

Teaching Plan

Academic Year 2015-16

Class : M.Sc. Computer Science II yr. **Semester: III**
Subject : Programming in JAVA **Paper No: XIII (13)**
Periods per Week : Th. 04 Pract. 04
Week (Total) : 15

Week	Topic to be covered
1	Unit-I: Introduction: History and features of Java, Difference between C, C++ & JAVA. JAVA and Internet, WWW, Web Browsers, java supports system, Java Environment. JDK, JVM, Byte code Java Programming Basics: Structure of Java program, JAVA tokens and Statements, Constants & Variables, Data types, Operators, Command line arguments.
2	Java Statements & Arrays: if and switch statement. while, do-while and , for. Introduction to arrays, types of arrays, new operator, Strings. String class & its methods, Vectors.
3	Classes & Objects: Specifying classes, Methods and fields, creating objects. Passing objects to methods, returning objects, static fields & methods. Constructors, Garbage collection, Overloading methods & constructors, this keyword.
4	Unit-II: Inheritances: Specifying sub class, types of inheritance, visibility control: public, private, protected, package. super keyword, Overriding methods, Dynamic method dispatch, Abstract methods and classes, final methods & classes,
5	Packages & Interfaces : Introduction to packages, naming conventions, package statement, creating packages, import statement, accessing package, use of CLASSPATH, adding class to package, hiding classes. Interface, implementing interfaces, multiple interfaces.
6	Multithreading: Creation threads, Extending Thread class, implements Runnable interface, stopping and blocking thread, Thread life cycle, thread priorities & Thread synchronization, using Thread methods.

7	<p>Unit-III:</p> <p>Exception Handling: Managing errors, types of errors, exceptions, syntax of exception handling code. try, catch, throw, throws and finally statements, multiple catch & nested try statements.</p>
8	<p>Java Input Output: Java I/O package, Byte/Character Stream, Buffered reader / writer, File reader / writer, File Sequential / Random. Reading numeric, character & strings data from keyboard.</p>
9	<p>Applet programming: Applet Vs. Application, Creating applets, life cycle, local & remote applets. <APPLET> tag & its attributes, adding applet to HTML file, Running applet.</p>
10	<p>Unit-IV:</p> <p>Abstract Windows Toolkit (AWT): Components and Graphics, Containers, Frames and Panels, Layout Managers, Border layout, Flow layout, Grid layout, Card layout, AWT components.</p>
11	<p>Event delegation Model, Event source and handler, Event categories, Listeners, Interfaces, Controls such as text box, radio buttons, checkboxes, lists, choice, command buttons, text area etc.</p>
12	<p>JDBC: Java database connectivity, Types of JDBC drivers, Writing JDBC applications, ,</p>
13	<p>Types of statement objects(Statement, PreparedStatement and CallableStatement), Types of resultset, Inserting and updating , records, JDBC and AWT</p>
14	<p>Unit-V:</p> <p>Networking with Java : Networking basics, Sockets, port., Internet addressing, java.net – networking classes and interfaces, Implementing TCP/IP based Server and Client</p>
15	<p>Servlets: Introduction Servlet API Overview, Writing and running Simple Servlet, Servlet Life cycle, Generic Servlet, HTTPServlet, ServletConfig, ServletContext, Writing Servlet to handle Get and Post methods.</p>

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H.O.D.'s Signature

Teaching Plan

Academic Year 2015-16

Class : M.Sc. Computer Science II yr. **Semester: III**
Subject : Computer Graphics **Paper No: XIV (14)**
Periods per Week : Th. 04 Pract. 04
Week (Total) : 15

Week	Topic to be covered
1	Unit-I: Introduction of computer Graphics and its applications, Overview of Graphics systems,
2	Video display devices, Raster scan display, Raster scan systems, video controller, Raster scan display processor, Random scan display, random scan systems, color CRT monitor, Flat panel display,
3	Interactive input devices, Logical classification of input devices, Keyboard, mouse, Trackball and spaceball, Joysticks, Image scanner, Light pens, Graphics software, Coordinates representations, Graphics functions.
4	Unit-II: Line drawing algorithms, DDA, Bresenham's, Circle generating, Mid-point circle algorithm,
5	Ellipse generating, Polynomials,
6	Scan-line polygon fill, Boundary fill.
7	Unit-III: Basic transformation's, Translation, Rotation, Scaling, Matrix representation's & homogeneous co-ordinates,
8	Composite transformation's, Reflection, Two dimensional viewing, Two dimensional clipping,
9	Line, Polygon, Curve, Text. 3D-transformation, Projection, Viewing, Clipping,.
10	Unit-IV

	Spline representation, Cubic spline, Bezier curve, Bezier surfaces,
11	Beta spline, Bspline surfaces, B-spline curve, Hidden surfaces, Hidden lines, Z-buffer.
12	Unit-V Fractal's geometry Fractal generation procedure, Classification of Fractal,
13	Fractal dimension, Fractal construction methods. Color models,
14	XYZ, RGB, YIQ, CMY & HSV, Shading algorithms, Shading model,
15	Illumination model, Gouraud shading, Phong shading.

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Teaching Plan

Academic Year 2015-16

Class : M.Sc. Computer Science II yr. **Semester: III**
Subject : Research Methodology **Paper No: XV (15)**
Periods per Week : Th. __04__ Pract. __04__
Week (Total) : 15

Week	Topic to be covered
1	Unit-I: Description: Introduction, meaning of research, objectives of research, motivation in research, types of research, research approaches, significance of research.
2	Research methods versus methodology, research and scientific method, importance of knowing how research is done, research processes, criteria of good research.
3	Defining research problem, selecting the problem, necessity of defining the problem, techniques involved in defining a problem.
4	Unit-II: Research design: meaning of research designs, basic principles of experimental design, features of a good design, different research designs, basic principles of experimental design.
5	Originality in research : resources for research, research skills, time management, role of supervisor and scholar, interaction with subject experts.
6	Thesis writing: the preliminary pages and the introduction, the literature review, methodology, the data analysis, the conclusions, the references (IEEE format).
7	Unit-III: Review of literature: significance of review of literature, source for literature: books, journals, proceedings, thesis and dissertations, unpublished items.
8	On-line Searching: Database, Sci finder, scopus, science direct, searching research articles, citation index, impact factor, H- index.

9	<p>Unit-IV</p> <p>Introduction of analytical tools, introduction to data analysis, least squares fitting of linear data and non linear data, exponential type data, logarithmic type data.</p>
10	<p>Power function data and polynomial of different orders, plotting and fitting of linear, non linear, Gaussian, polynomial and Sigmoidal type data.</p>
11	<p>Fitting of exponential growth, exponential decay type data,</p>
12	<p>Plotting polar graphs, plotting histograms, y error bars, xy error bars, data masking.</p>
13	<p>Unit-V</p> <p>Quantitative Techniques: general steps required for quantitative analysis, reliability of the data, classification of errors</p>
14	<p>Accuracy, precision, statistical treatment of random errors, the standard deviation of complete results.</p>
15	<p>Error proportion in arithmetic calculations, uncertainty and its use in representing significant digits of results, confidence limits, estimation of detection limit.</p>

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Academic Year 2015-16

Class : M.Sc. Computer Science II yr. **Semester: III**
Subject : Digital Image Processing **Paper No: XVI (16) (Elective 1.1)**
Periods per Week : Th. 04 Pract. 04
Week (Total) : 15

Week	Topic to be covered
1,2,3	Unit-I: Introduction to image processing, Two Dimensional Systems and Mathematical Preliminaries.
4,5,6	Unit-II: Image Perception, Image Sampling and Quantization, Image Transforms, Image Representation by Stochastic Models.
7,8,9	Unit-III: Image Enhancement, Image Filtering and Restoration.
10,11,12	Unit-IV Image Analysis and Computer Vision
13,14,15	Unit-V: Image Reconstruction from Projections, Image Data Compression

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