

WE 7193.01 Individual Study Project Syllabus

4-6 credit hours

Course Description

WE 7193.01 Individual Study Project is a required course in the online Master of Science in Welding Engineering (MSWE). The main objective for the course is to provide students with a culminating experience of solving an open-ended real-life problem. As they work on their project, students are expected to demonstrate critical thinking, mastery of the knowledge they acquired from their courses, and effective written and oral communication.

When to Take WE 7193.01?

Students are expected to complete the individual study project during the last semester of enrollment. While the project may be completed in one semester, it is highly recommended to split it over two semesters. This gives more time to identify a project topic, develop a proposal, and gather the necessary resources to successfully complete the project. Since during the final semester of graduation students must be enrolled for a minimum of 3 credit hours, it would be best to leave at least 3 credits for the final semester. For example, a 5-credit hour project could have 2 credits in the first semester and 3 credits in the second semester.

How is This Course Used in the Master's Examination?

To graduate from the MSWE program, students must successfully complete the master's examination (please see the Graduate School Handbook Section 6.2 <https://gradsch.osu.edu/handbook/all#6-2>). For the Online Non-Thesis MSWE program, the master's examination includes a written portion and an oral portion. The final report in this course is used for the written portion. The oral portion includes the final report presentation followed by questions from the Master's Examination Committee on the project and coursework. The final presentation is limited to 30 minutes and the total duration of the oral exam should not exceed two hours.

At the beginning of the graduation semester (or earlier), please work with your advisor to select four courses that you took that are most relevant to your project or expertise that you may be tested on during the oral examination. Please note that at least two of the four courses must be either primary or secondary core courses.

At the beginning of the graduation semester (or earlier), please work with your advisor to identify one other Welding Engineering faculty member to serve on your Master's Examination Committee. That faculty member may have expertise related to your project or may have been an instructor for one or more of the courses that you selected. The name of that faculty member is submitted in the Application to Graduate, which must be approved by the advisor and the Chair of the Graduate Studies Committee by the third Friday of the semester.

For the written portion, the final draft of the report must be submitted to Master's Examination Committee at least one week prior to the oral exam, which must be completed by the examination report deadline that is provided on the Graduate School Graduation Calendar <https://gradsch.osu.edu/calendar/graduation>.

Students' that are not able to complete the project and Master's Exam in time may elect to use the End-of-Semester deadline, which allows for completion of all the requirements by the last business day prior

to the first day of classes for the following term. In that case, the official graduation date will be the following semester without registering or paying fees.

Credit Hours and Work Expectations

The project can range from 4 to 6 credit hours depending on the student plan of study. According to OSU policy, for each credit hour, students are expected to spend a minimum of 3 hours per week for 14 weeks working on the project. For example, a 4-credit hour project would require a minimum of 168 hours (4 credit x 3 hours/credit/week x 14 weeks = 168 hours).

Grading

Please note that WE 7193.01 is graded satisfactory/unsatisfactory. Students that require a letter grade for tuition reimbursement should enroll in WE 7193.02, which is letter graded A-E. The final grade is determined from the performance in the course milestones with the following weights:

Proposal and proposal presentation	25%
Progress report presentation	15%
Final presentation	30%
Final report	30%

To deter plagiarism, the proposal and final report will be reviewed by **TurnItIn.com** for originality.

Project Topic Selection

Identifying an appropriate Individual Study Project topic may take a few weeks, especially when it involves an employer. Therefore, it is recommended that students work with their employer and advisor a month or two prior to the start of the semester where they plan to start project work. Ideally, the Individual Study Project topic will be focused on a real-world welding engineering issue or problem that the student has identified at their place of employment that is approved by the faculty advisor. In this case, the project will be developed in collaboration with the student's employer and it may include resources (personnel, equipment, testing services, etc.) that are provided by the employer. However, for some students, it may not be possible to include employer collaboration. In this case, a topic can be developed by the student and their faculty advisor. Typical projects could include an experimental investigation, analysis (experimental or theoretical) of a welding process or procedure, microstructural characterization, weld and part design, modeling and simulation, or weld failure analysis.

Communications and Project Updates

Regular communication between the student and faculty advisor throughout the duration of the project is critical to successful completion of the project. Students are required to provide their advisor with weekly email updates on the project. These updates should include a brief description of the work that was completed that week and a plan for the work to be completed the next week. Every 2-3 weeks, the student and advisor should also have a web conference with meeting notes including action items taken by the student and shared with the advisor. Additional web meetings may be scheduled by the student or advisor, especially if there are problems that could hinder progress on the project.

Project Timeline and Milestones

Ideally the Individual Study Project topic will be selected and approved prior to the start of the semester. The timeline presented below assumes that the project is done in one semester. If the project

will be done over two semesters, it is recommended that at least milestone 1 be completed during the first semester.

Milestone 1 – Written Proposal and Presentation

By the end of the third week of the term a student must complete a formal written proposal and make a 15–20 minute proposal presentation to the Advisor. The written proposal and presentation should include the following:

1. Project title
2. Introduction and motivation for the project
3. Clear description of technical objectives
4. Brief description of each of the tasks required to meet the technical objectives
5. Project timeline with major milestones

Milestone 2 – Progress Report Presentation

By the end of the sixth week of the term, the student must make a 30 minutes progress report presentation to the Advisor. The presentation should include the following:

1. Progress made on major project tasks and objectives
2. Description of unanticipated issues and their resolutions
3. Review of project timeline and milestones
4. Plans for project completion and scheduling of final presentation and defense

Milestone 3 – Final Report Draft

At least one week prior to the final presentation and defense, the student must complete and submit a formal written final draft report on their project to the Master’s Examination Committee. The report is limited to 20 pages including figures and tables, but references and appendices may extend beyond the 20-page limit. The report should follow the American Welding Society guidelines for a research paper: <https://www.editorialmanager.com/wj/account/Author%20Submission%20Guidelines.pdf>

Note: If the Master’s Examination committee determines that the draft is of poor quality, then they may postpone the final presentation and defense until an acceptable draft is provided by the student.

Milestone 4 – Final Presentation and Defense

By the graduation examination report deadline (see <https://gradsch.osu.edu/calendar/graduation>) the student must make a 30 minutes presentation to the Master’s Examination committee, which will be followed by questions from the committee. While the emphasis of the questions will be related to the project (presentation and report), the committee may also ask some fundamental questions from courses, usually as they relate to the project. The total duration of the presentation and questions and answer session may not exceed two hours.

Milestone 5 – Final Report

By the last day of classes, the student must revise and submit the final report based on committee feedback on the draft during the final presentation and defense.