

1. Goals and Expected Outcomes of the MQP

This manual was developed to:

- Help you find and complete an MQP that will satisfy both the IE program's and your own educational objectives. In IE, the MQP should satisfy the requirement for a capstone design experience.
- Describe the elements of the MQP experience, which can be used by both faculty and students as a standard for setting expectations and evaluating outcomes.

What are the outcomes (or objectives) that we have for your MQP? The MQP is described in the Undergraduate Catalog as:

The Major Qualifying Project should demonstrate the application of skills, methods, and knowledge of the discipline to the solution of a problem which would be representative of the type to be encountered in one's career.

Your MQP is expected to be an experience that will help you to begin the transition from undergraduate academic life to the commercial world or graduate school. As a capstone design experience, your project will involve developing a system, component or process to meet a desired need. What this means is that you will be creating, rather than only studying, something and you will work with a client who defines a need. Most IE MQPs are sponsored by organizations external to WPI, but your client may also be an internal WPI group. The project is an opportunity to strengthen technical, communication, interpersonal, and project management skills. Specifically, we expect that the project experience will provide you with the opportunity to learn and demonstrate the following outcomes:

- An ability to design and improve integrated systems of people, materials, information, facilities and technology.
- An ability for creative thinking.
- An ability to apply core industrial engineering concepts, using updated techniques, skills and tools.
- An ability to incorporate realistic constraints (if appropriate) such as safety, reliability, sustainability, ethics and social impact.
- An ability to analyze data and draw supported conclusions
- An ability to formulate an engineering problem and generate alternatives.
- An ability to develop problem objectives and criteria for judging solutions.
- An ability to take the initiative.
- An ability to plan and organize work.
- An understanding of professional and ethical responsibility.
- An ability to gather data from a wide variety of sources (books, journals, the internet).
- An ability to apply knowledge not likely obtained from prior coursework

Because it is equivalent to three courses, your MQP is an important part of your IE degree requirements. The MQP provides you with the opportunity to deepen your understanding of the theory you've been exposed to in courses by applying it in a real-world setting. You should expect to learn (in many cases, on your own) subject matter not covered in courses as well as to experience frustrations when you encounter constraints.