| GANPAT UNIVERSITY | | | | | | | | | |
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| FACULTY OF ENGINEERING & TECHNOLOGY | | | | | | | | | |
| Programme | Master of Technology | | | | | Branch/Spec. | Electronics and Communication Engineering – Embedded Systems | | |
| Semester | III | | | | | Version | 1.0.0.0 | | |
| Effective from Academic Year | | | 2027-28 | | | Effective for the Batch admitted in | | | July 2026 |
| Course Code | 3ES3101 | | Course Name | | | Dissertation Part-I | | | |
| Teaching Scheme | | | | | | Examination Scheme (Marks) | | | |
| (Per week) | Lecture (DT) | | Practical (Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | - | - | 14 | - | 14 | Theory | - | - | - |
| Hours | - | - | 28 | - | 28 | Practical | 200 | 200 | 400 |

Pre-requisites

- Students should have successfully completed all core courses of the M.Tech Embedded Systems curriculum, including Embedded C Programming, ARM Cortex Processor Architecture, RTOS, Embedded Linux, IoT Systems, Communication Protocols, and Advanced Embedded Systems.
- Students are expected to possess skills in literature survey, problem identification, technical writing, simulation/modeling tools, and basic research methodology.

Course Outcomes

On successful completion of the course, the students will be able to:

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| CO1 | Identify and formulate a research problem in the domain of Embedded Systems. |
| CO2 | Conduct an extensive literature survey and analyze existing methodologies. |
| CO3 | Develop system specifications, architecture, and design methodology for the proposed work. |
| CO4 | Demonstrate initial implementation, simulation, prototyping, and validation of the proposed solution. |

Theory Syllabus

| Unit | Content | Hrs. |
|---|---|---|
| 1 | NOTE:<br><br>Each student is required to carry out an extensive dissertation work in the domain of Embedded Systems, which may involve system design, hardware/software implementation, simulation, prototyping, algorithm development, performance evaluation, or analysis of a defined research problem. The dissertation topic should be relevant to emerging areas such as Embedded Systems, IoT, Edge AI, Embedded Linux, RTOS, Cyber-Physical Systems, Automotive Electronics, Industrial Automation, Embedded Security, FPGA-Based Systems, or allied fields.<br><br>During Dissertation Part-I, the student shall perform a comprehensive literature survey, identify the research gap, formulate the problem statement, define objectives, and prepare the methodology for solving the identified problem. The work shall also include requirement analysis, feasibility study, system architecture design, project planning, and preliminary implementation/simulation.<br><br>At the end of the semester, the student is required to submit a detailed dissertation report comprising literature review, problem formulation, design methodology, system architecture, feasibility analysis, preliminary results/simulation outcomes, and | 28 |

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| | future work plan. The student shall also present the progress of the dissertation work through a seminar and viva-voce examination. | |

| Mapping of CO with PO and PSO : | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| CO1 | 3 | 3 | 2 | 1 | - | - | - | - | - | - | - | 2 | 3 | 3 | 2 |
| CO2 | 3 | 3 | - | 2 | 1 | - | - | - | - | - | - | 3 | 3 | 3 | - |
| CO3 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 1 | 2 | 2 | 3 | 3 |
| CO4 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | 1 | 1 | 2 | 2 | 2 | 3 |