NORTH MAHARASHTRA UNIVERSITY, JALGAON

SYLLABUS FOR

T.Y.B.Sc.

COMPUTER SCIENCE

(With effect from June 2009)
North Maharashtra University, Jalgaon  
T. Y. B. Sc. (Computer Science)  
(w.e.f June -2009)

## Structure

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</table>

LAB on System Programming & Oracle    (UG-CS-LAB-301)  
LAB on Computer Aided Graphics & Internet Computing (UG-CS-LAB-302)  
LAB on Elective  
Elective A ,Windows Programming & VB Programming (UG-CS-LAB- 303A)  
---OR---  
Elective B, JAVA Programming I & II (UG-CS-LAB- 303B)  

### Note:-
1. A Study tour is compulsory for the T.Y.B.Sc (Computer Science) students. The students (individual or in a group) should submit their tour reports at the time of practical examination.
2. Each period is of 48 mts. duration.
3. Each course is having weightage four periods per week.
4. Each practical course is having weightage four periods per week.
5. For each paper 10 marks are for internal assessment and 40 marks are for external i.e. University assessment.
6. Examination of practical course shall be held at the end of the academic year.
1. Introduction:
   - Introduction to system software
   - Components of system software
   - Evolution of system software
   - Introduction to software processors (translator, loader, and interpreter)

2. Assembler
   - Elements of an assembly language programming
   - Simple assembly scheme
   - Pass structure of assembler
   - Design of two pass assembler
   - Forward reference and cross reference

3. Macros and Macro processors
   - Macro
   - Macro expansion
   - Nested Macro calls
   - Advanced Macro facilities
   - Design of macro preprocessor

4. Compilers
   - What is compiler?
   - Overview of Compilation Process
   - Programming language grammars
   - Scanning
   - Parsing
   - Code Optimization
   - Basic Concept of:
     - Compiler writing tools;
     - Compiler – compiler,
     - Compiler- generator,
     - cross compiler
5. Loaders and linkers

Relocation and linking concepts
Program relocatability
- Non-relocatable programs
- relocatable programs,
- self relocatable programs
Concept of overlays

6. Software tools

Software tools for program developments
Editors
Debug monitors

Reference:
1. D.M. Dhamdhere, Introduction to system software.
2. D.M. Dhamdhere, Systems programming and operating system.
1 Introduction  
Data Information Processing, Secondary Storage Devices (Auxillary), Files, Files 
organization & structures, Introduction to DBMS, RDBMS & Object Oriented DBMS

2 Database Architecture and Design  
Database architecture & Data modeling, ER-model, Extended ER-model, Data 
Normalization.

3 Relational Representations, SQL  
Relational Algebra & Relational Calculus, Introduction to SQL, Queries & Sub queries, 
Codd’s Rules

4 Database Implementations  
Database security, Database integrity, Transaction management & Concurrency control, 
Backup & recovery.

5 Database technologies & Applications  
Client Server Technology & Client Server Databases, Distributed Databases, Data 
Warehousing & Data mining, Customer Relationship Management (CRM).

Reference Books:-
1. Database System Concepts :- Alex Leon & Mathews leon, Vikas Publication House Ltd
2. Database System Concepts :- Abraham Silberschatz, Henry F. Korth & S. Sudarshan, 
   McGraw-Hill
1. Concepts of System, Software and Software Engineering:
   System: Definition, Elements of system, Subsystem, Integrated system.
   Software: Evolving role of software, Software characteristics, Software applications, software engineering: Definition & Layered Technology.
   Software Development Life Cycle (SDLC):– Requirements, Feasibility study, Analysis, Design, Coding, Testing, Implementation and Maintenance etc.
   \((L:9\ M:8)\)

2. Software Development Approaches:
   Waterfall Model, Prototyping Model, RAD model
   \((L:6\ M:4)\)

3. Software Design Tools:
   Fact finding Method, Logical Representation Tech. : Decision Tree, Decision Table, Pseudo code, Structured English. Structured Chart, Structured Flow chart (N-S Diagram), DFD Symbols, Levels in details.
   \((L:10\ M:8)\)

4. Software Quality Assurance:
   Quality Concepts, Software Quality Assurance(SQA), Quality standards.
   \((L:6\ M:4)\)

5. Coding:
   Characteristics, Types of Code
   \((L:4\ M:4)\)

6. Software Testing & Security:
   \((L:10\ M:6)\)
7. Software maintenance: -
Types of maintenance, significance, characteristics that affect software maintenance, summary of the nature of the maintenance phase.

(L:7 M:6)

References
Text Book
2. System analysis and design volume Ist & IInd by Lee.
3. Software engineering, M. A. Ansari, Techmax publication, Pune.
4. software engineering, by K. K. Aggrawal, new age international, 2001
North Maharashtra University, Jalgaon
T. Y. B. Sc. (Computer Science) (w.e.f. June -2009)

Computer Aided Graphics  (UG-CS-314)
Semester-I

1. **Introduction**  (L : 06  M: 04)
The origin of Computer Graphics
How the interactive graphics display works
Display types : Random Scan and Raster Scan
Application of Computer Graphics
Examples of Graphical software's

2. **Line Drawing Techniques**  (L: 04  M :04)
Co-ordinate Systems
The Simple DDA
The Symmetrical DDA
Bresenham’s Algorithm

3. **Two Dimensional Transformations**  (L:04  M:04)
Transformation Principles
Concatenations
Matrix Representation

4. **Three Dimensional Transformations**  ( L:07  M:04)
Transformations
Transformation in Viewing
The perspective Transformation

5. **Clipping and Windowing**  (L:09 M:06)
Cohen-Sutherland algorithm
Mid-point Subdivision
Polygon Clipping
Viewing Transformation
The Windowing Transformation
3-D Clipping
6. **Graphical Input Techniques**  
   Positioning Techniques  
   Positioning constraints  
   Scales and Guidelines  
   Rubber band Techniques  
   Dragging

7. **Raster Graphics and Solid Area Scan –Conversion**  
   Introduction  
   Generation Raster Image: The Frame Buffer Display  
   Scan Converting Line Drawings  
   Scan Converting Polygons  
   Coherence  
   (YX) Algorithm

8. **Hidden Surface Elimination**  
   Object Space and Image Space Algorithms  
   The Depth Buffer Algorithm  
   Warnock’s Algorithm

**Reference:**


1) **Introduction to Microprocessor**:

Microprocessor, Evolution of Intel Microprocessor Architecture, Organization of Microprocessor based system.

(L-4  M: - 06)

2) **Introduction to 8086**:

Architecture, Pin Diagram, Addressing modes, Operating modes, Operation of 8086.

(L:-8  M:-06)

3) **Introduction to 8088 and Pentium**:

Introduction to 8088, Microarchitecture of 8088, Software Model of 8088, Pin Diagram, Introduction to Pentium, Pentium Processor Family.

(L:-10  M:-06)

4) **I/O Programming**:

Fundamental I/O Consideration, Programmed I/O, Interrupt I/O, Block transfer & DMA I/O design

(L:-8  M:-06)
5) **System Bus Structure:**

Minimum Mode, Maximum Mode, System Bus.

(L: - 6 M:-6)

6) **I/O Interface:**

Serial Communication Interface, Asynchronous & Synchronous communication 8251 PCI, parallel communication 8255 A PPI, Keyboard & Display, DMA Controller, A floppy desk controller.

(L:-16 M:-10)

**References:**

1. Ramesh Gaonkar, Microprocessor Architecture programming & Applications with 8085.


1. INTRODUCTION  
(L-03 M-04)

Windows difference, an architectural overview The HELLOWIN program. Registering window class, Windows function calls. Creating the window, Displaying the windows, the message loop, window procedure, processing the messages. The WM_PAINT message, The WM_DESTROY message. Windows programming hurdles.

2. PAINTING AND REPAINTING  
(L-04 M-06)

Painting and repainting – the WM_PAINT message, valid and invalid rectangles.

An introduction to GDI – the device context, getting device context handles, TextOut, The System fonts, size of character, Text Metrics,

Scrollbars – Scroll Bar Range and Position, Scroll Bar Messages, Scrolling SYSMETS.

3. BASIC DRAWING  
(L-12 M-10)

Structure of GDI - The GDI Philosophy, The GDI function calls, The GDI Primitives, Other Stuffs

The DEVICE CONTEXT – Getting a Device Context Handle, Getting Device Context Information, the size of the device.
Drawing dots and lines – Setting pixels, straight lines, the bounding box functions, Using stock pens, creating, selecting and deleting pens, Filling in the gaps,

Drawing Filled Area - Polygon function and polygon filling mode, brushing the interior.

Rectangles, Regions and Clipping – Working with rectangle, Random Rectangles, Creating and painting regions, Clipping with rectangles and regions.

4. THE KEYBOARD
   Keyboard basics – Ignoring keyboard, Queues and synchronization, keystrokes and characters.
   Keystrokes messages – System and non-system keystrokes, virtual keycodes, the lParam information, shift states.
   Character messages – WM_CHAR, Message ordering.

5. THE MOUSE
   Mouse Basics – Client area mouse messages, Nonclient area mouse messages.

6. THE CHILD WINDOW CONTROLS
   Buttons, Radio buttons, check boxes, listboxes, scrollbar, Menus

7. THE TIMERS
   Timer basics, Set Timer, Kill Timer,

REFERENCES:
1. INTRODUCTION TO JAVA (L-04, M-06)
   Java as programming tool, Advantages of Java - Simple, object oriented
   Distributed, Robust, Secure, Architecture neutral, Portable, Interpreted,
   High Performance, Multithreading, dynamic.

   Java and Internet.

2. FUNDAMENTAL PROGRAMMING (L-06, M-06)
   Comments, data type - integer, floating point, character, Boolean,
   Casting, variables, Array, Assignments, Initialization, operators, A simple
   Java program, Compiling and running java program, command line
   arguments.

3. OBJECTS AND CLASSES (L-08, M-06)
   Introduction - Classes, Objects, Data members, methods, Use of existing
   classes, Packages

4. FUNCTIONS IN JAVA (L-08, M-06)
   String functions - Concatenation, Substring, String editing, Testing for
   Equality, character extraction function – CharAt, getChars, getByte,
   Formatting functions, Date and Time functions using Gregorian Calendar
   Class.
5. INHERITANCE  
Inheritance, Inheritance Hierarchy, Super class, Polymorphism, Access modifier, Wrapper classes, Reflection - 'Class' class, Interfaces, Inner classes.

6. EXCEPTION HANDELING
Dealing with errors ,Types of exceptions, How to throw the Exception. Catching Exceptions.

References:-
2. The complete reference JAVA-2 Fifth Edition BY: Herbert Schildt (TMH)
3. Programming in Java BY: E Balguruswamy
1. **Operating system services**
   1.1. Types of services & Functions of OS
   1.2. The user view
   1.3. The operating system view

2. **CPU scheduling**
   2.1 Multiprogramming concept
   2.2 Scheduling concept
   2.3 Scheduling algorithms

3. **Memory management**
   3.1 Bare Machine
   3.2 Resident monitor
   3.3 Swapping
   3.4 Multiple partitions' MFT, MVT
   3.5 Paging
   3.6 Segmentation

4. **Disk and drum scheduling**
   4.1. First-come-first-serve scheduling
   4.2. Shortest seek time first
   4.3. SCAN, C-SCAN
5. Deadlocks

5.1. The deadlock problem
5.2. Deadlocks characterization
5.3. Deadlock prevention
5.4. Deadlock avoidance
5.5. Deadlock detection
5.6. Recovery from deadlock

6. Introduction to Distributed operating system

6.1. Definition
6.2. Goals
6.3. Design issues in distributed operating systems
6.4. The client-server model

Reference books:
1. Peterson Silberschatz, Operating system concepts. Addison Wesley. 2. Andrew S. Tanenbaum, Modern operating system, P H.I. New Delhi
North Maharashtra University, Jalgaon  
T. Y. B. Sc. (Computer Science)  
(w.e.f June -2009)  

Oracle  (UG-CS-322) 
Semester-II

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<td>1.2. Oracle DBA.</td>
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<td>1.3. SQL *PLUS.</td>
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<td>1.4.1 Memory Structure.</td>
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<td>1.4.2 System Global Area (SGA).</td>
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<td>1.4.4 Process (User, Oracle and Instance).</td>
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<td>1.5. Oracle Data Type.</td>
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<td>2.2. INSERTION of data into table.</td>
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<td>2.3. UPDATING the Contents of table.</td>
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<td>2.4. DELETING the Contents of table.</td>
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<td>2.5. MODIFICATION using ALTER table.</td>
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<td>2.6. DROP table Command.</td>
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<td>3.2. Constraints: - Primary Key, Foreign Key, Unique Key, Not Null, Check, Default.</td>
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<td>3.3. Defining Integrity Constraints in the ALTER table Command.</td>
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<td>3.4. Dropping Integrity Constraint in the ALTER table Command.</td>
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<td>4.1. Introduction of SELECT, FROM, WHERE CLAUSE.</td>
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<td>4.2. GROUP BY, HAVING in SQL.</td>
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<tr>
<td>4.3. JOIN:-Self Joins, Multiple Joins.</td>
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<tr>
<td>4.4. Introduction to SUBQUERIES, Use of UNION, INTERSECT, MINUS CLAUSE.</td>
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5: VIEWS AND SEQUENCES  L: 04, M: 04
5.2. SEQUENCES: - Creating, Altering and Dropping Sequences.

6: ORACLE TRANSACTION  L: 03, M: 04
6.1. Use of Commit.
6.2. Use of Rollback.
6.3. Use of Save Point.

7: PL/SQL  L: 10 M: 06
7.1. Introduction.
7.2. PL/SQL Syntax and Execution.
7.3. PL/SQL Control Statements.
7.4. Use of Exception.(Error handling)
7.5. Utilities like DBMS_OUTPUT.PUT_LINE.
7.6. CURSOR:-Implicit and Explicit, Cursor Attributes.

8: STORED PROCEDURES AND FUNCTIONS  L: 05, M: 04

9: DATA BASE TRIGGERS  L: 05, M: 04

References:
2. Kevin Loney,”Complete Reference Oracle 10g “,TMG.
1. Introduction to Internet: L04 M04
   1.1 History of Internet
   1.2 Working of Internet
   1.3 Use of Internet
   1.4 Applications of Internet
   1.5 Study of Web Browsers
      • Internet Explorer
      • Netscape Navigator
   1.6 Search Engines

2. Web Design Process L08 M06
   2.1 Basic Web Process
   2.2 What is Web Design?
   2.3 Web Design Pyramid
   2.4 What is Good Web Design? & Website Evaluation
   2.5 Basic Web Process Model
      - Modified Waterfall
      - Joint Application Development
   2.6 Goals & Problems
      - Brain Storming
      - Narrowing the goal
   2.7 Site Plan
   2.8 Site Testing

3. Site Types & Architectures L08 M06
   3.1 Site Types
   3.2 Grouping by purpose
   3.3 Site Structure
   3.4 Site Organization Model
   3.5 Deep Vs Shallow sites
   3.6 Picking the site structure

4. Navigation Theory L06 M04
   4.1 What is Navigation?
   4.2 Placing Navigation
   4.3 Navigation Scrolling
   4.4 Navigation & Mouse Travel
4.5 Frames

5. Page Types
5.1 What is Page & Page Size?
5.2 Page Margins
5.3 Page Types
5.4 Entrance Pages
5.5 Exit Pages

6 Introduction to HTML
6.1 What is HTML?
6.2 History & Development of HTML
6.3 Structure of HTML document
6.4 Introduction to CSS

7. Introduction to HTML tags
7.1 Text Level tags
7.2 Character entity references
7.3 List tags
7.4 Anchor & Image tags
7.5 Table tags
7.6 Frameset tags
7.7 Form tags
7.8 Script tags

8. Introduction to VBScript
8.1 Evaluation of Scripting Languages
8.2 Variables, Data Types
8.3 Conditional Statements
- if conditional statement
- if else statements
- Select case statement
8.4 Controlling [looping] statements
- for loop
- while loop
- until loop

References:
1. HTML 4.0 by E Stephen Mack & Janan Platt, BPB Publication
2. The ABC’s of Java Script by Lee Purcell Mary Jane Mara, BPB Publication
5. How to become webmaster in 14 days, James L. Mohler, Techmedia.
6. Internet in easy steps: dreamtech press.
1: Introduction L: 04, M: 04
   1.1 Strings, Alphabets & Languages.
   1.2 Graphs & Trees.
   1.3 Set Notations
   1.4 Relations

2: Finite Automata & Regular Expressions. L: 12, M: 10
   2.1 Definition
   2.2 Description, Transition Systems, Transition Function.
   2.3 DFA, NFA
   2.4 Finite Automata with $\varepsilon$-Moves.
   2.5 Regular Expressions.
      2.5.1 Convert Regular Expression into FA.
      2.5.2 Construct FA from Regular Expression.
   2.6 Applications of Finite Automata.

3: Regular Sets L: 08, M: 06
   3.1 Pumping Lemma for Regular Sets.
   3.2 Applications of Pumping Lemma.
   3.3 Closure properties of Regular Sets.
   3.4 Decision Algorithm for regular Sets.

4: Context Free Grammars. L: 08, M: 10
   4.1 Introduction to Context free grammars.
   4.2 Derivations Trees.
   4.3 Simplification of Context free grammar.
      4.3.1 Useless Symbols.
      4.3.2 $\varepsilon$ Production.
      4.3.3 Unit Production.
   4.4 Normal forms for CFG.
      - Chomsky Normal Form.
      - Greibach Normal Form.
5: Pushdown Automata  
5.1 Informal Description.
5.2 Definitions
5.3 Pushdown Automata & Context free languages.

6: Turing Machines.  
6.1 Basics
6.2 The Turing Machine Model
6.3 Representation of Turing Machines.
6.4 Language Acceptability by Turing Machines.

Note: Theorems are not for proof.

References:
1) John E. Hopcraft, Jeffery D. Ullman, Introduction to Automata theory, Languages & Computations.
North Maharashtra University, Jalgaon
T. Y. B. Sc. (Computer Science)
(w.e.f. June -2009)

Computer Network (UG-CS-325)
Semester-II

1. Introduction to Computer Networks & Types L-12 M-10


2. Topologies & Switching L-10 M-08

Topologies: Star, Tree, Bus, Ring, Mesh, Fully Connected.

Switching: Circuit Switching, Message Switching, Packet Switching.

3. Reference Model L-06 M-04

ISO OSI Reference Models, TCP / IP Reference Model & their comparison.

4. Data Link Layer L-06 M-04

Services Provided to Network Layer, Framing, Error Control, Flow Control, and

Error Correction – Redundancy, Parity Check, Checksum & CRC,

Error Detection – Hamming Code.
5. Elementary Data Link Protocol & Sliding Widow Protocol

An unrestricted simplex protocol, Stop & Wait protocol, One bit
Sliding window protocol, A protocol using Go Back N.

6. Network Security

Cryptography – Substitution Ciphers & Transposition Ciphers,
Firewall,

Digital Signatures – Public Key Signature & Symmetric Key
Signature

Ref Book :-

i. Computer Networks – Fourth Edition – By Andrew S.
   Tanenbaum

    Behrouz A. Forouzan
North Maharashtra University, Jalgaon

T. Y. B. Sc. (Computer Science)
(w.e.f June -2009)

Elective A

VB Programming (UG-CS-326A)

Semester-II

1. INTRODUCTION TO VISUAL BASIC (L- 03, M-02)
   Introducing to VB, Objectives, VB working environment,
   The Integrated Development Environment
   - The Menu Bar, ToolBar, Project Explorer, Toolbox,
     properties windows, form designing, form layout, Immediate
     window
   SDI environment

2. CONTROLS AND EVENTS (L- 12, M-08)
   Introduction to Basic Controls including-
   - Forms, Pointer, PictureBox, Labels, Textbox, Frame, Command Button,
     Checkbox, Option Button, Combo Box, List Box,
     Horizontal Scrollbar, Vertical Scrollbar, Shape, Timer, Drive List box,
     Directory List Box, File List Box, Line, Image, Data, OLE
   Methods, Properties and Events

3. VISUAL BASIC PROGRAMMING (L- 06, M-06)
   Variables
   - Declaring a Variables, Types of Variables, Converting Variable
     type, User-Defined Data types, Special Values
   Constants
   Arrays
   Control Array
   Control Flow Statement
     - If…….Then, If…….Then……Else, SelectCase
   Loops Statements
     - Do…..Loop, For….Next, While……Wend
   Nested Controls Structures
   The Exit Statment
   The Message Box
   The InputBox
4. THE ADVANCED VISUAL BASIC CONTROLS (L-05, M-04)
Designing Menus
   Menu Editor, Programming Menu Commands, using Access and Shortcut Keys.
   Common Dialog Box Control
   Flex grid
   ToolBar
   Status Bar
   Rich Edit textbox Control
   ActiveX Control Design

5. TESTING AND DEBUGGING (L-04, M-04)
   Error and error types
   Debugging Tools
   Bugs
   Break points and Watches

6. GRAPHICS AND FILE HANDLING (L-04, M-04)
   Shape Control
   Line, Circle, Pset, RGB, QBColor Methods
   File handling- File commands, Sequential Files, Random Access Files

7. ACCESSING DATABASE (L-06, M-04)
   Intrinsic Data Control
   ADO, RDO, ADODC
   Visual Basic and Access Connectivity

8. PROCEDURE AND FUNCTIONS (L-06, M-04)
   Procedure
   Subroutines, Functions, Calling Procedure, Validation function, Data conversion function, Built in functions
   Introduction to Class, Modules
9. DESIGNING REPORTS  
Introduction to Data Reports designer  
Create Reports  
Data Reports  
Data Environment  
Introduction to Crystal Report

REFERENCE:
1. Mastering in Visual Basic 6.0
   By Evangelos Petroutsos
2. Programming in Visual Basic
   By P. K. McBridge
3. Visual Basic 6.0
   By Gray Corncil
4. Muvach’s Visual Basic 6.0
   By Muvach
1. GRAPHICS PROGRAMMING L-08, M-08

Introduction, frames, frame layouts, Displaying information in a frame, Graphics objects and point components method, Text and Fonts, Colors, Drawing Shapes, Filling Shapes, Paint mode and Images.

2. EVENT HANDLING L-14, M-10

Basic Event Handling, The AWT event hierarchy, event handling summary, low level events - Focus, window, keyboard, mouse events, Multicasting, event sources and listener, adapter classes.

3. USER INTERFACE COMPONENTS USING SWING L-14 M-10

Introduction to layout management - Panels, Border Layout, Grid Layout, Text Input- Text Field, Input validation, password field, Labels and Labeling components, selecting text, Editing Text, Making choices - Check boxes, Radio buttons, List, Combo boxes, Border, Scrollbars - Scroll panes, Scrolling window, Menus - Building menus, Reacting to menu events, Icons in item menus, checkbox and radio button, menu items, Popup menu, Keyboard mnemonics and Accelerators, enabling and Disabling menus, dialog boxes - opening dialogs using inbuilt dialog box
4. **APPLETS**  
L-06, M-06  
Applet basics - Simple applets, testing applets, security basic, converting application to applets, life cycle of applet, the applet HTML, tags & attributes.

5. **STREAMS & FILES**  
L:06 M:06  
Streams, The complete stream family - Layering stream files, Data stream, random access file stream, Putting stream to use - writing delimited output, String Tokenizers & delimited input, Object streams.

References:-

2. The complete reference JAVA-2 Fifth Edition BY: Herbert Schildt (TMH)
3. Programming in Java BY: E Balguruswamy
1. Simulate CPU for SMAC0 (Small Computer)

2. SMAC0 Programming:
   1. Addition of two numbers
   2. Subtraction of two numbers,
   3. Multiplication of two numbers
   4. Division of two numbers
   5. Find MOD
   6. GCD of two numbers
   7. LCM of two numbers
   8. Factorial of given number
   9. Square & Cube of given number.
   10. Fibonacci series

(Do not use op-codes for MULT, MOD and DIV operation)

3. Write a program to isolate each lexical unit of source program statement and create Descriptor.

4. Write lexical analyzer to remove blanks and tabs.

5. Write lexical analyzer to deleting comments.

6. To create line editor with features like create a new file, open existing file, append in the file, Save and print file as well as to insert, delete, copy & move lines in the file.

7. Interrupt handler in C

(Keyboard interrupt should be disabled and alt-C should be used to toggle CAPS lock and alt- N should be used to toggle NUM lock)
1. Create users grant all privileges to users.
2. Create table using different Constraints.
3. Write SQL Queries Using Simple SQL.
4. Write SQL Queries Using Nested SQL.
5. Write SQL Queries Using Group By, Having and Aggregate Function.
6. To create sequence order sequence in ascending order.
7. Program for alter the sequences.
8. Write a simple program for PL/SQL.
9. Write PL/SQL Program using various Control Statements.
10. Update the contain using PL/SQL Block.
11. Write PL/SQL Block for Error Handling.
12. Write PL/SQL Block for Cursor Handling.
13. Write PL/SQL Block for Procedure and Function.
14. Write PL/SQL Block for Database Trigger.
1. Overview already available graphical software packages: Paintbrush
2. Overview already available graphical software packages: Dreamweaver
3. Overview already available graphical software packages: Photoshop
4. Implement Bresenham’s Line Drawing Algorithm
5. Implement Bresenham’s Circle Drawing Algorithm
6. Implement DDA Line Drawing Algorithm
7. Implementing translation, scaling and rotation transformation on polygons with respect to any point.
8. Implementing translation, scaling and rotation transformation on movement of object from one place to another with scale effect.
10. Draw the following pattern using standard graphics library: Block Diagram of Computer
12. Draw the following pattern using standard graphics library: Display Flag of India
13. Implement polygon filling by using Scan Converting Polygon Algorithms.
14. Draw the following pattern using standard graphics library Flow-Chart Symbols.
LAB Course On Internet Computing (UG-CS-LAB-302)
Semester-II

1. Overview of Internet Explorer.
2. Creating of E-mail accounts, Sending & Receiving mail-to, cc, bcc and Sending attachment.
5. Searching Contents on Web.
6. Create a HTML page to demonstrate the use of: Internal links, External links, Character entity references, various types of lists.
7. Create a HTML page for Demonstration of Linking using Image map.
8. Create a HTML page to Create Calendar of Current month using table tag.
9. Create a HTML page to demonstrate use of frames.
10. Create a HTML page for creation of Admission form using <form> tags.
    (cover all form elements)
LAB on Elective A or Elective B (UG-CS-LAB-303)

Semester-I

Elective A : Windows Programming (UG-CS-LAB-303 A)

1. Write a Window program to display the size of window and number of left button clicks, no. of right button clicks and no. of double clicks. This data should be display on two separate lines. Size should be updated when user resizes the window object.

2. Write a Window program to demonstrate Line drawing with right mouse button. The color and style of line should change for every new line.

3. Write a Window Program to draw the Rectangles and clicking inside them should be filled with different Hatch Brushes.

4. Write a Window Program to demonstrate the Screen Saver program using Timer.

5. Write a Window program that display a small circle with every left mouse click, existing circle should be erased after double clicking on it.

6. Write a Window program to draw the polygon and fill it.

7. Write a Window program that draws a rectangle, circle and ellipse in the client area. If user clicks on either figure a message box is displayed saying “You have click on circle/rectangle/ellipse”.

8. Write a Window program to draw following shape on client area. When the user presses the keys : C-Circle, R-Rectangle, E-Ellipse, L-Line, Shift+R-Round Rectangle, P-Polygon.

9. Write a Window program to demonstrate the use of keystrokes.e.g. backspace,enter key,space bar.

10. Write a Window program that contains an edit box, two buttons viz. Add, Remove and a List box. Whenever user enter the string in the Edit box and presses the Add button data should be added to the list box and removes the data if it is present in the list and presses remove button at run time and display the deleted item in MessageBox.
11. Write a Window program to create a window object with a following menu bar

<table>
<thead>
<tr>
<th>Shapes</th>
<th>Fill Style</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle</td>
<td>Vertical</td>
<td>Red</td>
</tr>
<tr>
<td>Ellipse</td>
<td>Horizontal</td>
<td>Green</td>
</tr>
<tr>
<td>Rectangle</td>
<td>Cross</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>Diagonal Cross</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FDiagonal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solid</td>
<td></td>
</tr>
</tbody>
</table>

12. Write a Window program that demonstrate the Scroll Bar and display the position of scrollbar in respective Text Boxes.
1. Create an Interface and that demonstrates VB Intrinsic Controls
2. Create an Application to print the Fibonacci series upto 20 terms.
3. Create an Application that Demonstrate Standard Calculator.
4. Create an Application that Demonstrate Graphical Shape Controls with different styles using Click event.
5. Create an Application using Timer Controls.
6. Create an Application Using MDI form.
7. Create an Application to demonstrate Status bar and Tool bar.
8. Create an Application Using Menu Editors.
9. Write the program to create record with P_R_NO, Name, and Marks in Sub1, Sub2, Sub3 and Sub4 using random access file. Write routines to add, delete, change the record to the file also display total and Average.
10. Create a Database application using
    
    - Datacontrol
    - DAO
12. Create an Application using ActiveX Controls.
Elective B : JAVA Programming –I (UG-CS-LAB- 303 B)

Semester-I

1. Write a program in Java to display messages in various fonts in a frame
2. Write a program in Java to draw various geometric shapes like circle, line, rectangle etc.
3. Write a program in Java to demonstrate paint mode.
4. Write a program in Java to demonstrate window events.
5. Write a program in Java to demonstrate Mouse events.
6. Write a program in Java to demonstrate Keyboard events.(key pressed, key released )
7. Write a program in Java to demonstrate multicasting
8. Write a program in Java to demonstrate user interface component list boxes and combo box.
9. Write a program in Java to demonstrate user interface component radio button and check box.
10. Write a program in Java to demonstrate menus as interface component.
11. Write an Applet to display human face.
12. Write a program in Java to demonstrate Java Applet with parameter
13. Write a program in Java to demonstrate text stream object that take input form user and write it into a text file
14. Write a program in Java to display messages in various fonts in a frame
15. Write a program in Java to draw various geometric shapes like circle, line, rectangle etc.
16. Write a program in Java to demonstrate paint mode.
17. Write a program in Java to demonstrate window events.
18. Write a program in Java to demonstrate Mouse events.
19. Write a program in Java to demonstrate Keyboard events (key pressed, key released)
20. Write a program in Java to demonstrate multicasting
21. Write a program in Java to demonstrate user interface component list boxes and combo box.
22. Write a program in Java to demonstrate user interface component radio button and check box.
23. Write a program in Java to demonstrate menus as interface component.
24. Write an Applet to display human face.
25. Write a program in Java to demonstrate Java Applet with parameter
26. Write a program in Java to demonstrate text stream object that take input form user and write it into a text file