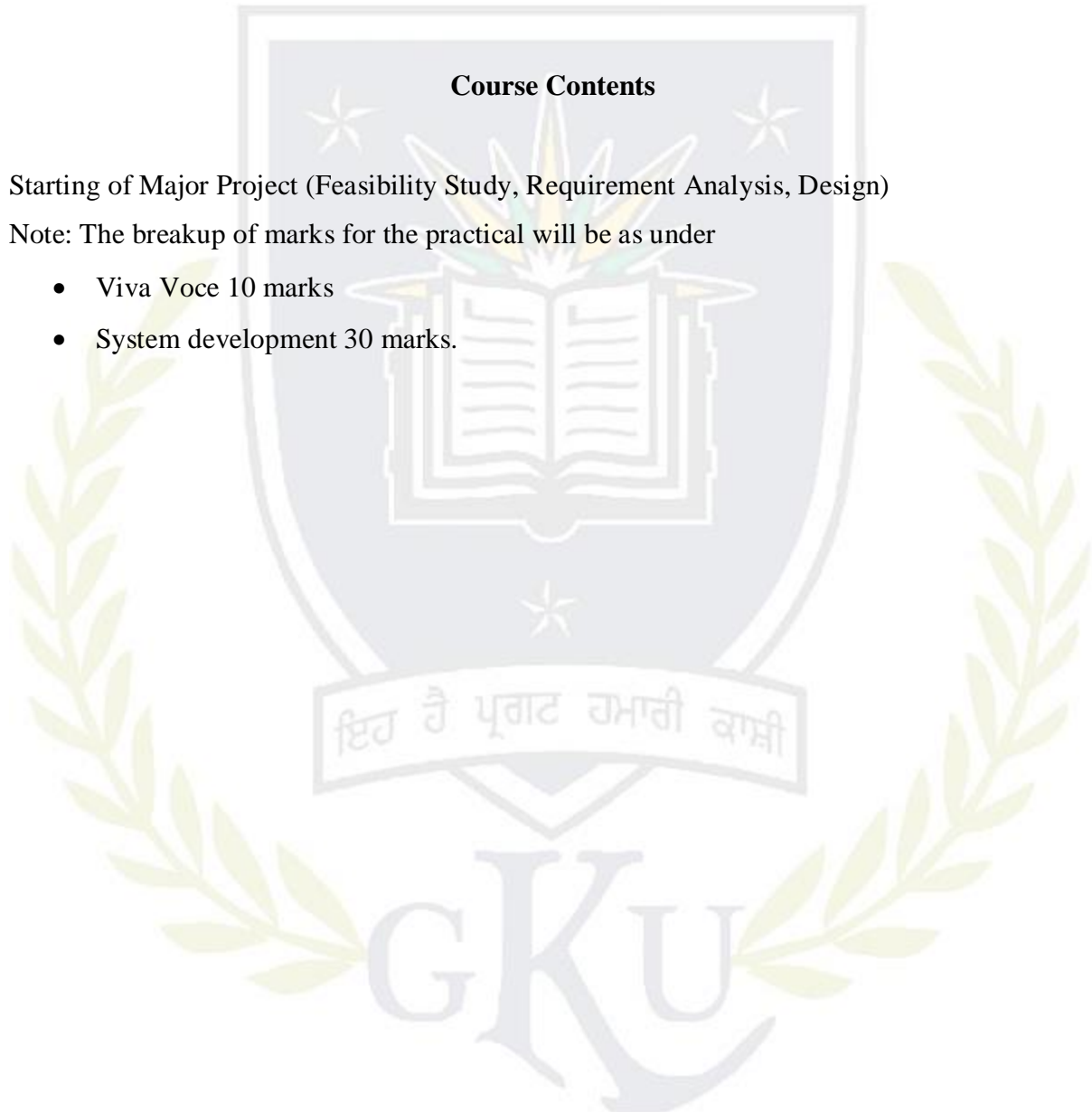
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### **Course Contents**

Starting of Major Project (Feasibility Study, Requirement Analysis, Design)

Note: The breakup of marks for the practical will be as under

- Viva Voce 10 marks
- System development 30 marks.





**Course Name: S/W Lab –XIII (Computer Graphics)**

**Course Code: A300605**

**Semester 6<sup>th</sup>**

**Credits: 03**

**L T P**

**0 0 6**

### **Course Contents**

#### **Implement the Following Algorithms using C/C++.**

1. Write a Program to Draw a Line
2. Write a Program to Draw a Circle
3. Program to Implement DDA Line Algorithm
4. Draw a Line Using 'Brenham's Line Algorithm'
5. Draw A Circle Using 'Brenham's Circle Drawing Algorithm'
6. Write a Program to Draw a Mid-Point of Circle
7. Write a Program for Flood Fill Algorithm
8. To Fill a Polygon Using 'Flood-Fill' Algorithm.
9. Write a program for 'Boundary-Fill' Algorithm.
10. Program to Implement Line Clipping.
11. Write a Program for Translation.
12. Write a Program for Scaling.
13. Use things to show the objects in various views.
14. Show a unit cube in perspective view.
15. Demonstrate Beizer Curves.



**Course Name: S/W Lab-XIV (Workshop on C# .Net)**

**Course Code: 306603**

**Semester 6<sup>th</sup>**

**Credits 02**

**L T P**

**0 0 4**

**Course Contents**

1. CONSOL based Programming.
2. Introducing form oriented programming.
3. Implement the concept of Classes and Objects
4. Implement the concept of Inheritance and Polymorphism
5. Implement the concept of Interfaces
6. Implement the concept of Operator Overloading
7. Implement the concept of Delegates and Events
8. Implement the concept of Managing Console I/O Operations
9. Implement the concept of Managing Errors and Exceptions.



**Course Name: Seminar**

**Course Code: 306604**

**Semester 6<sup>th</sup>**

**Credits: 02**

**L T P**

**0 0 0**

**Course Contents**

Students will be given a topic related to recent trends in computer Software / Hardware and they will submit a report consisting of salient features about the topic. They will also prepare and submit PPT and deliver a seminar on the topic.

Total Number of Course	38
Number of Theory Course	23
Number of Practical Course	15
Total Number of Credits	156

**Academic Instructions**

**Attendance Requirements**

A student shall have to attend 75% of the scheduled periods in each course in a semester; otherwise he / she shall not be allowed to appear in that course in the University examination and shall be detained in the course(s). The University may condone attendance shortage in special circumstances (as specified by the Guru Kashi University authorities). A student detained in the course(s) would be allowed to appear in the subsequent university examination(s) only on having completed the attendance in the program, when the program is offered in a regular semester(s) or otherwise as per the rules.

**Assessment of a course**

Each course shall be assessed out of 100 marks. The distribution of these 100 marks is given in subsequent sub sections (as applicable).

Components	Internal (50)					External (50) ETE	Total	
	Attendance	Assignment			MST 1			MST2
		A1	A2	A3				
Weightage	10	10	10	10	30	30	50	
Average Weightage	10	10			30		50	100

**Passing Criteria**

The students have to pass both in internal and external examinations. The minimum passing marks to clear in examination is 40% of the total marks.