

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER
DEPARTMENT OF ELECTRONICS & COMPUTER ENGINEERING
COURSE OUTCOMES (CO)
TE. 2024 Course

1. Database Management (PCC-301-ECE), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
CO1.1	Describe the fundamental concepts of database management systems, including data models, ER/EER modeling, and relational database design principles	1,2
CO2.2	Apply normalization techniques to design efficient relational database schemas and maintain data consistency and integrity.	1,2
CO3.3	Develop and execute SQL and PL/SQL programs for querying, manipulating, and managing relational databases effectively	3
CO4.4	Understand & Analyze transaction management, concurrency control, and recovery techniques to ensure reliable and secure database operations.	4
CO5.5	Evaluate different NoSQL database models and their applications in managing large-scale and unstructured data systems	5

2. Microcontroller and Applications (PCC-302-ECE), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C304.1	Understand the architecture, memory organization, instruction set, and operational features of the 8051 microcontroller.	1,2
C304.2	Describe system development tools and develop C programs for peripheral interfacing applications.	1,2,3
C304.3	Design and implement interfacing to real world devices using 8051 microcontroller.	3
C304.4	Understand the architecture of RL78 microcontroller and its interfacing, timers, interrupts, and digital peripheral devices.	1,2
C304.5	Design industrial and real-time embedded systems using the RL78 microcontroller for automation and monitoring.	6

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3. Advanced Java Programming (PCC-303-ECE), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
CO1	Apply Java Collection Framework and Java 8 features such as Lambda expressions, Stream API, functional interfaces to develop efficient Java applications.	3
CO2	Develop database-driven applications using JDBC architecture and Hibernate framework for efficient data persistence and management.	3
CO3	Design and implement dynamic web applications using Servlet technology and web architecture concepts.	4
CO4	Create interactive and user-friendly web pages using JSP technology and implicit objects.	4
CO5	Develop enterprise-level Java applications using Spring Framework concepts such as Dependency Injection, MVC, and bean management.	4

4. PLC Automation and Sensors (PEC-321D-ECE), TE - Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
CO1	Explain the architecture, components, memory organization, operation, and selection criteria of PLCs and compare PLC-based systems with conventional control systems.	2
CO2	Develop and analyze PLC programs using ladder logic, timers, counters, arithmetic, comparison, and data handling instructions for industrial automation tasks.	2,3,4
CO3	Describe process control techniques, SCADA, HMI systems, and demonstrate PLC interfacing for monitoring and control applications.	2,3
CO4	Identify, classify, and select suitable sensors and transducers for measurement of displacement, speed, and other industrial parameters.	2,3
CO5	Design and implement PLC-based automation solutions for industrial applications such as traffic light control, motor control, bottle filling, elevator systems, and room automation.	5,6

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5. Sustainable Development (OLE 341 ECE), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
CO1	Identify sustainability concepts and environmental impacts of AI and computing systems.	1
CO2	Analyze lifecycle impacts and circular economy practices in IT systems.	2
CO3	Apply energy-efficient software and sustainable AI design techniques.	2
CO4	Evaluate sustainable infrastructure, carbon metrics, and reporting frameworks.	5

6. Intelligence and Data Science (MDM-331-ECE), TE-Sem-V

After successfully completing the course students will be able to,

Co. No.	Description	Bloom's Taxonomy Level
C4O1.1	Install and configure AI & Data Science software environments including Anaconda, PyCharm, and associated Python packages.	3
C4O2.2	Utilize multiple IDEs and cloud platforms (Jupyter Notebook, Google Colab, VS Code, Kaggle) to develop and run data science workflows.	3
C4O3.3	Apply Python data engineering libraries — NumPy, Pandas, Scikit-learn — to process, clean, and model real-world datasets.	3
C4O4.4	Design and build analytical dashboards and visualizations using Matplotlib, Seaborn, Plotly, and Power BI for effective data storytelling	6