

EM701: Engineering and Technology Management Master's Independent Capstone Syllabus

Instructor: ETM Faculty

Contact: Email: [ETM Faculty Email](#)

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Communication Methods: Class orientation is held at the beginning of the semester (see Canvas <https://wsu.instructure.com/> posted course schedule for day and time, and session link to access orientation). A recording of the orientation will also be archived and available for students on the course site. A 'Question and Answer' discussion group is also available on the course site for any non-time critical questions and answers. This will be viewable to all to support multiple students with the same questions. For time critical communications, contact the Faculty Instructor directly using the contact information listed in the syllabus and on the Canvas EM701 course Home Page. All official WSU email communication must be sent through the student's WSU email address.

Prerequisites: EM701 is completed in the final semester of your ETM program.

Course Credits: 3 (some students may complete additional credits in EM701 to meet graduation requirements).

Course Description

Students complete the independent capstone EM701 course in their final semester of their ETM graduate program. In EM701, students complete in-depth analyses on a set of assigned engineering management related case studies and present to their faculty committee in the latter part of the semester. Students typically earn a total of three credits over one semester. The ETM faculty complete a balloted evaluation of the student's completion of the ETM program requirements after students have completed all required work (prior to the end of the semester). This ballot meeting is attended by faculty only (no students); however, students will receive notification of the day and time of the ballot meeting schedule.

Course Objectives

After taking this course, the student will be able to:

- Integrate and extend the knowledge, skills, and abilities attained from the various classes completed in the ETM program.
- Further advance understanding of the multidisciplinary nature of engineering management.
- Demonstrate depth and breadth of competency in engineering management.
- Consider the role of ethics in engineering management.

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Course Approach

There are no weekly class meetings for the capstone course; however, there is a recorded orientation in the beginning of the semester with optional student attendance; however, students should review the recording if they miss the live orientation. Students complete four case study assignments, write an executive summary, and develop a presentation that they deliver to their committee in a formally scheduled session. Students schedule their oral presentation according to the instructions posted in Canvas. EM701 content and detailed assignments are posted to the appropriately labeled sections of the online Canvas course site, along with general EM701 and graduation related material. Students will complete an end of program survey at the end of the semester.

Required Material

- Case studies through a variety of formats will be required reading
- Citation Style Quick Guides: <https://libraries.wsu.edu/quickguides> (APA preferred)

Tips for Being Successful

The most important step for being successful is to schedule 7-10 hours each week for capstone work – spread over multiple days. This time is needed to complete the reading, to perform additional research, to complete the assignments, and to review feedback received. Students should plan to dedicate 100 hours on average to this capstone course to be successful. Students should build a support structure of folks who will help you achieve your learning goals.

Case Study Analyses

Students complete **four** case studies for EM701 where each case study is primarily focused on one or two of the six core areas of the ETM Masters; however, each case study presents a situation that spans multiple areas of engineering management. The EM701 instructor provides the **four** case studies covering the six core areas of the program as grouped below:

- Managing Organizations and People and Managing Projects
- Managing Resources and Managing Strategy
- Managing with Analytical Methods
- Managing Variability

The case studies are assigned as due in a particular order each semester, and this order is announced in the Canvas class. For a current list of the EM courses that align with each core area see: <https://etm.wsu.edu/masters-degree/>.

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The case studies are selected to provide the student the opportunity to demonstrate the breadth and depth of knowledge gained during the Engineering and Technology Management (ETM) Master's program. Students integrate skills from several different classes and extend their learning as they explore each case study in depth, summarize the case study, respond to questions about the case study, and provide additional insight and recommendations from their personal experience from their work environment or the broader community.

It is important, however, that the student excludes any work-related proprietary information from the analysis.

The intent of the case study analysis is to encourage the student to gain a mature understanding of the situation, ponder the problem, and consider various approaches and solutions and their implications over one semester. Student should relate the case study context to problems of importance in their workplace or community and provide related examples of lessons learned.

Students submit written case study analyses using the following guidance. For the case study assignments, students include a title page with a title, their name, the date, the case study being analyzed, and the academic integrity pledge.

Each case study analyses consist of three parts. **Students are required to submit all three parts (note the case study files only contain the questions for Part II, but students must include Part I and Part III in their final submission).**

- Part I: Write a case synopsis. This is a concise relevant summary of the case study. Limit the synopsis to 350 words.
- Part II: Discuss and answer the questions from the case submitted as numbered Q&A. Limit each question response to 250 words (not including graphs, charts, equations, tables, etc.) unless a different word limit is specifically noted. Note: The 250-word limit applies to each numbered question separately.
- Part III: Provide a student opinion of the case study that demonstrates mature understanding of the situation; provides insights and lessons learned, notes issues or potential conflicts, and relates to work and community experience, going beyond the obvious and digger deeper into the implications of the case study. Limit the student opinion to 550 words (not including graphs, charts, equations, tables, etc.).

Students post their completed case study analyses per the scheduled due dates shown in the **EM701 Course Schedule**.

Students should answer ALL applicable questions in the case studies noting that some questions depend on which courses were completed. Please note: If a student transferred in a course to cover a particular core area, they have the option to choose which course specific question set they respond to, but they must choose one.

Students receive feedback from the faculty responsible for the core area(s) pertaining to each of the four case studies.

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Final Executive Summary and Oral Presentation

For the final assignments in the class, students start with the work they completed on one of the **four** case studies, and they expand on their previous work with reviews of relevant literature on similar situations, research and exploration of tools and methods used to address these related situations, in-depth (further) discussion of the student's original assessment, new insights, further recommendations, and implications to the work environment, the Engineering Management field, and the broader community. For the final assignment deliverables, students synthesize concepts across their Master's program and demonstrate mastery of engineering management.

In general, students perform a more in-depth analysis related to the case study that they have selected for their final EM701 deliverables: *an executive summary, presentation slides, and an oral presentation*. Students are advised to select one of the previously completed cases studies for which they have a breadth and depth of experience and proficiency on the topic allowing for an extension of their case study analysis work.

The final deliverables address a concise relevant summary of the initial case study, responses to every applicable (depending on which courses completed) question about the case study (for further in-depth discussion) and additional insight and recommendations from the students' personal experience from the work environment or the broader community. However, students also perform a more complete in-depth analysis, extending the student's prior work. **Students apply new methods, processes, and tools not required in the original case study analysis; perform extended research beyond their initial research; further relate their "new" work to the original case study and to related examples or experiences in their workplace or community; and integrate their new and updated findings into a concise presentation that they deliver to their faculty committee in a formally scheduled oral presentation. Students who simply document and present their previously completed case study analysis for the final executive summary and oral presentation, will receive an Unsatisfactory grade in the course.**

Students submit a set of presentation slides and a several page executive summary that summarizes the purpose, goals, approach, findings, and synthesis of their detailed presentation, prior to the student's scheduled oral presentation. The executive summary should give any evaluator (your committee) a clear idea of the problem you are tackling, your approach to solving the problem, and how the problem applies to current business and technology events. Consider the executive summary a concise overview of your in-depth case study analysis provided in your presentation. Refer to the Executive Summary section of Canvas for guidelines and tips for writing the executive summary.

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Students sign up for their 1-hour oral presentation timeslot in Canvas. After all students have signed up for a timeslot, individual meetings are created, one for each student. Students present using the typical classroom delivery tool in the

EM701 classroom, from a private or quiet area, where they use both video and audio features of the presentation system to provide a professional presentation of their culminating work. Students should login to their scheduled case study presentation meeting area at least 15 minutes (and up to one hour) earlier than the scheduled time to test the connection, audio, video, and presentation slides. The 1-hour timeslot includes the student's 20-minute (hard limit) presentation followed by questions from faculty (per WSU policy, only faculty members ask questions during the final oral presentation.), a private committee deliberation (while students wait in a break room), and a final meeting on the presentation outcome. Once the student receives his/her feedback from their committee Chair or a committee member after the faculty deliberation, students have up to one week to update any artifact required by their Chair and committee.

Students sign up for their oral presentation timeslot and post their completed final executive summary and final presentation per the scheduled due dates shown in the **EM701 Course Schedule**. The goal of these final deliverables is for the student to demonstrate their overall mastery of the ETM program content and their advancement in the field of engineering management.

All Assignment Submissions

The **four** case studies, final executive summary, and final presentation will be submitted to the corresponding assignment areas in Canvas by the due dates specified in the **EM701 Course Schedule**. The final executive summary and final presentation may be required to be updated and re-submitted based on faculty feedback received at the scheduled oral presentation, by the required committee deadlines up to one week later. Papers should be posted as a Microsoft Word or Adobe PDF document and presentations should be posted as a Microsoft PowerPoint or Adobe PDF document.

All assignment submissions are made through the Canvas EM701 class. Submitted work must be readable and printable using a commonly available Microsoft product (included in Office Suite) or Adobe Acrobat (.pdf format). Any other formats will not be accepted without prior approval. Students must retain electronic copies of all submitted works to be made available for resubmission should unforeseen technical circumstances warrant.

The writing and reference formatting style identified in the current edition of the *Publication Manual of the American Psychological Association* (APA) is preferred for use on written assignments in this course. In the workplace, you are expected to produce documents that are clear, error-free, and visually effective in communicating the intended message. All work submitted for credit in this course must also satisfy these general professional expectations as well as be appropriate

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for the specific purpose and audience for which the communication is intended. Quality of work will be reflected in the assignment scores. All work must identify the student, course, ETM core area for the case study, and appropriate assignment identifier within the document. Electronic file submissions MUST conform to the following naming conventions:

LastName.Initial(s). Course Prefix and Number.ETM Core Area.Activity ID.FileExtension (no spaces in filenames)

Examples:

Phelps.M.EM701.ManagingStrategy.CaseStudyAnalysis.docx
Phelps.M.EM701.ManagingStrategy.ExecutiveSummary.docx
Phelps.M.EM701.ManagingStrategy.Presentation.pptx

Submissions not in the proper format will be returned to the student.

Point Distribution

• Assigned Case Studies (4 cases at 10 pts each)	40 pts
• Executive Summary	30 pts
• Oral Presentation	30 pts
TOTAL	100 pts

Note: there is a 10% grade reduction per day for late submissions for case studies, the final executive summary, and the final presentation. Also, please note that assignments in this class may be submitted to a web-based anti-plagiarism system for an evaluation of their originality.

EM701 Course Schedule

Assignment or Event	Due Dates
EM701 Orientation	Friday of first week, TBD PST
Case #1 Due	3rd Sunday, midnight PST
Case #2 Due	5th Sunday, midnight PST
Sign-up to Present Due	7th Sunday, midnight PST
Case #3 Due	7th Sunday, midnight PST
Case #4 Due	9th Sunday, midnight PST
Executive Summary Due	Thursday before present week, midnight PST
Presentation Slides Due	Thursday before present week, midnight PST
Oral Presentations Due	M–Th 2 wks prior to ballots, 8am – 2pm PST
ETM Masters Survey Due	Monday before ballots, midnight PST
Ballot Meeting (Faculty Only)	Thursday of final ballot week, 10am PST

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Academic Integrity Statement

Students should include the following academic integrity statement on the title page of their case studies, final executive summary, and final presentation, as required. Sign the statement by typing your name on the space provided. **Note that your case studies, executive summary, and presentation will not be accepted without including the following signed academic integrity statement** (final line for EM701 only):

I commit myself to Washington State University's high standards to uphold academic honesty and scholarly values as established by the WSU's Standards of Conduct. I affirm that I have not given or received any unauthorized assistance on this assignment/examination, that the work product presented here is the work of the author(s) [myself or all team members listed], and that all materials from other sources (including books, articles, Internet, or other media), whether quoted or paraphrased, have been properly cited.

Typing or electronically signing my name above serves as my signature

*Current Job Title (optional) *Employer

*Future email

Grading Policy

For EM701, the earned grade is 'S' (Satisfactory) or 'U' (Unsatisfactory) depending on whether the student made satisfactory progress. A student must earn a final grade of 70% or higher and must earn above a 60% or higher on any one individual assignment, to earn a satisfactory grade in the course. For the case study submissions, students must earn 6 points or higher or they may be required to redo the case study. For the final executive summary and oral presentation, students must earn 18 points or higher, or they will not earn a satisfactory grade in the course. Students may be asked to do additional work after their oral presentation, with hard deadlines, in order to earn a passing grade for the class. The EM701 assignments are scored, and feedback and grades are placed in the Canvas gradebook. At the discretion of the committee, if the student did not make satisfactory progress which normally involves meeting published deadlines in the semester, the student may be required to repeat the work the following semester and may be awarded a grade of 'U' for the current semester. Two semesters of 'U' grades are the basis for removing a student from the Graduate School and program.

Incomplete Policy

Please note: There are no incompletes for this course, only satisfactory or unsatisfactory completion.