



The Process of Sponsoring an MFGE Senior Project

Summary of sponsor responsibilities, roles and the timeline associated with sponsoring a senior project.

From:

Introduction

Thank you for supporting the Engineering & Design programs at Western Washington University by sponsoring a Senior Project. A successful Engineering program combines what is learned in the classroom and experienced in the lab with real-world manufacturing and design problems. It is essential to sponsor projects that focus on one or more of the four pillars of manufacturing engineering body of knowledge defined by the Society of Manufacturing Engineers (SME)*. These four pillars are materials and manufacturing processes, product tooling and assembly engineering, manufacturing systems and operations, and, manufacturing competitiveness. It is crucial that we continue to offer challenging and suitable projects to our seniors in order to provide them with the practical experience in manufacturing engineering in addition to valuable experience in project management, technical writing, synthesizing many different concepts from their education, working on a team and individually, and communicating with suppliers and customers. Additionally, the output from this experience (reports, prototypes, tooling, etc.) may become a major component of their portfolio during their first job search.

This letter is to inform you of the Senior Project process and your responsibilities as the sponsor. It briefly outlines the schedule for the three academic terms involved in the completion of Senior Project.

If you are sponsoring a Senior Project/Internship, please see the “Additional Information about Sponsoring a Senior Project/Internship” document for supplementary information.

Confidentiality Issues

Confidentiality issues should be discussed and defined prior to the start of the senior project process. The following are things that can be done to ensure the confidential nature of the project:

- Signing of a non-disclosure agreement by the student and the associated faculty advisors.
- Sponsors may provide the student with a secured network sharing site for project documentation, secured jump drive, and/or a secured company computer for project work.
- Restrict the audience during the presentation.
- Approval of the output(s) by the sponsor.

Although this does not alleviate all issues associated with working on confidential projects in an academic setting it can provide protection to aid in the security of information.

Schedule

*A complete description of the SME manufacturing engineering BOK is listed in the appendix

1 for senior projects. The first column
s run each year from approximately
Sept. 25 – Dec. 13, Jan. 7- Mar. 21, and Apr. 1 – June 13. Students are expected to spend approximately 210 hours for the entire project, including proposal and implementation.

Project Research, Planning, And Ethics (MFGE391)

The student will explore profession and ethical responsibilities, discussion concerning contemporary issues, and the impact of engineering solutions in a global context. Also, the student will learn project planning and research skills. The student will develop the first draft of problem definition, develop specifications, investigate and report multiple preliminary solutions.

Date	Proposal Quarter Activity Directly Related to Senior Project
2 nd Wk	Explore projects and choose/interview for a project
3 rd Wk	Sign contract with the industrial sponsor (signed/approved by sponsor).
7 ^t Wk	Turn in the first draft of research literature review and Analysis
9 th Wk	Turn in proposal draft

Project Proposal (MFGE392)

The student will develop the final draft of the problem definition, develop specifications, investigate and present multiple solutions, select the best solution and develop an implementation plan including a timeline and budget. The majority of the projects are process design, process investigation, product design, material investigation, or tool design. Each project has a specific problem that needs to be solved. Students are expected to spend approximately 70 hours during this phase.

Date	Proposal Quarter Activity
3 rd Wk	Oral presentations – formal presentation for 15 mins with 10 mins for questions. Sponsors are encouraged to attend. A Resource Authorization Form is sent from the student to sponsor, providing written agreement of all resources (i.e materials, equipment) and costs associated with the project.
5 th Wk	Action Memo is sent to the industrial sponsor for input/feedback
8 th Wk	Final oral presentations – formal presentation for 15 mins with 10 mins for questions. Sponsors are encouraged to attend. A Resource Authorization Form is sent from the student to sponsor, providing written agreement of all resources (i.e materials, equipment) and costs associated with the project.
9 th Wk	Proposal final draft sent to industrial sponsor for input on the plan. Student evaluation form sent, asking for feedback on the student's performance and progress to date.
11th Wk	An electronic copy of the final report is sent to the industrial sponsor for input on the plan. Feedback form sent, asking for feedback on the proposed plan.

Project Implementation (MFGE393)

In this phase of the senior project, the plan developed during the previous quarter is implemented. Characterization or processing can be performed using the equipment here at WWU. At the end of the project, the student will submit all project documentation, including a final report, presentation and poster to the faculty advisor. The major indicator of the student's success is how well he/she met the quantified objectives stated in the proposal and the quality of the deliverables to the sponsor (tooling, prototypes, data, documents, etc). Students are expected to spend approximately 140 hours during this phase.

Date	Implementation Quarter Activity
8 th Wk	Feedback form sent to industrial sponsor asking for feedback.
10 th Wk	Oral presentations – formal presentation for 15 mins with 10 mins for questions. Sponsors are encouraged to attend.
11 th Wk	Final report, journal and poster due to faculty advisor. An electronic copy of the report is emailed to the industrial sponsor. Feedback form sent asking for feedback on the student.

Industrial Sponsor Role/Responsibilities

The expectations of the industrial sponsor of a Senior Project are as follows:

1. Communicate with student.

These communications need to include the following topics:

- The problem that needs to be solved must be clearly defined and a thorough understanding of the project scope by the student, faculty advisor, and sponsor must be ensured.
- The senior project process will be performed over the course of three academic terms. Students are expected to spend 70 hours over a 10-week period developing a project plan and 140 hours over an 11-week period implementing the project plan.
- The student should be notified of any prior research and experimentation performed by the sponsoring company that is related to the project. This will aid the student in defining their project objectives.
- Notification of equipment and human resources that are available by sponsor's facility for use during the project.
- Confidentiality Issues.

2. Finance any consumables

The student is required to develop a detailed cost analysis outlining the estimated total cost of implementation. Any materials, cutting tools, or other supplies that are needed for the project will be provided by the sponsor directly or paid for by the sponsor. Any unused supplies can be returned to the sponsor if desired. Most of the facilities at WWU's ET department are available to the student to work on your project. There is a \$500.00 fee for student's use of ET facilities for the project. This fee covers expenses such as consumables, machine maintenance, and calibration.

3. Sign the project agreement.

The student will present you with a project agreement that briefly outlines the problem to be solved and the expected outcomes with estimated due dates. The purpose of the project agreement is to provide a means for the student, industrial sponsor, and faculty advisor to collectively understand the project expectations. This document is also used to clearly define and discuss all confidentiality issues.

4. Give feedback to the faculty advisor.

An important component of maintaining a successful Senior Project is to maintain communication between the sponsor and the faculty advisor. This communication includes discussion about the project details, student's performance, issues about confidentiality, organization/management of the Senior Project program, and avenues for the sponsor to assist the program. A copy of the form that will be mailed at the end of each quarter is enclosed.

There are also some activities that we recommend Industrial Sponsor get involved in.

1. Attend the oral presentations. The format of the oral presentations of the Proposal (second quarter in the series) is similar to an engineer presenting a proposal to his colleagues and superiors in the engineering or manufacturing

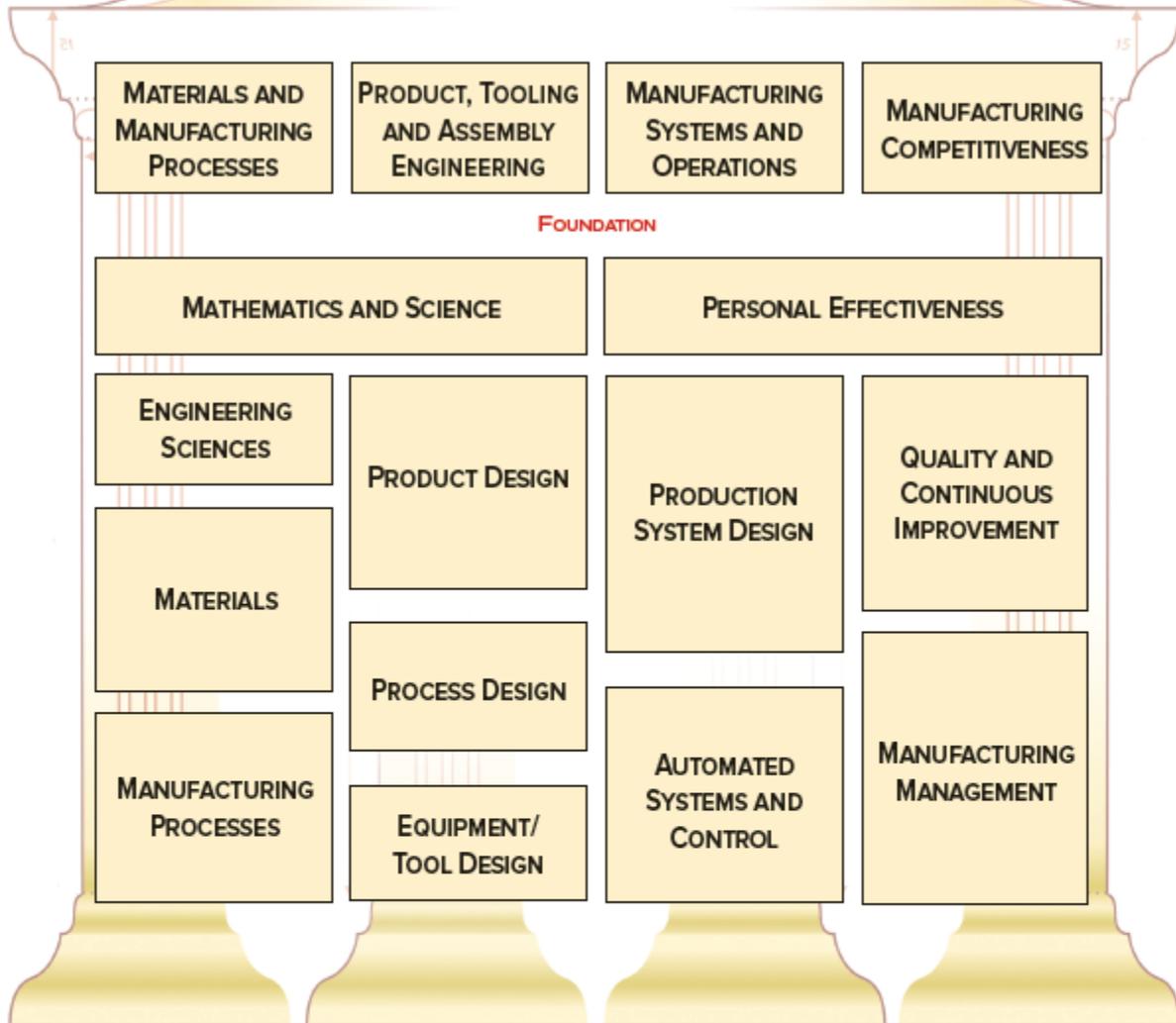
department. The student presents the problem, gives background, presents many solutions and an analysis of each, and then details that solution that the student proposes to implement. The audience asks questions and gives feedback regarding their opinion about the solution proposed and the details of the implementation. This forum is an excellent way to give feedback to your student prior to the start of the implementation. The oral presentations of the third quarter are a summary of the entire project, focusing more on the results and analysis of the implementation phase.

2. Host an oral presentation. An additional option is to have the student perform their oral presentation to the sponsor and staff at the sponsor's facility.

3. Learn more about the Engineering& Design Department. Increased understanding of the facilities, faculty, students, and capabilities of the E&D department will allow the sponsor to better evaluate internal projects for their appropriateness for future Senior Projects. Additionally, there may be other opportunities for the ET department to work with the sponsor in areas other than Senior Project. Senior projects commonly lead to future opportunities for the student (or a different student) within the sponsor's company in a permanent position. Any financial or in-kind donations to the E&D department or MFGE program are always greatly appreciated. These types of donations are necessary for the survival of this program.

FOUR PILLARS OF MANUFACTURING KNOWLEDGE

PRODUCT PRODUCING ENTERPRISE



THE FOUR PILLARS OF MANUFACTURING KNOWLEDGE PROVIDES A MODEL OF FUNDAMENTAL KNOWLEDGE FOR MANUFACTURING PRACTITIONERS.

WHAT IS IT?

Visually presents breadth of manufacturing engineering and technology based on accreditation criteria and the SME Certification Body of Knowledge. Across the top are the four proficiencies of the ABET Program Criteria for Manufacturing Engineering and Manufacturing Engineering Technology. The topics from the SME Certified Manufacturing Engineer and Technologist Body of Knowledge are shown aligned under each proficiency.

WHO SHOULD USE IT?

Industry professionals and engineering and technology education program leaders and faculty.

HOW CAN YOU USE IT?

Help update manufacturing curricula. Review engineering and technology curricula for topics aligned to industry needs and determine depth of coverage needed. Encourage manufacturing content in non-named-manufacturing programs. Increase understanding of capabilities of manufacturing graduates. Describe manufacturing to attract students through better image. Communicate with media and the public about manufacturing programs.

THE EXTENT TO WHICH A CURRICULUM COVERS ANY INDIVIDUAL SUBJECT MATTER TOPIC DEPENDS UPON THE GOALS OF THE PROGRAM AND THE DEGREE LEVEL AT WHICH IT IS OFFERED.

DOWNLOAD AT:
SME.ORG/FOURPILLARS



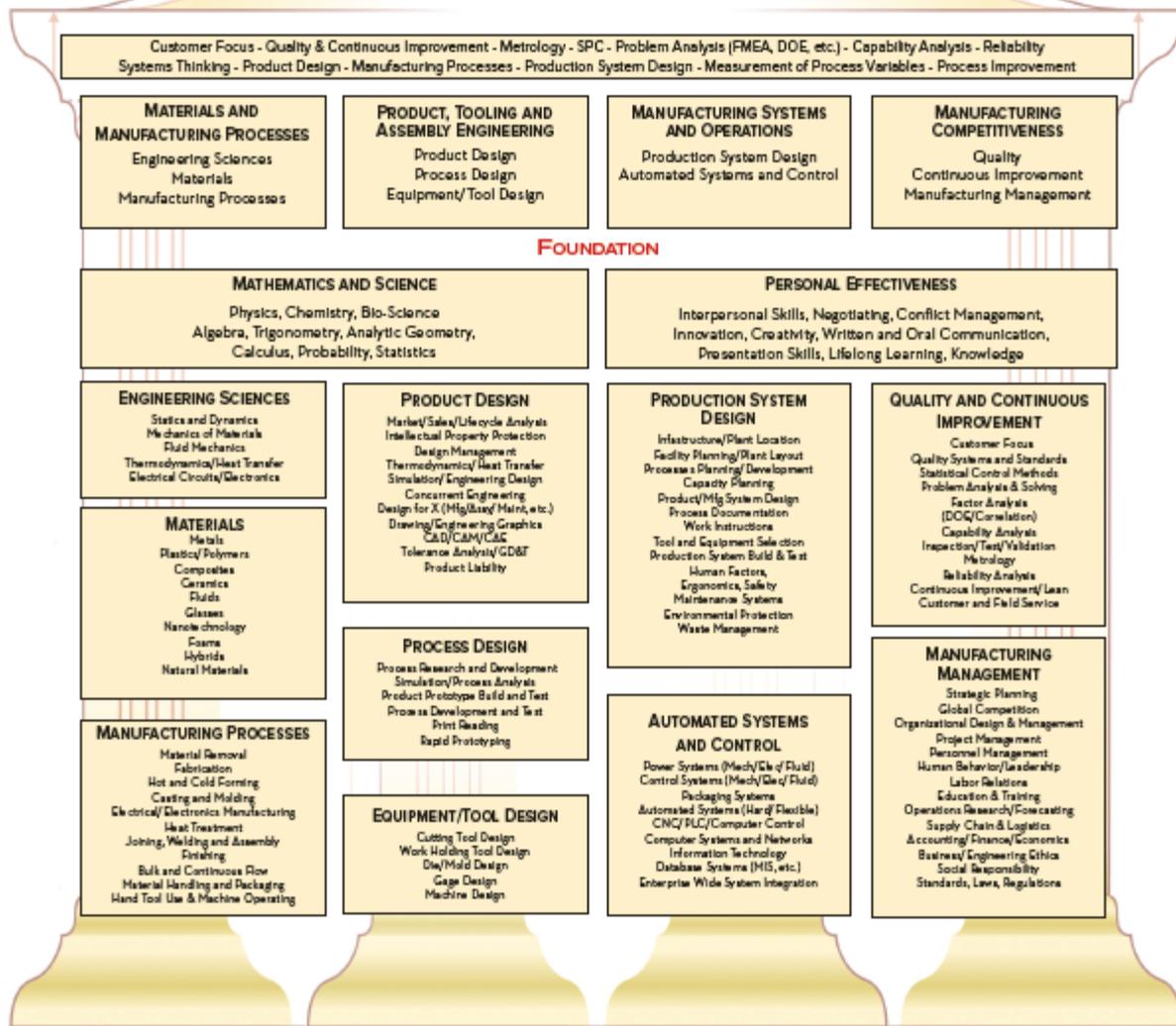
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