Capstone Project

Capstone projects are a required element of the Master of Engineering degree. The MEng is focused on the practice of engineering rather than research or the generation of new knowledge. The capstone project is likewise focused on the application of principles and the practice of engineering and is not meant to be a mini-thesis. The capstone projects provide a mechanism to demonstrate a synthesis of knowledge and the application of advanced concepts learned in class to a specific problem.

With the School advisor’s approval, students can choose: 1) to complete a project, 2) a final comprehensive exam, 3) to perform an internship or 4) to prepare a written paper under the supervision of the advisor.

Faculty and in many cases professionals in the workforce will oversee and guide the capstone experience. Students who are working professionals will likely apply the skills developed through the MEng program to a specific issue faced within the work setting.

Students who are not yet in the workforce can apply the skills and knowledge acquired in the program to a known problem in order to develop an appropriate solution. These students could also work with faculty to develop a solution to an issue faced in a lab or research group. These students could also review one or more recent publications in an area of interest and provide a critical review / analysis of the publication(s) using knowledge and skills gained through the program. Students may also choose to incorporate their project in an internship experience. In these cases the project would demonstrate how the knowledge and skills acquired in the program were applied during the internship.

Guidelines for the Project

- The project should be commensurate with a 3 credit hour graduate course. Projects that include significant data collection, extended collaborations, travel, and / or extensive analysis can be more than 3 credit hours (this is the exception).
- The project is not a thesis addressing a research issue. It is an application of knowledge and skills gained as part of the Master of Engineering program.
- The project should demonstrate a synthesis of knowledge and an application to a practical engineering or science problem.
- The capstone project includes a written report and a presentation. The report will be read by the faculty advisor and a representative from the Office of the Associate Dean for Research and Graduate Studies. If the project is performed in conjunction with work duties, the report and presentation should also be given to the student’s employer.
- The topic and scope of the project shall be agreed upon by the student and the project advisor. If the project is performed in conjunction with work duties, the scope shall also be agreed upon by the student’s employer.
- A formal, written description of the project that includes: topic addressed, work expected to be performed, and expected outcomes shall be submitted by the student to the capstone advisor by the completion of the 2nd week of the term. This should be about 1 page in length.
- A written summary of the progress on the project including work performed to date and plans for completion shall be submitted to the capstone advisor by the completion of the 10th week of the term. This should be about 1 page in length.

Guidelines for the Report
• The report is to be prepared as a Word or equivalent document, single spaced, with one inch margins.
• Proper attention must be given to grammar, punctuation, and structure of the document.
• The report should contain the following or the equivalent:
  – Cover page with student’s name, title of the report, date submitted and the statement “Submitted as the Capstone Project for the Master of Engineering Degree”
  – Abstract that succinctly describes the problem addressed, the methods used, and the results
  – Introduction that provides sufficient background to allow the reader to understand the problem, the constraints and relevant characteristics of the project
  – Methods or Approach or Analysis (as appropriate) that describes how the problem was addressed. This section should provide details on how the skills and knowledge gained through the MEng program contributed to the solution.
  – Results obtained through the project
  – Discussion of the efficacy of the approach, lessons learned through the project, areas for improvement, additional work that could be performed
  – Bibliography of references cited

• The reports are not graded on length but they are a significant part of the grade for the Capstone Project and as such should be of sufficient detail to demonstrate a student’s application of knowledge and skills to a problem of significance.
• Inclusion of tables and figures is encouraged. These should be numbered, labeled and referenced in the text.
• Students must submit original material. The work of others must be properly cited.
• The report will be graded on completeness, clarity, and grammar.

Guidelines for the Presentation
Professionals in the workforce are often called upon to present their work or recommendations regarding technical issues. In many instances, the amount of time a manager can allow is limited and it is necessary for the technical professional to present a clear and compelling description in a condensed time frame. The project presentation provides an opportunity to give such a presentation. It is important that the students carefully plan the presentation and rehearse it in order to do a professional job.

• The presentation should be prepared for a general technical audience unfamiliar with the particular topic addressed.
• Presentation materials are to be prepared and copies made available during the presentation.
• The presentation should be approximately 20 minutes in length and address the same points as the report.
• The student will be expected to answer questions after the presentation.
• The presentation will be graded on clarity, completeness, timeliness and proper preparation.

Students Electing Internship as the Capstone
The guidelines described above also apply to students who wish to complete an internship as the capstone. The report shall include details of the internship experience indicating the nature of the work and indicate how learning and experiences in the Master of Engineering program were applied to the internship experience. A formal written description of the position and duties shall be provided to the capstone advisor by the completion of the 2nd week of the term and a summary of work performed to date shall be provided to the capstone advisor by the completion
of the 7th week of the term. The presentation can be made when the student returns from the internship, or arrangements can be made to give the presentation remotely. This shall be agreed upon by the student and the capstone advisor.

**Grading**
A grade for the project will be assigned by the faculty advisor based on the following:

- 50% for successful completion of the project
- 30% for the report
- 20% for the presentation

Projects will be eligible for Pass/Fail Grading based on the above criteria. A grade of 70 and above will be considered passing.