SEMESTER VI

Title of the course : **Java Programming**

Subject Code : **CS-321**

Weekly load : 7 Hrs LTP 3-0-4

Credit : 5 (Lecture 3, Practical 2)

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Understand the structure and basic concepts of java programming |
| CO2 | Develop programs using different concepts and keywords in Java Language. |
| CO3 | Develop programs using java swings. |
| CO4 | Understand the concept of applets, file handling and networking |
| CO5 | Understand the concepts of graphics and JDBC |

**Theory**

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| **Unit** | **Main Topics** | **Course outlines** | **Lecture(s)** |
| **Unit-1** | 1. Introduction | Structure of Java Program, Operators, Data types, Variables, Arrays, Control Statements, Inheritance, Interface, Multithread programming, | 08 |
| 2. Exception & Graphics Programming | Java Applet, String handling, Wrapper Classes, Vector Classes, Graphics programming in Java. | 06 |
| 3.Handling | Event handling, AWT. | 04 |
|  | 4. Streams & File Handling | Introduction to streams, I/O operations with user defined methods. | 06 |
| **Unit-2** | 5. Swing | Java Swing Jcomponents: Applet and Application, Programming using Panes, Labels, Text fields, Buttons, Toggle buttons, Checkboxes, Radio Buttons, View ports, Scroll Panes, Scroll Bars, Lists, Combo box, Progress Bar, Menus and Toolbars, Layered Panes, Tabbed Panes, Split Panes, Layouts, Windows, Dialog Boxes, | 08 |
| 6. Networking | Networking basics, socket classes and utility classes. | 04 |
| 7. Advanced Applets | Graphics methods related to image, media tracker and animation, playing sound, File dialog & dialog boxes. | 04 |
|  | 8. Packages & JDBC | Declaring and creating a package, JDBC, designing application with database connectivity, basics of servlet technology & Java beans, Introduction to Java Server Pages (JSP). | 08 |

**Total=48**

**Recommended Books :**

1. B.M. Harwani, Java for professionals; SPD.
2. C Xavier, Java Programming a practical approach; Mc-Graw Hil.
3. Bill burke & Richard Monson-Haefel, Enterprise JavaBeans 3.0; SPD-Oreilly.

Title of the course : **Java Programming Lab**

Subject Code : **CS-321**

**Course outcomes:** At the end of the course, students will be able to:

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| CO1 | Understand the basic concepts of Java. |
| CO2 | Use different types of loops. |
| CO3 | Use of different methods of thread and graphics. |
| CO4 | Understand the concept of applets. |

**LIST OF PRACTICALS**

1) Write a Program to create the variables of basic types and also show the effect of type

conversions.

2) Write a program to illustrate the behaviour of print () and println () methods.

3) Write a program to convert the given temperature in Fahrenheit to Celsius.

4) Write a program to find all the numbers of and sum of all the integers greater than 100 and

less than 200 that are divisible by 7.

5) Write a program to print Floyds triangle

1

2 3

4 5 6

7 8 9 10

11.15

.

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7991

6) Write a program to print multiplication table using does-while loop.

7) Write a program to reverse the digits of a number using while loop.

8) Write a program to print the Fibonacci series.

9) Write a program to compute the area of triangle defined by the class.

10) Write a program to illustrate the concept of constructors.

11) Write a program to illustrate the concept of single inheritance.

12) Write a program to illustrate the use of an array for sorting a list of numbers.

13) Write a program to illustrate the use of some commonly used wrapper class methods.

14) Write a program to illustrate the concept of multiple inheritance using interfaces.

15) Write a program to illustrate the use of Thread class for creating and running threads in an

application.

16) Write a program to illustrate the use of yield (), sleep (), stop () methods in Thread class.

17) Write a program to show a simple Hellojava Applet.

18) Write an applet which takes two numbers from the user into each text field box displayed in

the applet area and computes the sum of these two numbers and displays the result.

19) Write an applet code that draws three lines, a rectangle, a filled rectangle, a rounded

rectangle.

Title of the course : **System Programming**

Subject Code : **CS-322**

Weekly load : 3 Hrs LTP 3-0-0

Credit : 3 (Lecture 3)

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Understand the basics of system programs like editors, compiler, assembler, linker, loader, and interpreter. |
| CO2 | Describe the various concepts of assemblers and macro processor. |
| CO3 | Understand the various phases of compiler and compare its working with assembler. |
| CO4 | Understand how linker and loader create an executable program from an object module created by assembler and compiler. |

**Theory**

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| **Unit** | **Main Topics** | **Course outlines** | **Lecture(s)** |
| **Unit-1** | 1. Introduction | Definition and role of system software, Examples of system software, Evolution of system software, System software and Machine architecture, Fundamentals of language specification, Fundamentals of language processing. | 08 |
| 2. Assembler | Basic Assembler functions, Elements of Assembly language programming, Scanning, Parsing, A simple assembly scheme, Data structure of a assembler, pass structure of assembler, Design of two pass assembler | 10 |
| 3. Macro processor | Introduction of Macros, Macro expansion, Macro call, Macro parameters- Positional , keyword, default, Expansion different forms of Macros-Nested Macro call, Macro defined inside another macro | 08 |
| **Unit-2** | 4. Loader & Linker | Introduction to Loader, various loader schemes- Compile & Go or Assemble & go, General loaders, Absolute loaders, Subroutine linkages, Relocating loaders, Direct linking loaders | 10 |
|  | 5. Compiler | Introduction to Compiler, Phases of Compiler and its function | 08 |
| 6. Editor | Editors, types of editor, Structure of editor | 04 |

**Total=48**

**Recommended Books:**

1. Donovan, J. J. , System programming, McGraw-Hill
2. Ullman, J.D., Compiler construction for digital computers, Wiley- Eastern

Title of the course : **Microprocessor**

Subject Code **: CS-323**

Weekly load : 7 Hrs LTP 3-0-4

Credit : 5 (Lecture 3, Practical 2)

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Learn about the concept of microprocessor and introduction to 8-bit microprocessor. |
| CO2 | Gain knowledge of the internal architecture and bus structure of 8085 microprocessor. |
| CO3 | Study the 8085 instructions set and use it to solve programming problems. |
| CO4 | Gain a perspective of microprocessor interfacing with peripheral devices. |

**Theory**

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| **Unit** | **Main Topics** | **Course outlines** | **Lecture(s)** |
| **Unit-1** | 1. Introduction | History and evolution of Microprocessors, features of 8085, Need and Applications of Microprocessors, Comparison of Microprocessor and Microcontroller. | 08 |
| 2. Architecture of 8-bit Microprocessor | General 8-bit Microprocessor and its architecture, Pin Configuration, CPU Architecture, Registers, ALU Control Unit, register organization. | 08 |
| 3. Bus structure of 8085. | Address bus, data and control bus of 8085, overview of PC range of microprocessors | 06 |
| **Unit-2** | 4. 8085 Instruction Set | Addressing modes, instruction set, instruction cycle, fetch cycle, execute cycle and machine language instruction format | 07 |
|  | 5. Programming | Program development steps defining problem, algorithms and flowchart, solving basic problems of assembly language programming using 8085. | 08 |
| 6. Interfacing for 8085 Microprocessors | Memory Organization, Interfacing Techniques; Memory mapped I/O and I/O mapped I/O | 06 |
| 7. Interfacing of A/D and D/A convertors | Interfacing of A/D and D/A convertors. | 05 |

**Total=48**

**Recommended Books:**

1. Ramesh S. Gaonkar,"Microprocessor Architecture, Programming & Applications with 8085", 5/E, Penram International Publishing (India) Pvt. Ltd., reprint 2006.
2. Douglas V Hall, Microprocessors and Interfacing: Programming & Hardware, *Tata McGraw Hill Publishing Company*, 3rd Reprint 2007.
3. Mazidi & Mazidi, The 8085 Microcontroller & Embedded system, using Assembly and C, 2nd edi, Pearson edu.
4. Advanced Microprocessors and Interfacing : Badri Ram; TMH

Title of the course : **Microprocessor Lab**

Subject Code : **CS-323**

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Understand 8085 microprocessor kit, knowledge of 8085 instruction set. |
| CO2 | Familiar with the assembly language programming on the microprocessor kit. |

**LIST OF PRACTICALS**

1. Experiment to study pin diagram and all basic parts of 8085 microprocessor kit.
2. Experiment to study addressing modes and Instruction set of 8085 microprocessor.
3. Assembly Language program to add two 8-bit and 16-bit numbers.
4. Program to find 1s and 2s complement of 8-bit and 16 bit numbers.
5. Program to find larger of two numbers.
6. Program to find largest number in an array.
7. Program to find smallest number in an array.
8. Program to perform multi byte addition.
9. Program to perform multi byte subtraction.
10. Program to arrange data array in ascending order.
11. Program to arrange data array in descending order.
12. Program to find sum of a series of 8-bit numbers that finds the result in 8-bit form.
13. Program to find sum of a series of 8-bit numbers that finds the result in 16-bit form.
14. Program to perform multiplication of two 8-bits numbers and store result in 16-bit form.
15. Program to perform division of two 8-bits numbers and store result in 16-bit form.

Title of the course : **Multimedia & Animation Techniques**

Subject Code : **CS-324**

Weekly load : 6 Hrs LTP 2-0-4

Credit : 4 (Lecture 2, Practical 2)

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Understand about various latest interactive multimedia devices and multimedia hardware & software. |
| CO2 | Understand about latest multimedia tools and the basic concept of animation and its techniques. |
| CO3 | Develop an interactive multimedia presentation by using multimedia devices and identify theoretical and practical aspects in designing multimedia application surrounding the emergence of multimedia technology. |

**Theory**

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| **Unit** | **Main Topics** | **Course outlines** | **Lecture(s)** |
| **Unit-1** | 1. Multimedia Overview | Introduction to multimedia, hypertext, hyper graphics, animation, application in education and training, science and technology, kiosks, business and games. | 03 |
| 2. Multimedia Hardware | Multimedia PC configuration, features and specifications of sound and video interfaces, OCR, touch-screen, scanners | 05 |
| 3. Multimedia Devices | Digital cameras, speakers, printers, plotters, optical disks and rives as CDROM and DVD. Multimedia networks. | 04 |
| 4. Multimedia Software | Image and sound file formats, multimedia file formats, compression, standards and techniques, features of software to read and write such files. | 05 |
| **Unit-2** | 5. Image Processing | Photo-shop workshop, image editing tools, specifying and adjusting colors, using gradient tools | 05 |
| 6. Image Processing Tools Options | Selection and move tools, transforming path drawing and editing tools, using channels, layers, filters and actions | 04 |
| 7. Multimedia Authoring Tools | Types of Authoring programmes  Icon based, Time based, Story boarding/scripting and object oriented working in macromedia flash, | 03 |
| 8. Additional Features of Multimedia Tools | Working with drawing and painting tools, applying colour viewing and manipulating time line, animating, processing, guiding layers, | 03 |

**Total=32**

**Recommended Books:**

1. William Casanova and Molina, Multimedia An Introduction; Prentice Hall of India,

New Delhi

1. Multimedia Bible, Win Rosch
2. Vaughan, Multimedia Making it work, Tay
3. Photo-shop for Windows Bible, Deke Maclelland IDG Books India Pvt. Ltd., New Delhi
4. Hillman, Multimedia Technology and Application, Galgotia Publications, New Delhi
5. Flash 5 Bible by Rein Hardit, IDG Books India Pvt. Ltd.
6. Flash 5 in easy steps, Vandome IDG Books India Pvt. Ltd.
7. Li and Drew, Fundamentals of Multimedia, Pearson Publications.

Title of the course : **Multimedia & Animation Techniques Lab**

Subject Code : **CS-324**

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Create the animations using Flash software. |
| CO2 | Create and support multimedia productions using Adobe Photoshop Software. |

**LIST OF PRACTICALS**

1. Introduction and working of Interactive Multimedia Board.
2. Procedure to create an animation to represent the growing moon.
3. Procedure to simulate movement of a cloud
4. Procedure to create an animation to indicate a ball bouncing on steps.
5. Procedure to draw the Fan blades and to give proper animation.
6. Procedure to display the background given ( Filename :Tulip.jpg) through your name.
7. Procedure to create an animation with the following features.

WELCOME

\* Letters should appear one by one.

\* The fill color of the text should change to a different color after the display of the full

Word

8. Procedure to simulate a ball hitting another ball.

9. Procedure to create an animated cursor using STARTDRAG (SS, TRUE); MOUSE.HIDE

();

10. Procedure to design a visiting card containing at least one graphic and text information.

11. Procedure to take a photographic image. Give a title for the image. Put the border. Write

your name. Write the name of institution and place.

12. Procedure to prepare a cover page for the book in your Subject area. Plan your own design.

13. Procedure to extract the flower only from given photographic image and organize it on a

Background. Selecting your own background for organization.

14. Procedure to adjust the brightness and contrast of the picture so that it gives an elegant look

15. Procedure to position the picture preferably on a plain background of a color of your

choice- Position includes rotating and scaling.

16. Procedure to remove the arrows and text from the given photographic image.

17. Procedure to type a word and apply the effects shadow embosses.

18. Procedure to use appropriate tool(s) from the toolbox Cut the objects from 3 files (F1.JPG,

F2.JPG, F3.JPG); organize them in a single file and apply feather effects.

19. Procedure to display the background given (FILENAME: GARDEN.JPG) through your

name using mask.

20. Procedure to make anyone of one of the parrots black and white in a given picture.

21. Procedure to change a circle into a square using flash.

Title of the course **: Project Lab**

Subject Code : **CS-325**

Weekly load : 4 Hrs LTP 0-0-4

Credit : 2 (Practical 2)

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Work as a team and to focus on a project within a stipulated period of time. |

Title of the course : **Network Installation & Security**

Subject Code : **CS-326**

Weekly load : 5 Hrs LTP 3-0-2

Credit : 4 (Lecture 3, Practical 1)

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Understand the concepts and foundations of Networking like: Topologies, Network Design & Network Cables. |
| CO2 | Give a general understanding of different bus types like: ISA, PCI, PCMCIA and Network Cable connectors. |
| CO3 | Identify the different types of network devices and their functions within a network. |
| CO4 | Study and examine the concepts of Firewalls and its various standards. |

**Theory**

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| **Unit** | **Main Topics** | **Course outlines** | **Lecture(s)** |
| **Unit-1** | 1. Overview Of Network Topologies | LAN Topologies, Shared and Non shared Network Media, Bridge versus Routed Topologies, | 06 |
| 2. Network Design Strategies | Planning a Logical Network Design, Planning and Design Components, Cable ,Connectors, Concentrators and Other Components, | 06 |
| 3. Wiring the Networks | Twisted pair cabling, Coaxial Cables, Fiber Optics Cables, Termination and connections, Crimping, Modular Jacks and Plugs. | 06 |
| 4. Network Interface Card | Choosing a hardware bus type - ISA, PCI, PCMCIA, Card Bus, Network Cable Connector and Terminators, Routers, Bridges and Gateways Configuration | 08 |
| **Unit-2** | 5. Network Switch | How Switch Works, Switch Hardware Types, Virtual LANs | 04 |
| 6. Firewall | What is Firewall, Concept of firewalls, data transmission through firewall, installation of firewall | 06 |
| 7.Firewall Aspects | Introduction to Firewall constraints, Merits and Demerits of Firewall, Complimentary technologies to Firewall | 06 |
| 8.Firewall Standardization | Various Standards for Firewall, Consideration for future Firewall, Network Security Mechanism and Policies | 06 |

**Total=48**

**Recommended Books:**

1. Scott Mullers " Upgrading and repairing Networks " 5th Edition Person Netwroks.
2. William Stallings, Cryptography and Network Security: Principles and Practice,

Prentice Hall, New Jersy.

Title of the course : **Network Installation & Security**

Subject Code : **CS-326**

**Course Outcomes:** At the end of the course, the student will be able to:

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| CO1 | Identify various types of cables used in guided media. |
| CO2 | Understand the working of LAN Card, Hub, TELNET, FIREWALL. |
| CO3 | Analyze different protocols used for packet communication like ALOHA Protocol. |

**LIST OF PRACTICALS**

1) Introduction to LAN with its cables, connectors and topologies.

2) To connect two personnel computer with straight thru and cross over twisted pair.

3) Introduction to motherboard and installation of LAN card.

4) Case study of Ethernet (10 base 5, 10 base 2,10 base T).

5) Create a simple network with two PCs using a hub

a) Identify the proper cable to connect the PCs to the hub .

b)Configure workstation IP address information .

c) Test connectivity using the Ping command

6) Installation and working of Telnet.

7) Familiarization with Firewall Installation process

8) Study & working of switch.

9) Router and Switch Installation.

10) Implement the ALOHA protocol for packet communication between a number of

Nodes connected to a common bus.

11) Implement the ALOHA protocol for packet communication between a number of

Nodes connected to a star topologies.