

**All other PG, PG  
Integrate and  
PG-NME Courses**

# THE GANDHIGRAM RURAL INSTITUTE

## (Deemed to be University)

### DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

#### COMPUTER COURSES FOR ALL OTHER PG/PG Integrated

Course Code	Subject	Department	Semester	Credits	Hours		Theory		Practical		Total
					T	P	CFA	ESE	CFA	ESE	
18CSAI04A1	Computer Fundamentals and Office Automation	MDA	IV	3+1	3	2	24	36	24	16	100
18CSAI04A1	Computer Fundamentals and Office Automation	M.A (Sociology)	IV	3+1	3	2	24	36	24	16	100
18CSAI05A2	Fundamentals of Statistics and SPSS	MDA	V	3+1	3	2	24	36	24	16	100
18CSAI05A2	Fundamentals of Statistics and SPSS	M.A (Sociology)	V	3+1	3	2	24	36	24	16	100
18CSAI07A3	Web Designing	MDA	VII	3+2	3	2	24	36	24	16	100
18CSAI07A3	Web Designing	M.A (Sociology)	VII	3+2	3	2	24	36	24	16	100

COMPUTER FUNDAMENTALS AND OFFICE AUTOMATION (PG Programme[Integrated])										
Course Code	Department	Sem ester	Credit s	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAI04A1	MDA	IV	3+1	3	2	24	36	24	16	100
18CSAI04A1	M.A (Sociology)	IV	3+1	3	2	24	36	24	16	100
<b>Cognitive Level</b>	<b>K-1</b> Recall the basic definitions and terminologies of computer <b>K-2</b> Summarize the knowledge of software and hardware <b>K-3</b> Prepare documents using Office Automation Packages.									
<b>Course Objectives</b>	<b>The Course aims to</b> <ul style="list-style-type: none"> <li>Introduce the concepts of computer basics and terminologies.</li> <li>Identify hardware, software and Operating system need for personal computer.</li> <li>Provide an in-depth training with Office Automation packages.</li> </ul>									

UNIT	Content	No. of Hours
I	<b>Computer Concepts</b>	11
	<ul style="list-style-type: none"> <li>Definition of a Computer –Origin of Computer- Characteristics</li> <li>Computer Terminologies</li> <li>Anatomy of a Computer - Generations of Computers</li> <li>Types of Computers- Types of Operating System</li> <li>Types of Programming Languages</li> <li>Assembler - Translator</li> <li>Compiler – Cross Compiler</li> <li>Discussion on Recent Trends and Technology</li> </ul>	
II	<b>Hardware Devices</b>	8
	<ul style="list-style-type: none"> <li>Input Devices –Keyboard-Mouse-Pointing Devices</li> <li>Output Devices - Printers- Plotters- Monitors</li> <li>Storage Devices - Floppy – Compact Disk – External Hard Disk – Pen Drives – Flash Drive</li> <li>Source Data Entry Devices – Digital Camera – Scanners – Voice Recognition System – Fax Machine – Microphone</li> <li>Surprise Test/ Slip Test</li> </ul>	
III	<b>MS-Word</b>	8
	<ul style="list-style-type: none"> <li>MS-Word: Introduction - Features</li> <li>Document Creation - Document Editing: Cursor Movements</li> <li>Selecting Text - Copying Text - Moving Text</li> <li>Finding and Replacing Text - Spelling and Grammar</li> <li>Page Setup - Table Creation.</li> <li>Mail Merge</li> <li>Test on MS-Word Short Keys</li> </ul>	
	Lab Exercises: Preparation of Biodata, Agenda, Minutes, Circular letters, Letters to various sectors, Mail merge, Designing a News paper	

<b>IV</b>	<b>MS-Excel</b>	7
	<ul style="list-style-type: none"> <li>• MS-Excel : Introduction - Advantages &amp; Applications -</li> <li>• Organization of Workbook - Editing a Worksheet -</li> <li>• Range - Formatting Worksheet -</li> <li>• Chart: Creation - Changing Type - Print Options</li> <li>• Built-In Functions.</li> <li>• Test on Excel Functions</li> </ul>	
Lab Exercises: Presentation of pay rolls. Invoice, Stock maintenance, Charts for Business analysis, use of Financial Function.		
<b>V</b>	<b>MS-Power Point</b>	8
	<ul style="list-style-type: none"> <li>• MS-Power Point: Introduction - Features</li> <li>• Creating Presentation - Viewing - Saving and Close Presentation</li> <li>• Changing Layout - Changing Designs - Slide Transition</li> <li>• Adding Animation Effects</li> <li>• Inserting Table, Charts, Pictures, Clipart in Presentation.</li> <li>• Checking the Creativity of Students</li> </ul>	
Lab Exercises: Preparation of the Advertisement, Animation, Transition effects, Display board, audio & video presentation.		
<b>Total Contact Hours</b>		<b>42</b>
<b>References:</b>		
<ol style="list-style-type: none"> <li>1. Fundamentals of Information Technology, S.K.Bansal, A.P.H. Publishing company, New Delhi, 2002.</li> <li>2. 2007 Microsoft Office System step by step, Joyce Cox, Joan Preppernau, Steve Lambert and Curtis Frye, 2007.</li> </ol>		
<b>Course Outcomes</b>	<p><b>On completion of the course, students should be able to</b></p> <p><b>CO1:</b> Recall the fundamental concept of computer with present level of knowledge of the students.</p> <p><b>CO2:</b> Recognize the purpose of operating systems, programming languages and basic peripheral devices</p> <p><b>CO3:</b> Create document in MS-Word</p> <p><b>CO4:</b> Perform the statistical calculations and draw chart using MS-Excel</p> <p><b>CO5:</b> Design presentation using MS-PowerPoint</p>	

FUNDAMENTALS OF STATISTICS AND SPSS										
Course Code	Department	Semester	Credits	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAI05A2	MDA	V	3+1	3	2	24	36	24	16	100
18CSAI05A2	MA (Sociology)	V	3+1	3	2	24	36	24	16	100
<b>Cognitive Level</b>	<b>K-1</b> State the basic terminologies and peripherals of computer. <b>K-2</b> Describe nature of quantitative data. <b>K-3</b> Perform the statistical calculations. <b>K-4</b> Analysis of SPSS statistical tools.									
<b>Course Objectives</b>	<b>The Course aims to</b> <ul style="list-style-type: none"> <li>• Provide the basic knowledge on computers.</li> <li>• Understand the concepts and usage of Statistical terms.</li> <li>• Make Students to explore SPSS.</li> </ul>									

UNIT	CONTENT	No. of Hours
I	<b>Fundamentals of Computers</b>	<b>9</b>
	<ul style="list-style-type: none"> <li>• Computer Introduction and Computer Terminologies</li> <li>• Functional Units of a Computer</li> <li>• Generations of Computers –1 to 5 Generations, Components and Other Developments</li> <li>• Types of Computers – Desktop, Micro, Mini and Super Computers</li> <li>• Input and Output Devices –Keyboard, Mouse, Printer, Etc.</li> <li>• Storage Devices – Floppy Disk, Compact Disc and Other Devices</li> </ul>	
II	<b>Statistical Terms</b>	<b>8</b>
	<ul style="list-style-type: none"> <li>• Statistical Terms: Mean, Median, Mode, Standard Deviation, Variance</li> <li>• Statistical Terms: Frequency, Hypothesis, Nominal and Ordinal Variable and Standard Error</li> <li>• SPSS Introduction and Overview</li> <li>• Windows in SPSS – Data Editor, Output Viewer , Syntax Editor ,Etc</li> <li>• Basic File Types – Different File Types in SPSS</li> </ul>	
III	<b>Types of Windows in SPSS</b>	<b>9</b>
	<ul style="list-style-type: none"> <li>• Data Editor Organization - Variable View - Data View</li> <li>• Entering and Editing Data in SPSS Data Editor</li> <li>• Reading Data From Spreadsheet, Database and Text File</li> <li>• Data Transformation- Computing Variable</li> <li>• Functions: Arithmetic, Statistical and String Functions</li> <li>• Recode: Into Same Variable, Into Different Variable - Automatic Recode.</li> </ul>	

IV	<b>File Handling Techniques</b>	9
	<ul style="list-style-type: none"> <li>• File Handling and File Transformation Introduction - Sort Cases</li> <li>• Merging Data Files – Variable Merge and Case Merge</li> <li>• Splitting A Data File and Apply Different Analysis</li> <li>• Different Ways to Select Cases From a Data Set</li> <li>• Working With Output Viewer and Draft Viewer, Formatting Output.</li> <li>• Pivot Table Basics and Advantages of Pivot Table.</li> </ul>	
V	<b>Analyzing Data</b>	7
	<ul style="list-style-type: none"> <li>• Analyzing Data: Frequencies - Descriptive - Crosstabs -</li> <li>• Multiple Response Analysis</li> <li>• T-Tests: One-Sample, Independent and Paired Test</li> <li>• One Way Analysis of Variance - Linear Regression.</li> <li>• Charts: Introduction - Types - Creating and Editing.</li> </ul>	
	Lab Exercises: <ul style="list-style-type: none"> <li>• Frequency Statistics</li> <li>• Descriptive statistics</li> <li>• Cross Tabulation</li> <li>• Data Transformations</li> <li>• Testing.</li> </ul>	
<b>Total Contact Hours</b>		<b>42</b>
<b>References:</b> <ol style="list-style-type: none"> <li>1. Fundamentals of Information Technology, S.K.Bansal, A.P.H. Publishing Company, New Delhi, 2002.</li> <li>2. Statistical Methods, R.S.N. Pillai and Bhagavathi, 17/e, S.Chand and Company Limited, Reprint 2007.</li> <li>3. SPSS Manual</li> </ol>		

WEB DESIGNING										
Course Code	Department	Semester	Credits	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAI07A3	MDA	VII	3+2	3	2	24	36	24	16	100
18CSAI07A3	MA (Sociology)	VII	3+2	3	2	24	36	24	16	100
<b>Cognitive Level</b>	<b>K-1</b> Recall the basic definitions and terminologies of computer <b>K-2</b> List the basic HTML tags <b>K-3</b> Demonstrate the designing of web pages using HTML <b>K-4</b> Outline the experience of working with XML									
<b>Course Objectives</b>	<b>The Course aims to</b> <ul style="list-style-type: none"> <li>• Provide insight into the basics of web programming</li> <li>• Teach how to design and implement the complete applications over the web</li> <li>• Gain knowledge to create and develop websites.</li> </ul>									

UNIT	CONTENT	No. of Hours
<b>I</b>	<b>Computer</b>	<b>10</b>
	<ul style="list-style-type: none"> <li>• Computer: Definition - Anatomy of a Computer</li> <li>• Generations of Computers - Types of Computers</li> <li>• Storage Devices - Input and Output Devices</li> <li>• Computer Terminologies</li> </ul>	
<b>II</b>	<b>Html</b>	<b>12</b>
	<ul style="list-style-type: none"> <li>• HTML : Introduction - Head and Body Sections</li> <li>• Designing Title - Designing Headings</li> <li>• Designing Body Section – Alignment Tags</li> </ul>	
<b>III</b>	<b>Ordered and Unordered List</b>	<b>11</b>
	<ul style="list-style-type: none"> <li>• Ordered and Unordered List</li> <li>• Tables - Using Colors</li> <li>• Paragraph Tags – Hyperlink</li> <li>• Embedding Images and Videos</li> </ul>	
<b>IV</b>	<b>Forms and Frames</b>	<b>13</b>
	<ul style="list-style-type: none"> <li>• Forms and Frames: Form Elements</li> <li>• Buttons - Frame Layouts</li> <li>• Floating Frames.</li> </ul>	

V	<b>XML</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• XML: Introduction - Syntax</li> <li>• XML Document Structure</li> <li>• Document Type Definitions</li> <li>• Some Simple DTD Examples.</li> </ul>	
	Lab Exercises: <ul style="list-style-type: none"> <li>• Web designing using alignment tags</li> <li>• Designing web site for café or sacks corner using link</li> <li>• Website development using hyperlink</li> <li>• Prepare photo album web page.</li> <li>• Design a web page using XML.</li> </ul>	
<b>Total Contact Hours</b>		<b>60</b>
<b>References:</b> <ol style="list-style-type: none"> <li>1. Internet and World Wide – How to Program, Deitel, Fourth Edition, Pearson Prentice Hall, 2009.</li> <li>2. XML and web services unleashed – Scmelzer, Vandersypen, Bloomberg.et.al. Pearson Education 2002</li> </ol>		
<b>Course Outcomes</b>	<b>On completion of the course, students should be able to</b> <p><b>CO1:</b> Understand the Fundamentals, generations, types and peripheral devices of Computer</p> <p><b>CO2:</b> Understand the basics of HTML</p> <p><b>CO3:</b> Learn to design web pages using HTML</p> <p><b>CO4:</b> Creating web pages with forms and frames.</p> <p><b>CO5:</b> Possess practical experience in working with XML.</p>	



# PG (NME)

Course Code	Subject	Department	Semester	Credits	Hours		Theory		Practical		Total
					T	P	CFA	ESE	CFA	ESE	
18CSAP02N1	Multimedia Technologies	PG (NME)	II	4	4	-	40	60	-	-	100
18CSAP02N2	Web Designing	PG (NME)	II	4	4	-	40	60	-	-	100
18CSAP02N3	Computer Graphics	PG (NME)	II	4	4	-	40	60	-	-	100
18CSAP02N4	Java Programming	PG (NME)	II	4	4	-	40	60	-	-	100

MULTIMEDIA TECHNOLOGIES (NME)										
Course Code	Department	Semester	Credits	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAP02N1	PG (NME)	II	4	4	-	40	60	-	-	100
<b>Cognitive Level</b>	<b>K-1</b> Define the elements and principles of design in multimedia. <b>K-2</b> Recognize the operation of equipment and/or procedures associated with multiple facets of multimedia. <b>K-3</b> Apply the knowledge of designing and editing with multimedia tool <b>K-4</b> Identify the real world applications related to each area of multimedia.									
<b>Course Objectives</b>	<b>The Course aims to</b> <ul style="list-style-type: none"> <li>• Understand the basic concepts of multimedia elements</li> <li>• Develop webpage using multimedia elements</li> <li>• Practice shoot and edit videos</li> </ul>									

UNIT	CONTENT	No. of Hours
I	<b>Introduction</b>	14
	<ul style="list-style-type: none"> <li>• Introduction: Definition of Multimedia</li> <li>• Uses of Multimedia – Multimedia Hardware Connections</li> <li>• Memory and Storage Devices</li> <li>• Input Devices - Output Devices</li> <li>• Communication Devices</li> <li>• Test on Multimedia Terms</li> </ul>	
II	<b>Multimedia Tools</b>	13
	<ul style="list-style-type: none"> <li>• Multimedia Tools</li> <li>• Basic Multimedia Software Tools</li> <li>• Multimedia Authoring Tools</li> <li>• Video Clips/ Software Demo / Usage of Tools</li> </ul>	
III	<b>Text and Images</b>	13
	<ul style="list-style-type: none"> <li>• Text and Images: Fonts and Faces</li> <li>• Using Text in Multimedia - Font Editing and Design Tools</li> <li>• Hypermedia and Hypertext.</li> <li>• Images: Making Still Images</li> <li>• Coloring Images - Image File Formats</li> <li>• Video Clips/ Software Demo / Usage of Tools</li> </ul>	

IV	<b>Sound and Animation</b>	13
	<ul style="list-style-type: none"> <li>• Sound and Animation: Sound: Digital Audio - MIDI Audio</li> <li>• Multimedia System Sounds - Audio File Formats</li> <li>• Adding Sound to Multimedia Project</li> <li>• Animation: Principles of Animation</li> <li>• Animation Techniques - Animation File Formats</li> <li>• Making Animations that Work.</li> <li>• Video Clips/ Software Demo / Usage of tools</li> </ul>	
V	<b>Video and Internet</b>	11
	<ul style="list-style-type: none"> <li>• Video and Internet: Video: How Video Works and is Displayed</li> <li>• Digital Video Containers - Shooting and Editing Video.</li> <li>• Internet: Designing for the World Wide Web.</li> <li>• Video Clips/ Software Demo / usage of tools</li> </ul>	
<b>Total Contact Hours</b>		<b>64</b>
<b>Text Book:</b> Multimedia: Making It Work, Tay Vaughan, Eighth Edition, McGrawHill, 2011.		
<b>Reference:</b> Authoring Interactive Multimedia, A.C. Luther, A.P. Professional, 1994.		
<b>Course Outcomes</b>	<b>On completion of the course, students should be able to</b> <b>CO1:</b> Explore the basic understanding of various Multimedia Concepts <b>CO2:</b> Utilization of Multimedia tools <b>CO3:</b> Familiarize the concepts of text and image editing. <b>CO4:</b> Practice sound and video editors <b>CO5:</b> Develop a animated video using multimedia softwares	

WEB DESIGNING (NME)										
Course Code	Department	Semester	Credits	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAP02N2	PG (NME)	II	4	4	-	40	60	-	-	100
<b>Cognitive Level</b>	<p><b>K-1</b> Recall the basic definitions and terminologies of computer.</p> <p><b>K-2</b> Describe the basic HTML tags.</p> <p><b>K-3</b> Demonstrate the designing of web pages using HTML.</p> <p><b>K-4</b> Outline the experience of working with XML.</p>									
<b>Course Objectives</b>	<p><b>The Course aims to</b></p> <ul style="list-style-type: none"> <li>• Provide insight into the basics of web programming.</li> <li>• Design and implement complete applications over the web.</li> <li>• Gain knowledge to create and develop websites.</li> </ul>									

UNIT	CONTENT	No. of Hours
<b>I</b>	<b>Computer</b>	<b>12</b>
	<ul style="list-style-type: none"> <li>• Computer: Definition - Anatomy of A Computer</li> <li>• Generations of Computers - Types of Computers</li> <li>• Storage Devices Input and Output Devices</li> <li>• Computer Terminologies</li> </ul>	
<b>II</b>	<b>HTML</b>	<b>12</b>
	<ul style="list-style-type: none"> <li>• HTML : Introduction - Head and Body Sections</li> <li>• Designing Title - Designing Headings</li> <li>• Designing Body Section - Alignment Tags</li> </ul>	
<b>III</b>	<b>Ordered and Unordered List</b>	<b>12</b>
	<ul style="list-style-type: none"> <li>• Ordered and Unordered List</li> <li>• Tables – Using Colors</li> <li>• Paragraph Tags – Hyperlink</li> <li>• Embedding Images and Videos</li> </ul>	
<b>IV</b>	<b>Forms and Frames</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• Forms and Frames: Form Elements</li> <li>• Buttons - Frame Layouts</li> <li>• Floating Frames.</li> </ul>	

<b>V</b>	<b>XML</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• XML: Introduction - Syntax</li> <li>• XML Document Structure</li> <li>• Document Type Definitions</li> <li>• Some Simple DTD Examples.</li> </ul>	
<b>Total Contact Hours</b>		<b>64</b>
<b>References:</b> <ol style="list-style-type: none"> <li>1. Internet and World Wide web – How to Program, Deitel, Fourth Edition, Pearson Prentice Hall, 2009.</li> <li>2. XML and web services unleashed – Scmelzer, Vandersypen, Bloomberg.et.al. Pearson Education 2002</li> </ol>		
<b>Course Outcomes</b>	<b>On completion of the course, students should be able to</b> <b>CO1:</b> Understand the Fundamental generations, types and peripheral devices of Computer. <b>CO2:</b> Apply the Formatting tags in HTML. <b>CO3:</b> Design webpage using HTML. <b>CO4:</b> Creating webpage with forms and frames. <b>CO5:</b> Possess Practical experience with XML.	

COMPUTER GRAPHICS (NME)										
Course Code	Department	Sem ester	Cred its	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAP02N3	PG (NME)	II	4	4	-	40	60	-	-	100
<b>Cognitive Level</b>	<b>K-1</b> Define the elements and principles of designing with multimedia. <b>K-2</b> Recognize the operation of equipment and/or procedures associated with multiple facts of multimedia. <b>K-3</b> Apply the knowledge of designing and editing with multimedia tool <b>K-4</b> Identify the real world applications related to each area of multimedia.									
<b>Course Objectives</b>	<b>The Course aims to</b> <ul style="list-style-type: none"> <li>Explain about the creation and manipulation of images with the aid of computers and its available hardware and software.</li> <li>Demonstrate the creation and use of graphics functions in developing solutions to graphics oriented applications.</li> </ul>									

UNIT	CONTENT	No. of Hours
I	<b>Overview of Graphics Systems</b>	13
	<ul style="list-style-type: none"> <li>Overview of Graphics Systems</li> <li>Video Display Devices</li> <li>Raster Scan and Random Scan Systems</li> <li>Input Devices</li> <li>GUI and Interactive Input Methods: Logical Classification of Input Devices</li> <li>Input Functions</li> </ul>	
II	<b>Output Primitives</b>	13
	<ul style="list-style-type: none"> <li>Output Primitives : Points and Lines – Line Drawing Algorithms – DDA and Bresenham’s</li> <li>Loading the Frame Buffer – Line Function – Circle Generating Algorithms</li> <li>Filled Area Primitives – Fill Area Functions – Cell Array</li> <li>Character Generation.</li> </ul>	
III	<b>Attributes of Output Primitives</b>	12
	<ul style="list-style-type: none"> <li>Attributes of Output Primitives : Line Attributes</li> <li>Curve Attributes- Colour and Gray Scale</li> <li>Area Fill Attributes – Character Attributes</li> <li>Bundled Attributes – Inquiry Functions</li> <li>Anti-aliasing</li> </ul>	

IV	<b>Two Dimensional Geometric Transformations</b>	<b>13</b>
	<ul style="list-style-type: none"> <li>• Two Dimensional Geometric Transformations: Basic Transformations – Matrix Representation</li> <li>• Composite Transformations – General Fixed Point – Scaling – Other Transformations</li> <li>• Two Dimensional Viewing : The Viewing Pipeline – Window– to– Viewport Coordinate Transformation —</li> <li>• Clipping Operations – Point Clipping – Line Clipping – Cohen – Sutherland Line Clipping</li> <li>• Sutherland – Hodgeman Polygon Clipping – Curve Clipping – Text Clipping</li> </ul>	
V	<b>Three Dimensional Concepts</b>	<b>13</b>
	<ul style="list-style-type: none"> <li>• Three Dimensional Concepts: Three Dimensional Methods – Three Dimensional Geometric and Modeling Transformations</li> <li>• Translation – Rotation – Scaling – Other Transformations.</li> <li>• Visible – Surface Detection Methods – Classification – Depth Buffer Method</li> <li>• Scan Line Method – Depth Sorting Method</li> <li>• BSP Tree Method – Area Subdivision Method.</li> </ul>	
<b>Total Contact Hours</b>		<b>64</b>
<p><b>Text Book:</b> Computer Graphics C Version, Donald Hearn, M. Pauline Baker, 2/e, Pearson Education, New Delhi, 2005</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Principles of Interactive Computer Graphics, W.M.Newman and R.F.Sproull, 2/e, Tata McGraw– Hill Publishing Co. Ltd, 1997.</li> <li>2. Procedural Elements for Computer Graphics, D.F.Rogers, 2/e, Tata McGraw– Hill Publishing Co. Ltd., 2001.</li> <li>3. Computer Graphics, V. Xiang and R.A. Plastock, Schaum’s Outline Series, Tata McGraw– Hill Publishing Co., 2002.</li> </ol>		
<b>Course Outcomes</b>	<p style="text-align: center;"><b>On completion of the course, students should be able to</b></p> <p><b>CO1:</b> Identify the types of graphics monitors, workstations, input devices and input techniques available to work with graphics.</p> <p><b>CO2:</b> Apply the mathematical and heuristic algorithms behind the Graphics object generation.</p> <p><b>CO3:</b> Select the attributes to control the object shape and antialiasing techniques for accurate display.</p> <p><b>CO4:</b> Demonstrate the forms of 2D transformations, mapping process from world view to display view and clipping process.</p> <p><b>CO5:</b> Design the algorithms for 3D objects.</p>	

JAVA PROGRAMMING (NME)										
Course Code	Department	Semester	Credits	Hours		Theory		Practical		Total
				T	P	CFA	ESE	CFA	ESE	
18CSAP02N4	PG (NME)	II	4	4	-	40	60	-	-	100
<b>Cognitive Level</b>	<b>K-1:</b> Recall the object oriented programming concepts <b>K-2:</b> Practice Java programming <b>K-3:</b> Designing applications using Java									
<b>Course Objectives</b>	<b>The Course aims to</b> <ul style="list-style-type: none"> <li>• Provide the foundation to the object oriented programming concepts</li> <li>• Discuss the implementation of OOP's concepts in Java language</li> <li>• Make learners as a good Java programmers</li> <li>• Impart skills and knowledge to create and run Java programs for solving real time problems</li> </ul>									
UNIT	CONTENT									No. of Hours
<b>I</b>	<b>Basics</b>									13
	<ul style="list-style-type: none"> <li>• Introduction: Object Oriented Programming Concepts - Encapsulation, Inheritance, Polymorphism, Features of Java Language, Types of Java Programs, Java Architecture.</li> <li>• Literals, Data Types and Variables: Literals - Integer, Floating Point, Character, String and Boolean Literals, Data Types - Integer, Floating Point, Character and Boolean. Variables,</li> <li>• The Structure of A Java Program – Comments, Expressions and Statements, Type Conversion, Block Statements and Scope, Operators – Arithmetic, Bitwise, Relational, Boolean Logical and Ternary. Operator Precedence, Control Statements – If...Else, Switch, While, Do...While, For..., Break, Continue and Comma Statement, Arrays - One-Dimensional and Multi-Dimensional Arrays.</li> </ul>									
<b>II</b>	<b>Class, Inheritance, Packages</b>									12
	<ul style="list-style-type: none"> <li>• Classes: Defining A Class, The New Operator and Objects, The Dot Operator, Method Declaration and Calling, Constructors, Instance Variable Hiding, This in A Constructor, Method Overloading, Passing Objects as Parameters to Methods</li> <li>• Inheritance: Creating Subclasses, Method Overriding, Final Class, Final Method, Final Variables, Object Destruction and Garbage Collection, Recursion, Static Method, Static Variables and Static Block, Abstract Classes, Mathematical Methods</li> <li>• Packages and Interfaces: Package, The Import Statement, Access Modifier, Interfaces - Defining Interfaces, Implementing an Interface</li> </ul>									



	<ul style="list-style-type: none"> <li>• Wrapper Classes – The Number Class, The Character Class, The Boolean Class</li> </ul>	
III	<b>Exceptions &amp; Input and Output Classes</b>	13
	<ul style="list-style-type: none"> <li>• Exceptions: Types of Exceptions, Catching Exceptions - Nested Try Blocks, Hierarchy of Multiple Catch Blocks, Throw Statement, Creating your Own Exceptions, Throws Statement, The Finally Block, Checked and Unchecked Exceptions</li> <li>• Input and Output Classes - I/O Streams, The File Class, ByteStream - InputStream, OutputStream, DiskFileHandling - FileInputStream, FileOutputStream, FilteredByteStream – DataOutputStream, DataInputStream</li> </ul>	
IV	<b>Strings &amp; Threads</b>	12
	<ul style="list-style-type: none"> <li>• Strings: String Class - Equality Operator(==) and Equals Method, String Concatenation with +, StringBuffer Class, Threads - Multitasking, Creating a Thread, States of a Thread, Multithreaded Programming, Thread Priorities, Join Method, Controlling the Threads</li> </ul>	
V	<b>Applets &amp; Graphics</b>	14
	<ul style="list-style-type: none"> <li>• Applets: Applet Basics, Methods of Building an Applet, Some General Methods of Applet, Displaying Text in Status Bar, Embedding Applet Information, The HTML Applet Tag, Reading Parameters into Applets Graphics - Drawing Lines, Rectangles, Ovals and Circles, Arcs, Polygons and Polyline.</li> </ul>	
<b>Total Contact Hours</b>		<b>64</b>
<p><b>Text Book:</b> Introduction to JAVA Programming, K. Somasundaram, Jaico Publishing House, New Delhi, 2013.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Programming in Java2, K.Somasundaram, Jaico Publishing House, New Delhi, 2009.</li> <li>2. Java2: The Complete Reference, H.Schildt, 4/e, TMH Publishing Company, New Delhi,2001.</li> <li>3. Foundation Classes, Mathew T.Nelson, McGraw–Hill, 1998.</li> <li>4. Do ‘n’ Learn JAVA – A Practical Approach, K.Somasundaram, Anuradha Publications, Chennai, 2013.</li> </ol>		
<b>Course Outcomes</b>	<p><b>On completion of the course, students should be able to</b></p> <p><b>CO1:</b> Outline the concepts of OOP and basics of Java language features, types, control statements and array.</p> <p><b>CO2:</b> Grasped the idea of inheritance, package and identify classes, objects, member of a class and the relationship among them.</p> <p><b>CO3:</b> Discuss the implementation of exception handling and Input Output stream classes.</p> <p><b>CO4:</b> Describe the methods in String. Identify the use of threads to perform subtask and inter-thread communication.</p> <p><b>CO5:</b> Develop client side programming with AWT.</p>	