

Guidelines and Policies for Master's Projects and Master's Theses

2nd Edition

Approved Spring 2024 Semester

1. Culminating Experience Requirement

A culminating experience is required for completion of a MSCE degree program. A MSCE student can satisfy the culminating experience in one of three ways: 1) A 6-unit Thesis option through CE 6960, 2) A 3-unit Project option through CE 6950, or 3) A 0-unit Comprehensive Exam option through CE 6970. Students should choose one of these three options based on their strengths and interests.

This document presents the civil engineering department's policies and procedures for completing Master's projects and Master's theses. Refer to Comprehensive Exam Policy for the requirements for the comprehensive exam option.

2. Educational Objectives

The Master's project and Master's thesis are a key part of the MSCE degree program. The project or thesis is one of the key ways students "demonstrate an ability to apply advanced level knowledge in a specialized area of engineering" as required by ABET. Successful completion is one of the important ways a student demonstrates mastery of civil engineering.

Civil engineering is a professional discipline (as compared to History, Mathematics, and others, which are academic disciplines). The Master's projects and Master's theses should focus on the direct or indirect application of engineering principles and practices to real-world problems, or contribute to the development of civil engineering practice in a way that would help others address practical problems. This objective is interpreted broadly, so a wide range of topics are suitable. However, topics that have little or no association with civil engineering principles or practices are not acceptable.

3. Master's Projects

In general, master's projects focus on improvements of the state-of-practice as applied to a specific civil engineering problem. Such projects are more intensive and detailed than routine engineering designs, and are intended to explore the subtleties, limits, or applicability of customary or proposed practices.

All Master's projects must demonstrate a mastery of engineering principles and practices beyond that expected for undergraduates and beyond that required to implement standard analysis and/or design techniques. In other words, projects that simply implement standard design methods, no matter how extensive, are not sufficient.

Master's projects are not required to be of sufficient rigor to be publishable in refereed journals. However, outstanding projects may very well be publishable.

4. Master's Theses

Master's theses are significantly more intensive and detailed than master's projects, a difference reflected in the additional units the student receives and the additional time required to complete the project. Some theses may be similar in purpose to master's projects, but sufficiently larger in scope and significance. Others may have a stronger emphasis on developing new knowledge or contributing to the basic understanding of civil engineering or to the state-of-the-art.

Although not necessarily publishable, a Master's thesis should contain some new contribution to the profession. Simply applying existing principles to a new project without generating any new insights is not sufficient. However, the expectations for advancing the state-of-knowledge are not as great as for a doctoral dissertation. Exemplary theses may be suitable for publication in a refereed journal.

5. Prerequisites

The prerequisites for enrolling in CE 6950 (project) or CE 6960 (thesis) are the following:

- For students who were conditionally admitted, completion of all conditions of admission.
- Good academic standing (i.e. graduate GPA ≥ 3.00)

In addition, students should complete their Master's project or thesis during their final semesters in the MSCE program. Thus, they should enroll in CE 6950 or CE 6960 during the latest semester that best facilitates that schedule. Enrolling in CE 6950 or CE 6960 too early diminishes the value and quality of the culminating experience.

6. The Advisor

The student is responsible for finding a faculty member to serve as the project or thesis advisor. The advisor should be a full-time civil engineering faculty member at Cal Poly Pomona.

The advisor serves as chair of the student's advisory committee. The advisor sets standard and expectations of the project or thesis. The student is responsible for maintaining regular and close communication with the advisor in order to receive the necessary guidance, to keep the advisor informed of his/her progress, and to clearly understand the advisor's expectations.

7. The Topic

In some cases the student generates the topic, and finds an advisor who is willing to oversee this work. In other cases, the advisor defines the topic, and finds students who are interested in working on it. In either case, the topic must be consistent with the educational objectives described in Section 2, and the student is responsible for preparing a written description of the topic.

8. The Advisory Committee

The student and the advisor must form the project committee or thesis committee, which will oversee the project. The committee normally consists of the advisor (who serves as chair of the committee) and one other faculty member (for a project) or two other faculty members (for a thesis), but can include additional members if appropriate. The committee members are selected based on the expertise in the area of study, and typically are full-time or part-time engineering faculty members at

Cal Poly Pomona. The advisor has the option of requiring one or more of the committee members to be from outside the Civil Engineering Department. Changes to the committee membership are highly discouraged, but may be approved by the advisor, if necessary.

The student's primary contact is with the advisor. However, the committee members serve as resources for the student, and thus are available for consultation. In addition, the student is obligated to keep the committee members informed of his/her progress.

9. Proposal

Once the Master's project or thesis topic has been selected, the student shall conduct a thorough literature search on the subject. The first step in this process is to develop a bibliography. All key references from professional literature on this topic should be included. For narrow topics, the bibliography shall be as complete as possible. For broader topics, the noteworthy references shall be included. The advisor and the committee members can assist in defining the kinds of references that might be appropriate for the selected topic.

Upon completion of the literature review, the student should begin preparing the Project Proposal or Thesis Proposal. The purpose of this proposal is to describe the objectives and methodology of the proposed work, and the final deliverables. The student should be in close communication with the advisor while developing the proposal so that both will have a common vision of the project scope and expectations.

This proposal shall comply with the following format:

Cover sheet (see Page 6 for the standard format)

1. Objective (Include problem statement and the objective of the project or thesis.)
2. Review of literature and current practices
3. Proposed investigation
4. Deliverables (Describe the final deliverables expected from the project.)
5. Timeline
6. Bibliography

The student shall submit a draft proposal to the advisor and the committee. The advisor has the primary responsibility for reviewing and approving the proposal, and advises the student of any changes that need to be made. The student shall then finalize the proposal and circulate a copy of the proposal to the committee and the advisor for signature, then submit the signed copy to the Graduate Coordinator.

10. Enrolling

To enroll in the Master's project or thesis (CE 6950 or CE 6960), the student must complete the form on Page 7 (Request for Registration in Master's Project or Master's Thesis), obtain the signatures of advisor and committee member(s), and submit the form to the Graduate Coordinator for a signature, by the Friday of the finals week of the semester prior to enrollment.

The department will email the permission number to the students. Once enrolled in a particular culminating experience, students shall not be permitted to switch culminating experience options.

11. The Final Report

The Master's project or thesis must culminate in a formal written report. The report shall be prepared in accordance with the CPP Graduate Studies Office guidelines.

- Title page (see Page 8 for standard format)
- Signature page (signed project or thesis signature page - see Page 9 for standard format)
- Acknowledgement page (optional)
- Table of contents
- Abstract
- List of figures
- List of tables
- Body of the report (consists of chapters, and there are sections and sub-sections in each chapter)
- Bibliography
- Appendices

The report must be submitted in complete draft form to the committee no later than one week before the date of the project or thesis defense.

12. The Oral Defense

Graduate students must be enrolled during the semester they graduate. All project and thesis students must orally defend their work before the advisor and the entire committee, and should consult with the advisor in order to become familiar with the format and expectations. The student is responsible for scheduling the oral defense at a time agreeable to the committee. A 60-minute session should be scheduled. The student shall work with the civil engineering department administrative support coordinator to locate a room and to arrange for any necessary audio-visual equipment. If all of the committee members are not present, the defense will need to be rescheduled.

The oral defense is open to the public, but only the committee members may ask questions. The oral defense must be completed by Week 15 of the semester in which the student plans to graduate.

After reading the draft report and hearing the oral defense, the committee may require revisions to the report, a second oral defense, or both. In such cases, the updated report and the second oral defense must be completed by the end of final exams week.

13. Final Submittals

Once the committee has unanimously approved the report and oral defense, the student shall obtain the committee members' signatures on the signature page, then submit the following:

To the Civil Engineering Department (no later than the Friday of the final exams week):

- The complete report in PDF format to each of the committee members, and the graduate coordinator. This submittal may include one or more PDF files, as appropriate.
- A Report of Culminating Experience with the advisor's signature to the graduate coordinator. This form may be downloaded from the graduate studies website (available also at the end of this document).

To the University Library (required for thesis only): Submitting thesis electronically through Bronco Scholar and the Thesis & Electronic Submission Form to Graduate Studies by the specified deadline. Library hard copies are no longer required.

14. Grading

The advisor is responsible for determining and issuing the grades, in consultation with the committee. The Master's project or thesis is considered acceptable only if it is of sufficient quality and merit to receive a grade of B or better.

The advisor has the option of issuing either a letter grade or an RP during any of the semesters. The grade of RP will be changed to a letter grade upon satisfactory completion of the project or thesis.

15. Master's Degree Continuation

Students who received an RP grade in their last semester of CE 6950 or CE 6960 must complete their project and apply for graduation in a subsequent semester. Graduate students must be enrolled during the semester they graduate, so students in this situation who have completed their other coursework must enroll in CE 6990 (Master's Degree Continuation) during their final semester. This is a 0-unit course that allows the student to maintain residency.

16. Academic Integrity

The public relies on civil engineers to work with skill and integrity, as reflected in the ASCE Code of Ethics. Cal Poly Pomona also has a strong commitment to academic integrity. Both of these emphases on integrity impact the conduct of master's projects and theses, so it is essential for all students to work in accordance with the highest standards of academic integrity.

Examples of academic integrity violations include:

- Representing the work of another as one's own work. This includes failure to properly cite the work of others,
- Falsifying data
- Failing to disclose conflicts of interest, such as a financial interest in the outcome of the project or thesis

Academic integrity is especially important in the context of graduate-level projects and theses. Violations will be handled in accordance with University policies and procedures, and could result in failure of the project or thesis, dismissal from the program, or other penalties.

Appendices

Proposal Cover Sheet (Page 6)

Request for Registration in Master's Project or Master's Thesis (Page 7)

Project or Thesis Cover Sheet (Page 8)

Project or Thesis Signature Page (Page 9)

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA
Civil Engineering Department

MASTER'S PROJECT PROPOSAL

[PROJECT TITLE]

Submitted by:

Student Name

_____ Date

Approved by:

Name of Committee Chair
Project Committee Chair
Civil Engineering Department

_____ Date

Name of Committee Member
Project Committee Member

_____ Date

Name of Committee Member
Project Committee Member

_____ Date

FULL TITLE OF YOUR REPORT

A Project

Presented to the

Faculty of

California State Polytechnic University, Pomona

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science

In

Civil Engineering

By

John Q. Student

2019

SIGNATURE PAGE

PROJECT: PROJECT TITLE

AUTHOR: John Q. Student

DATE SUBMITTED: Fall 2024

Civil Engineering Department

Committee Member Name
Project Committee Chair
Civil Engineering Department

_____ Date

Committee Member Name
Civil Engineering Department

_____ Date

Committee Member Name
Civil Engineering Department

_____ Date