

		National Institute of Technology Meghalaya An Institute of National Importance											CURRICULUM				
		Programme Bachelor of Technology in Computer Science and Engineering					Year of Regulation 2019-20										
Department Computer Science and Engineering													Semester IV				
Course Code CS224		Course Name GUI Design and Programming							Credit Structure				Marks Distribution				
									L	T	P	C	INT	MID	END	Total	
									3	0	0	3	50	50	100	200	
Course Objectives		Course Outcomes		To introduce GUI programming in Java, ergonomic and usability principles of GUI design.		CO1		Able to explain fundamental concepts of GUI design and GUI design facilities in Java.									
				To train the students in using Java AWT and Swing GUI containers and components.		CO2		Able to use many Java GUI containers and components.									
				To train the students in event handling in GUI applications.		CO3		Able to do programming in Java for event handling.									
				To train in using different GUI layouts, look and feel, graphics and images in GUIs.		CO4		Able to use different GUI layouts, look and feel, graphics and images in GUIs.									
						CO5		Able to do error and exception handling for GUI programming and use some advanced GUI components/ widgets.									
		Mapping with Program Outcomes (POs)												Mapping with PSOs			
No.	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	CO1	3	2	1	1	1	0	0	0	0	0	0	0	1	1	0	
2	CO2	3	3	2	3	2	1	0	0	0	0	0	0	2	1	0	
3	CO3	3	3	2	3	2	1	0	0	0	0	0	1	2	2	1	
4	CO4	3	3	2	3	2	1	0	1	0	0	1	1	2	2	1	
5	CO5	3	3	2	3	2	1	0	0	0	0	1	0	2	2	1	
SYLLABUS																	
No.	Content													Hours	COs		
I	Introduction; Principles and Motivation of GUI Design: Fundamental Human Computer Interaction principles, Ergonomics and usability; Java event-driven programming summary; Java IDEs; Overview of AWT and Swing packages; AWT and Swing - introductory examples													09	CO1		
II	Components and containers: JComponent, JFrame, JWindow, JPanel, Content Pane; Introduction to event processing; Deployment of GUI application in jar and other executable formats; Some basic components: JButton, JLabel, JTextField, JTextArea, combo boxes, JMenu, check boxes, option buttons; Simple Swing dialogues; setting borders and styles; keyboard and mouse access, tab control; file selection													14	CO2, CO3		
III	Basic Layout Managers: Border, Flow, Grid, Card, Tabbed, GridBagLayout; Fonts; Colors; Spacing; Constraints; Dimensions; Look and Feel Drawing in Java: Graphics class; points; lines; shapes; affine transforms; colors; fills; working with images using BufferedImage													09	CO4		
IV	Error and exception handling; Advanced widgets: Swing spinner, slider, toolbar; progress bar, JList, JScrollPane, JTable													08	CO5		
Total Hours													40				
Essential Readings																	
1. E. Balagurusamy, "Programming with Java", McGraw-Hill Education, 6 th edition, 2019.																	
2. Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs, "Designing the User Interface: Strategies for Effective Human-Computer Interaction" Pearson Education India, 5 th edition, 2014.																	
3. Paul Deitel, Harvey Deitel, "Java How to Program: Early Objects", Pearson Education, 11 th edition, 2018.																	
Supplementary Readings																	
1. Yashavant P. Kanetkar, "Let us Java", BPB Publications, 4 th edition, 2019.																	
2. Herbert Schildt, "Java: The Complete Reference", McGraw-Hill Education, 9 th edition, 2017.																	
3. Cay S. Horstmann, "Core Java Volume II - Advanced Features", Pearson Education; 10 th edition, 2017.																	