M.L. Dahanukar College of Commerce (Autonomous)

Teaching Plan: 2025 - 2026

Department: I.T. **Class: S.Y.B.Sc.(I.T.)** **Semester: IV**

Subject: Java Coding and Development

Name of the Faculty: Snehal S. Borlikar

Month	Topics to be Covered	Internal Assessment	Number of Lectures
November	Module I: Unit 1: Java Programming Fundamentals: Introduction, OOPS Concepts, Packages		12
December	Module II: Unit II: Exception Handling, Multithreading and Collections, Exception Handling: Multithreading, Generic and Collections Framework.		8
January	Module III: Unit III: Java I/O, Swing and Event Handling: Java I/O, Introduction to JFC and Swing Module IV: Unit IV: Swing Controls, JDBC and Java11 features		15
February	Module IV: Advanced Swing Controls, JDBC Introduction, Java 11 features Module V: practical		10

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ML Dahanukar College of Commerce (Autonomous)

Teaching Plan: 2025 - 26

Department: I.T Class: S.Y.BSc.(I.T.) Semester: IV

Subject: Computer Graphics

Name of the Faculty: Ms. Rasika Sawant

Month	Topics to be Covered	Internal Assessment	Number of Lectures
November	**Unit I: Introduction to Computer Graphics and Scan Conversion:** **Introduction to Computer Graphics:** Overview of Computer Graphics, Computer Graphics Application and Software, Description of some graphics devices, Input Devices for Operator Interaction, Active and Passive Graphics Devices, Display Technologies, Cathode Ray Tube Basics, Storage Tube Graphics Displays, Calligraphic Refresh Graphics Displays, Raster Refresh (Raster-Scan) Graphics Displays, Color CRT, LCD displays, Raster Scan Basics: Video Basics, The Video Controller, Random-Scan Display Processor. **Scan conversion** – Digital Differential Analyzer (DDA) Algorithm, Bresenhams' Line drawing Algorithm. Bresenhams' method of Circle drawing, Midpoint Circle Algorithm, Problems of Aliasing, Clipping Lines Algorithms: Cohen-Sutherland and Liang-Barsky, Clipping Polygons: Sutherland–Hodgman Algorithm, Polygon drawing and filling algorithms, Scanline polygon fill, Boundary fill and flood fill		12
December	**Unit II: Two-Dimensional, Three-Dimensional Transformation, Light and Color:** **Two-Dimensional Transformations:** 2D Transformations, Homogeneous Coordinates and Matrix Representation of 2D Transformations, Translations and Homogeneous Coordinates, Rotation, Reflection, Scaling, Combined Transformation, Rotation About an Arbitrary Point, Reflection through an Arbitrary Line, The Window-to-Viewport Transformations. **Three-Dimensional Transformations:** Three-Dimensional Scaling, Three-Dimensional Shearing, Three-Dimensional Rotation, Three-Dimensional Reflection, Three-Dimensional Translation, Multiple Transformation, Rotation about an Arbitrary Axis in Space, Reflection through an Arbitrary Plane, Affine and		09

	Perspective Transformations. **Light:** Radiometry, Transport Equation, Photometry		
January	**Color:** Colorimetry, Color Spaces, Chromatic Adaptation, Color Appearance **Unit III: Visible-Surface Determination and Plane Curves and Surfaces and Computer Animation:** **Visible-Surface Determination:** Techniques for efficient Visible-Surface Algorithms, Categories of Algorithms, Back face removal, The z-Buffer Algorithm, Painter's algorithms (depth sorting), Area sub-division method, BSP trees, Visible-Surface Ray Tracing, Comparison of the methods, Lighting Models: Ambient, diffuse, specular reflection, Phong and Gouraud shading **Plane Curves and Surfaces**: Curve Representation, Nonparametric Curves, Parametric Curves, Parametric Representation of a Circle, Parametric Representation of an Ellipse, Parametric Representation of a Parabola, Parametric Representation of a Hyperbola, Representation of Space Curves, Cubic Splines, Bezier Curves, B-spline Curves, Quadric Surfaces. Bezier Surfaces.		13
February	**Unit IV: Computer Animation and Image Processing:** **Computer Animation:** Principles of Animation, Key framing, Deformations, Character Animation, Physics-Based Animation, Procedural Techniques, Tweening and Morphing Animation, Groups of Objects. **Image Manipulation and Storage:** What is an Image? Digital image file formats, Image Compression, Lossless vs Lossy Compression, Huffman Coding, Run Length Encoding, JPEG compression, Image Processing - Digital image enhancement in Spatial Domain, Contrast stretching, Thresholding, Histogram Equalization, Smoothing filter and Sharpening filter.		11

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M.L.Dahanukar College of Commerce (Autonomous)

Teaching Plan: 2025 - 26

Department: I.T. **Class: B.Sc.(I.T.)** **Semester: IV**

Subject: Software Engineering

Name of the Faculty: Priyanka Kathale

Month	Topics to be Covered	Internal Assessment	Number of Lectures
November	Module I: Introduction What is software engineering? Software Development Life Cycle, Requirements Analysis, Software Design, Coding, Testing, Maintenance. Software Requirements: Functional and Non-functional requirements, User Requirements, System Requirements, Interface Specification, Documentation of the software requirements. Software Processes: Process and Project, Component Software Processes. Software Development Process Models. · Waterfall Model. · Prototyping. · Iterative Development. · Rational Unified Process. · The RAD Model · Time boxing Model.		15
December	Agile Software Development: Agile methods, Plan-driven and agile development, Extreme programming, Agile project management, Scaling agile methods. Module II: Systems Engineering and Modeling Socio-technical System: Essential characteristics of socio technical systems, Emergent System Properties, Systems Engineering, Components of system such as organization, people and computers, Dealing Legacy Systems. Critical System: Types of critical system, A simple safety critical system, Dependability of a system, Availability and Reliability, Safety and Security of Software systems.		10
January	Requirements Engineering Processes: Feasibility study, Requirements elicitation and analysis, Requirements Validations, Requirements Management. System Models: Models and its types, Context Models, Behavioral Models, Data Models, Object Models, Structured Methods. Module III: UI Design and Project Management User Interface Design: Need of UI design, Design		12

	issues, The UI design Process, User analysis, User Interface Prototyping, Interface Evaluation. Project Management Software Project Management, Management activities, Project Planning, Project Scheduling, Risk Management.		
February	Quality Management: Process and Product Quality, Quality assurance and Standards, Quality Planning, Quality Control, Software Measurement and Metrics. Process Improvement: Process and product quality, Process Classification, Process Measurement, Process Analysis and Modeling, Process Change, The CMMI Process Improvement Framework Module IV: Software Verification, Testing and Estimation Verification and Validation: Planning Verification and Validation, Software Inspections, Automated Static Analysis, Verification and Formal Methods. Software Testing: System Testing, Component Testing, Test Case Design, Test Automation. Software Measurement: Size-Oriented Metrics, Function-Oriented Metrics, Extended Function Point Metrics.		10
March	Software Cost Estimation: Software Productivity, Estimation Techniques, Algorithmic Cost Modelling, Project Duration and Staffing.		03

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M.L. Dahanukar College of Commerce (Autonomous)

Teaching Plan: 2025 - 26

Department: I.T. **Class: S.Y.B.Sc.(I.T.)** **Semester: IV**

Subject: STATISTICAL ANALYSIS

Name of the Faculty: Mrs. Manisha Warekar

Month	Topics to be Covered	Internal Assessment	Number of Lectures
November	Measures of Central Tendency, Measures of Dispersion		8
December	Correlation & Regression		6
January	Large Sample Tests		8
February	Small Sample tests, Chi-Square test		8

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M.L.Dahanukar College of Commerce (Autonomous)
Teaching Plan: 2025 - 26
Department: B.Sc.IT Class: SY.B.Sc.IT Semester: IV
Subject: Customer Relationship Management

Name of the Faculty: Ms. Siddhi Kadam

Month	Topics to be Covered	Additional Activities planned / done	Number of Lectures (of 60 minutes)
November	CRM – Meaning, Objectives, Evolution, Role of CRM in Customer Loyalty, 3 Key Components of CRM-People, Process, Technology, Steps in implementation of CRM, Customer Data Management- Importance, components, Challenges, Customer Segmentation -Meaning and Basis, Customer Targeting – Concept, Importance and challenges, Role of CRM in Relationship Marketing.	Group Activity	08
December	CRM- Models, Factors affecting selection of model, CRM tools, Barriers in implementation of CRM and ways to overcome barriers.	Group activity	04
January	CRM strategy cycle, Customer Loyalty Programmes – Concept and Types, Components of CRM Planning and Implementation, CRM Evaluation – Meaning, Importance, Basic and Company 3E measures.	Case study	08
February	E-CRM Concept, Levels, Importance of data protection and privacy, Software App for Customer Service, Social Networking and CRM, Mobile-CRM, CRM Trends, Challenges and Opportunities, Ethical Issues in CRM.	Assignment	10
	Total Lectures		**30**

Ms. Siddhi Kadam
(Faculty)

Ms. Archana Talekar
(Coordinator)

M.L. Dahanukar College of Commerce (Autonomous)
Teaching Plan: 2025 - 26
Department: I.T. Class: S.Y.BSc.(I.T.) Semester: IV

Subject: Embedded Systems: Principles and Practices

Name of the Faculty: Mr. Amit Bane

Month	Topics to be Covered	Internal Assessment	Number of Lectures

November	**<u>Introduction to Embedded Systems:</u>** Embedded Systems and General-Purpose Computer Systems, history, classifications, applications, and purpose of embedded systems.		6
December	**Core of Embedded Systems:** Microprocessors and microcontrollers, RISC and CISC controllers, Application-specific ICs. Programmable logic devices, sensors, and actuators.		6
January	**<u>Embedded Hardware & Communication Protocol:</u>** Memory map, i/o map, interrupt map, processor family, external peripherals, memory – RAM, ROM, types of RAM and ROM, memory testing. Timer Driver - Watchdog Timers.		8
February	**Communication Protocol:** SPI (Serial Peripheral Interface), Bluetooth, Wi-Fi, and RFID. Understanding Serial,		6
March	Communication, Bluetooth Communication, SPI Interface, ZigBee, Wi-Fi, I2C, Infrared, RFID, GSM, GPS.		4

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M. L. Dahanukar College of Commerce (Autonomous)

Teaching Plan: 2025 - 26

Department: SY BSc IT **Class: SY BSc IT** **Semester: IV**

Subject: शासकीय मराठी **Name of the Faculty:** सुहास सू. आजगांवकर

Month	**Topics to be Covered**	**Additional Activities planned / done**	**Number of Lectures (of 60 minutes)**
November	**घटक-१ संक्षेपण कौशल्ये आणि कार्यालयीन भाषा आणि शिष्टाचार** १.संक्षेपण कौशल्ये आणि कार्यालयीन भाषा	**प्रश्नमंजूषा** (Quiz)	02
December	२.शासकीय परिभाषा आमि तांत्रिक संज्ञा, ३. महितीचे संक्षेपण आणि प्रभावी सादरीकरण	**वाचन** (Reading)	02
January	**४. बैठकीतील मराठी भाषा आणि भाषण कौशल्य,** **५. ई -मेल, मेमो, आणि पत्रव्यवहारातील शिष्टाचार** **६. नोंदवही लेखन.** **७. फाईल प्रक्रियेसाठी भाषा.**	**अनुवाद लेखन** (Translation)	10
February	**घटक -२ डिजिटल प्रशासनातील मराठीचा वापर-** **१.डिजिटल प्रशासनातील मराठीचा वापर.** **२.शासकीय संकेतस्थळावरील मराठी भाषा आणि संज्ञा** **३.ई- गर्व्हनन्स आणि डिजिटल दस्तऐवज लेखन.**	**सादरीकरण** **(Presentation)**	10
March	४. संगणकीय अनुवाद साधने आणि त्यांचा उपयोग.	**सादरीकरण** **(Presentation)**	06
	Total Lectures		**30**

सुहास सू. आजगांवकर **Archana Talekar**

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