

Detailed Design Report Guidelines

(Max. 25 pages)

Pre-requisites: You must review the **EEE 392 course materials** and **video lectures** available on the [EEE 392 YouTube Channel](#) prior to developing your report.

Note: Key components from your **Conceptual Design Report** should be refined, improved, and seamlessly integrated into this **Detailed Design Report**.

The report must contain

- Front page
- Content page
- Executive Summary (A concise overview of the report. It must outline the project's scope, general content, milestones/progress achieved, and primary conclusions.)
 1. Introduction, Needs Identification, Problem Statement & Objectives
 2. Research, Technology Survey and Background Information including the definition of the State Of The Art
 3. Requirement Specifications (Engineering and Marketing requirements)
 4. Constraints, Standards and Certification
 5. Sustainable Development Goals (SDG)
 6. Detailed Design (Including Concept Generation and Evaluation)
- Level 0 Design: The highest-level system view. This includes the overall system description, input/output definitions, core functionality, and the decomposition of system-level requirements into sub-system requirements (to feed into Level 1 Design).
- Level 1 Design: Functional decomposition of the system (employing a "divide-and-conquer" approach) into distinct sub-systems based on the Level 0 architecture. This section must detail sub-system inputs, outputs, functionalities, and interfacing.
- Level 2 Design: Finalized, component-level detailed design. At this stage, the design must be ready for implementation (EEE 492). It should include
 - o Device and component sizing and selection (specifying model numbers) with clear engineering justifications.
 - o Development of simulation models and Demonstration of major or critical operations via simulations (where applicable).
 - o Identification of all components, modules, and sub-modules, along with market availability verification (ready for procurement, such as a BOM list, which can be included in the appendix).
 - o Hardware implementation
 - o Laboratory testing and results.

Methodological Proofs Required in the Design Stages

- Concept Generation: Evidence of how concepts were generated and selected (e.g., benchmarking existing products, brainstorming sessions, Nominal Group Technique, concept screening/scoring matrices, etc.).
 - Behavioral Modeling: Implementation of behavioral models to illustrate system logic (e.g., UML diagrams, class diagrams, use cases, state machine diagrams, activity diagrams).
 - Test Plans: Comprehensive testing strategies derived from the Level 2 design, including unit tests, module tests, functional tests, and integration tests.
7. Project Plan
 - Work Breakdown Structure (WBS)

- Work Packages (defining activities, responsibilities, timelines, dependencies, deliverables, and budget allocations for each element)
 - Gantt Chart
8. Risk Analysis & Contingency Plans (Plans B & C)
 9. Cost Analysis & Commercialization Plan
 10. Conclusions
 11. References

Appendix (*Team working proofs shall be provided in the form of pictures or videos shared via internet links*)

See **Detailed Design Report Grading Criteria.**