Course Outline

Course Description

This course initiates the development and documentation of a major technical design project. Learners are responsible for choosing a senior technical project, monitoring their own progress, and reporting to their applied research instructor in oral and written form on a regular basis. Learners will have two options in this course. They may select a technical project in an area of interest and work on research on campus or they may choose to work with an industry mentor who will assign them a project in industry. In both cases, Learners will use problem solving techniques and formal design procedures to solve an engineering problem. Learners may consult with the campus faculty for advice and support as required. Learners will continue to develop technical research and documentation skills. They will prepare and present a variety of technical documents including a proposal and progress reports. They will also participate in a Preliminary Design Review. Periodic project progress meetings will be held in class.

Rationale

This course prepares the learner for research and design activities and preparing documentation typically found in a technical environment. They will need to learn all aspects of managing a project from clarifying objectives to completing the design to documenting and writing the final report.

Learning Outcomes

Learners will have demonstrated the ability to:

1. Use problem solving skills and formal design procedures.

2. May consult with industry as part of the research and project development process.

3. Use manufacturers’ support lines, manuals, trade journals, and publications.

4. Use recognized research procedures.

5. Produce research documents and documentation.

6. Use graphics in document design.

7. Apply the principles of project management to the technical research and design project including developing a work plan and timeline.

8. Maintain a research journal and work log.

9. Document all aspects of a technical project from proposal to project completion.

10. Participate in a project progress meeting.

11. Present technical information in written and oral form to audiences of varying technical levels.

12. Manage time effectively.

13. Assess own performance.

14. Organize tasks and take initiative when required to work independently.

Workplan

A workplan for this course is attached and will be reviewed by your faculty member(s) within the first week of class study.

Evaluation Scheme: Evaluated By:

Letter of Intent/Gantt Chart ..................................................... 10% (Technical Advisor)

Overview Presentation ........................................................... 15% (Technical Advisor)

Project Written Report Submission – Draft ............................ 10% (Technical Advisor)

Technical Milestones (3 x 10%) ............................................. 30% (Technical Advisor)

Project Written Report submission ......................................... 20% (Technical Advisor)

Engineering Design Review ................................................... 15% (Technical Advisor)

Total ..................................................................................... 100%

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| Week/Unit | Topics/Description | Relevant  Learning  Outcome(s) | Value/Evaluation/ Due Dates (if applicable) |
| C51 Week 1 | Review Course Outline Project Review |  |  |
| C51 Week 2 | Research/Writing – Background to Project | 1 |  |
| C51 Week 3 | Letter of Intent (LOI) submission/Gantt and Technical Milestone Summary due | 1,3 | (10%) |
| C63 Week 1 | Applied Research | 1,2 |  |
| C63 Week 2 | Project Overview Presentation Project written report - Draft | 3 | (15%)  (10%) |
| C63 Week 3 | Design Milestone 1 | 1,2,3 | (10%) |
| C63 Week 4 | Applied Research | 1,2 |  |
| C63 Week 5 | Applied Research | 1,2 |  |
| C63 Week 6 | Design Milestone 2 | 1,2,3 | (10%) |
| C63 Week 7 | Applied Research | 1,2 |  |
| C63 Week 8 | Engineering Design Reviews | 3 | (15%) |
| C63 Week 9 | Design Milestone 3 | 1,2,3 | (10%) |
| C63 Week 10 | Project Written Report Submission | 1,2 | (20%) |