Mississippi State University
Bagley College of Engineering

Master of Engineering (MENG)
Master of Science in Engineering (MSENG)

Online Program Guide

Updated October 2026

Welcome

Welcome to the Master of Engineering (MENG) and Master of Science in Engineering (MSENG) online programs offered through the Bagley College of Engineering at Mississippi State University (MSU). Both are multidisciplinary, fully online engineering degrees that let students build a personalized program of study around their own educational and professional goals. The MENG offers concentrations in General and Military Engineering. The online MSENG offers concentrations in Computational and General Engineering.

This guide helps students navigate admission, advising, registration, and completion of the MENG and MSENG programs. The policies and procedures in this guide are in addition and subordinate to those in the Graduate Catalog (catalog.msstate.edu/graduate). The Office of the Graduate School (OGS) provides additional information and all forms needed by graduate students. Please bring any inconsistencies in this guide to the attention of the Program Advisor.

Each student is expected to be familiar with this guide. It is ultimately the student's responsibility to make sure all program requirements are met on time and in accordance with MENG, MSENG, and OGS policies and procedures.

MENG students: Your advising course in Canvas (MENG Advising) contains this guide along with forms, checklists, and step-by-step instructions for every stage of the program.

Contact Information

Name	Role	Contact
Dr. Daphne Knox	Assistant Dean, Graduate and Online Education; Program Advisor	knox@bagley.msstate.edu, 662.325.5923
Dr. Robert A. Green, P.E.	Associate Dean for Academics; Graduate Coordinator	green@bagley.msstate.edu, 662.325.2267
Olivia Lane	Online Education Coordinator	olane@bagley.msstate.edu, 662.325.2266
Brantley Barksdale	Computer Support Specialist	bbarksdale@bagley.msstate.edu, 662.325.7794
Angie Campbell	Admissions and Enrollment Assistant, Office of the Graduate School	acampbell@grad.msstate.edu, 662.325.7400

Helpful Links

- Technical assistance for engineering online courses: engr-dist-support@lists.msstate.edu
- MS State Online technical assistance: www.online.msstate.edu/technical-assistance
- ITS: www.its.msstate.edu
- Office of the Graduate School: www.grad.msstate.edu
- Graduate Catalog: www.catalog.msstate.edu/graduate
- Academic Calendar: www.registrar.msstate.edu/calendars/academic-calendar
- Engineering online programs: www.online.msstate.edu/engineering

Program Overview and Admission

Master of Engineering (MENG)

The MENG offers a multidisciplinary, master's-level engineering program at an accredited institution. Students may take courses from engineering disciplines including Aerospace, Artificial Intelligence, Civil, Computer Science, Chemical, Computational, Data Science, Electrical and Computer, Industrial and Systems, and Mechanical Engineering. Students choose between two concentrations: General Engineering and Military Engineering. Students may also take up to 12 hours of courses outside the College of Engineering, typically in business, math, geoscience, or public policy and administration, with advisor approval.

Both thesis and non-thesis options are available. Thesis students complete 24 hours of coursework and 6 hours of thesis research, and defend their thesis to their committee, typically in their final semester. Non-thesis students complete 30 hours of coursework, including the MENG Capstone course (GE 8003) in their final semester. Capstone projects often focus on a problem connected to the student's employment.

Master of Science in Engineering (MSENG)

The MSENG offers advanced study in computational engineering or general engineering, building on students' foundational knowledge with the skills needed to address complex, real-world challenges.

- **Computational Engineering concentration:** 30-hour thesis or 33-hour non-thesis program administered through the Bagley College of Engineering Dean's Office. Courses give engineers a foundation to create tools for computational analysis and design, with strong domain knowledge for applying those tools to complex engineering problems.
- **General Engineering concentration:** 30-hour thesis or non-thesis program administered through the Bagley College of Engineering Dean's Office. Programs of study are tailored to each student and may draw on courses from across the college and university.

How to Apply

Apply at www.grad.msstate.edu by selecting "Apply Now." MSU processes graduate applications centrally, so questions about the application process and all application materials should go to the Office of the Graduate School. The Admissions and Enrollment Assistant listed under Contact Information can help with questions.

Application Deadlines

Semester	Deadline
Fall	June 1
Spring	November 1
Summer	May 1

All application materials (online application, application fee, transcripts, statement of purpose, and three references) must be received by these dates. Applications completed later may not be reviewed in time for enrollment in the desired semester. Once complete, applications are sent to

the Dean's Office and are typically reviewed within 5 days. Students receive an email from OGS with the admission decision and any conditions.

Application Materials

- **Statement of purpose:** 3–4 paragraphs describing your undergraduate background, current employment and career goals, why you chose the MENG or MSENG, and which engineering disciplines you plan to study. Plan to include courses from at least two engineering disciplines.
- **Transcripts:** official transcripts for your bachelor's degree and any post-bachelor's coursework.
- **References:** names and contact information for three references. Each will receive an email asking for a brief assessment and the option to attach a letter.
- **Application fee.**

Admission Criteria

MENG

Students must meet the Graduate School's General Requirements for Admission (Graduate Catalog) and the MENG requirements: a minimum 3.00/4.00 GPA on a B.S. in engineering or a closely related area, or remedial engineering coursework. Satisfactory GRE performance is required for students whose degree is not from an EAC/ABET-accredited program. Students with non-engineering undergraduate degrees are considered case by case. Admission decisions are made by the Associate Dean for Academics.

Standard engineering undergraduate pre-requisites are required:

- Calculus I–IV and Differential Equations
- One year of calculus-based physics
- One semester of general chemistry
- Two to three engineering science courses (e.g., electronic circuits, engineering mechanics, thermodynamics, production control systems)

Provisional Admission (MENG)

Students who do not meet the 3.00 GPA requirement may be admitted provisionally. Provisional students must earn a 3.00 GPA on their first 9 credit hours of graduate courses. Courses graded "S," transfer credits, and credits earned in unclassified status do not count toward this requirement. Students who meet the requirement receive regular admission; students who do not will be dismissed from the program.

MSENG

Students must meet the Graduate School's General Requirements for Admission and have a minimum 3.00/4.00 GPA on a B.S. in an engineering discipline. Satisfactory GRE performance is required for students whose degree is not from an EAC/ABET-accredited program. Admission decisions are made by the Associate Dean for Academics.

Standard engineering undergraduate pre-requisites are required:

- Calculus I–IV and Differential Equations

- One year of calculus-based physics
- One semester of general chemistry
- Two to three engineering science courses (e.g., electronic circuits, engineering mechanics, thermodynamics, production control systems)

Provisional Admission (MSENG)

Students who do not meet the 3.00 GPA requirement may be admitted provisionally. Provisional students must earn a 3.00 GPA on their first 9 credit hours of graduate courses. Courses graded "S," transfer credits, and credits earned in unclassified status do not count toward this requirement. Students who meet the requirement receive regular admission; students who do not will be dismissed from the program.

Student Policies

MSU Identification

Applicants are assigned a nine-digit MSU ID number beginning with 9 (e.g., 999-999-999) and a NetID (e.g., abc000). After OGS notifies a student of admission, the Dean's Office sends a follow-up email with next steps, typically within 48 hours.

Communication

All program and university communication is sent to your MSU email address (NetID@msstate.edu). The program does not keep personal or work email addresses. You may forward your MSU email to another account, but all critical communication, including advising, registration, and graduation information, will be sent to your MSU address. When emailing the Program Advisor, always include your full name, NetID, and MSU ID number.

Continuous Enrollment

Students must remain continuously enrolled from the start of their program. Continuous enrollment is defined as enrollment in two of three semester terms (Fall, Spring, or Summer). Students who do not maintain continuous enrollment are deemed inactive after the second semester and must submit a Readmission Application (available on the OGS website) to return. Readmission requires approval from the Graduate Coordinator, Department Head (if applicable), and Academic Dean, and is not guaranteed. Any associated fees are the student's responsibility. If you need a break, contact the Program Advisor about a leave of absence before the semester begins. Students should also review the time limit for their degree in the Graduate Catalog.

Academic Performance

Graduate students must maintain a minimum 3.00 overall GPA. At the end of each semester, OGS prepares an Academic Standing Report identifying students with grades of C or lower, an overall GPA below 3.00, or Failing or Unsatisfactory grades. The student and advisor are notified by MSU email.

Academic Dismissal

Academic performance and dismissal requirements depend on the semester in which a student was admitted. Students should refer to the Graduate Catalog for their admission semester, available from the Office of the Graduate School, to determine the academic performance requirements that apply to them. The Graduate Catalog also outlines the procedure for appealing a dismissal. See also Academic Requirements for Graduation in the Graduation section.

Thesis students who receive a first "U" (unsatisfactory) grade in research/thesis hours will receive a warning letter and be placed on probation. A second "U" grade results in dismissal.

Academic Integrity

MSU has an Academic Honor Code. All students are expected to uphold it and may be asked to affirm it on graded work. Review the Honor Code website for the types of academic misconduct, the reporting and appeals process, and possible penalties. Not knowing that an action is misconduct is not an accepted excuse.

Transfer Credit

Students may transfer up to 12 credit hours of graduate coursework toward the MENG or MSENG, thesis or non-thesis. Transfer courses:

- Must have been completed with a grade of B or higher
- Cannot be more than 8 years old at the time of graduation
- Cannot be research, internship, or pass/fail courses
- Cannot be continuing education, correspondence, extension, in-service, or workshop credit
- Appear on the Program of Study and are subject to the same policies as MSU courses

Transfer Credit Process: If you have graduate coursework from another institution that you would like applied to your MENG degree, follow these steps:

1. **Request an evaluation.** Email Dr. Knox a list of the courses you want evaluated, along with course descriptions or syllabi for each course.
2. **Wait for review.** Dr. Knox will review your courses and let you know which ones are approved for transfer.
3. **Complete the Transfer Approval form.** For approved courses, fill out and sign the Transfer Approval form (www.grad.msstate.edu/sites/www.grad.msstate.edu/files/inline-files/Transfer_Approval_Form.pdf).
4. **Submit the form to Dr. Knox.** Email the signed form to Dr. Knox. She will sign it and send it on for further processing.
5. **Update your Program of Study.** Add your approved transfer courses to your Program of Study so your plan reflects your full degree.

Note: Official transcripts submitted with your application are already on file, so you do not need to request new official transcripts for transfer credit. For more information about transfer credit, see the Graduate Catalog.

Program Requirements

MENG Requirements at a Glance

Requirement	Non-thesis	Thesis
Total hours	30	30
8000-level coursework	At least 15 hours (including GE 8003)	At least 12 hours
Required courses	IE 6533 Project Management and IE 6613 Engineering Statistics I*	IE 6533 Project Management and IE 6613 Engineering Statistics I*
Culminating requirement	GE 8003 MENG Capstone (3 hours)	6 hours of thesis research, plus LIB 9010 (0 hours)
Engineering breadth	Courses from at least 2 engineering disciplines	Courses from at least 2 engineering disciplines
Outside engineering	No more than 12 hours	No more than 12 hours

*Students who completed IE 4613/6613 or IE 4533/6533 as undergraduates or in another graduate program do not retake them. With advisor approval, they take replacement courses, so their total remains 30 hours.

MENG – Thesis Option

Component	Hours
IE 6533 Project Management*	3
IE 6613 Engineering Statistics I*	3
8000-level coursework	12
Additional coursework (6000 or 8000 level)	6
XX 9000 Research/Thesis (major professor's department)	6
LIB 9010 Thesis Formatting (final semester)	0
Total	**30**

MENG – Non-Thesis Option

Component	Hours
IE 6533 Project Management*	3
IE 6613 Engineering Statistics I*	3
GE 8003 MENG Capstone	3
8000-level coursework (in addition to GE 8003)	12
Additional coursework (6000 or 8000 level)	9
Total	**30**

MENG – Military Engineering Concentration

Non-thesis

Component	Hours
IE 6533 Project Management*	3
IE 6613 Engineering Statistics I*	3
GE 8003 MENG Capstone	3
Military Engineering Approved Electives (requires approval of the Graduate Coordinator)	21
Total	**30**

Thesis

Component	Hours
IE 6533 Project Management*	3
IE 6613 Engineering Statistics I*	3
Military Engineering Approved Electives (requires approval of the Graduate Coordinator)	18
XX 9000 Research/Thesis (major professor's department)	6
LIB 9010 Thesis Formatting (final semester)	0
Total	**30**

All other MENG requirements apply, including the 8000-level minimums (15 hours including GE 8003 for non-thesis; 12 hours for thesis), courses from at least 2 engineering disciplines, and no more than 12 hours outside engineering. Approved electives are listed in Appendix A.

MSENG – Computational Engineering Concentration

Component	Thesis	Non-thesis
8000-level coursework	12	15
Additional graduate coursework	12	15
CME 9000 Research in Computational Engineering	6	—
CME 7000 Directed Individual Study in Computational Engineering	—	3
Total	**30**	**33**

The program of study must show working knowledge of (1) a computational engineering application area, (2) high-performance computing, and (3) numerical mathematics. Courses inside and outside engineering may meet this requirement with approval of the CME Graduate Coordinator and the student's graduate committee.

MSENG – General Engineering Concentration

Component	Thesis	Non-thesis
8000-level coursework	12	12
Additional graduate coursework	12	18
GE 9000 Thesis/Dissertation Research in Engineering	6	—
Total	**30**	**30**

MSENG General Engineering students must take at least one course from each of 3 different engineering disciplines, and no more than 12 hours may be taken outside the Bagley College of Engineering.

Graduate Course Levels

Graduate courses are numbered at the 6000 or 8000 level. 6000-level courses are split-level: upper-level undergraduates also enroll, and graduate students complete additional work (such as extra assignments, more rigorous exams, a project, or a literature review) to earn graduate credit. 8000-level courses are open only to graduate students and emphasize independent thinking and problem solving.

MENG Concentrations

General Engineering Concentration

Most MENG students pursue the General Engineering concentration, building a program of study from courses across engineering disciplines that fit their goals. Popular areas of interest include Aeronautics and Aerodynamics; Civil, Transportation, and Construction Systems; Coastal and Water Management; Management and Leadership; Electrical and Computer Systems; Engineering Systems; Materials and Fluids; and Structural and Mechanical. Course ideas for each area are listed in Appendix A.

Military Engineering Concentration

Military Engineering students complete 21 hours (non-thesis) or 18 hours (thesis) of Military Engineering Approved Elective courses, selected from an identified list of engineering and non-engineering courses applicable to military engineering (see Appendix A). Electives require approval of the Graduate Coordinator. New courses for this concentration are under development.

All MENG degree requirements apply to both concentrations, including the required courses, 8000-level minimums, engineering breadth, the 12-hour limit outside engineering, and GE 8003 for non-thesis students.

Advising and Registration

Your Program Advisor

All MENG students are advised by the Program Advisor, Dr. Daphne Knox, for the entire program. The Program Advisor approves your Program of Study, completes semester advising, releases you to register, assists with overrides, and helps with program requirements and paperwork. Thesis students also work with a major professor who directs their research, but the Program Advisor remains their advisor.

MENG Advising in Canvas

Upon admission, MENG students are added to the MENG Advising course in Canvas. The course contains this guide, the Program of Study form, the Advising Request, checklists, and instructions for every stage of the program.

New Students: First Advising Meeting

Beginning with students admitted Summer 2026, all new MENG students must meet with the Program Advisor before registering for their first semester. To prepare:

1. Complete the First Semester Advising Questionnaire in the Start Here module in Canvas.
2. Draft your Program of Study using the Program of Study form.
3. Email the Program Advisor (knox@bagley.msstate.edu) with your full name, NetID, MSU ID number, a few days and times that work for you, your preferred format (phone or video call), and your draft Program of Study.

After your Program of Study is approved, you will be released to register. Use the First Semester Checklist in Canvas to prepare for your first semester. Students are strongly encouraged to take only one course their first semester to get used to the pace of online graduate courses.

Program of Study

Your Program of Study lists every course you plan to take, the semester you plan to take it, and its credit hours. All MENG students must have an approved Program of Study on file. To request a change, email the Program Advisor or note the change on your Advising Request. Changes are not official until the Program Advisor confirms them. Not following your approved course choices could delay graduation. You can check your progress toward degree completion at any time in Degree Works.

Every Semester: The Advising Request

Each semester, all MENG students must complete the Advising Request in Canvas during the advising period. Advising information is emailed to students before advising opens. After your Advising Request is reviewed, the Program Advisor releases you to register, and you will receive an email from the Registrar's Office confirming registration is available.

If your course choices change during registration, email the Program Advisor to confirm the change. Some courses, especially those outside engineering, require overrides. If you receive a registration error, send the Program Advisor the error message, your NetID, the course and CRN, and the semester.

Preregistration

Students should preregister by the last day of classes of the preceding semester, so courses are not cancelled for low enrollment. Preregistration costs nothing until the bill is due. Students may add or drop courses through the first week of Fall and Spring classes. See the Registrar's withdrawal refund schedule for refund deadlines. Students are responsible for all tuition and fees from schedule changes.

Semester	**Preregistration deadline**
Fall	Last day of the Summer semester
Spring	Last day of the Fall semester
Summer	Last day of the Spring semester

Course offerings for upcoming semesters are listed in the Master Class Schedule in Banner (select "Online Education" in the Campus menu).

Course Workload

Engineering faculty recognize that online students often work full time. However, exams, homework, quizzes, and projects follow the same schedule as on-campus courses. Instructors may grant extensions for extenuating circumstances at their discretion. Most students plan to graduate within about 3 years, which usually requires taking 6 hours in at least one semester. Two example timelines follow; others are possible.

Example: 2⅓ years

	Year 1	**Year 2**	**Year 3**
Fall	3 hours	6 hours	3 hours*
Spring	6 hours	6 hours	
Summer	3 hours	3 hours	

Example: 3 years

	Year 1	**Year 2**	**Year 3**
Fall	3 hours	6 hours	3 hours
Spring	3 hours	3 hours	3 hours
Summer	3 hours	3 hours	3 hours*

*Final semester: non-thesis students complete GE 8003; thesis students defend their thesis.

Course Delivery and Proctoring

Online engineering courses are recorded and available asynchronously, so students can view lectures at their convenience. Details on course delivery and viewing recordings are available from Bagley College of Engineering online education. Send technical questions about courses to engr-dist-support@lists.msstate.edu. Exams may be proctored online or in person; your instructor will explain proctoring requirements in the syllabus or during the first week of class.

Non-Thesis Option: GE 8003 MENG Capstone

GE 8003 MENG Capstone is the culminating course for MENG non-thesis students and is required for graduation. Students identify a complex engineering problem from professional practice, research it, and evaluate solutions drawing on knowledge and methods from more than one engineering discipline. The course is led by the Program Advisor and Graduate Coordinator, who also serve as faculty evaluators. Non-thesis students do not need a graduate committee.

Eligibility

To enroll in GE 8003, students must have a 3.00 GPA and be within 6 credit hours of completing their Program of Study or be in their final semester. Plan GE 8003 on your Program of Study and note it on your Advising Request the semester before you enroll.

Course Components

Assignment	Description
Literature Review Draft	An early draft of the literature review for the Capstone Report. Instructors give feedback, especially on whether technical content draws on more than one engineering discipline.
Capstone Report	The final written report presenting the problem, technical background, and evaluation of the engineering solution(s).
Final Abstract	A short summary of the capstone project.
Reflective Memo	A short memo submitted with the Final Abstract describing how the student applied techniques and tools from more than one engineering discipline. Graded complete/incomplete.
Capstone Presentation	A final presentation for technical and non-technical evaluators. Online students present via Webex (a webcam and microphone are required).

Evaluation

The Capstone Report and Presentation are scored with 5-point rubrics.

- **Capstone Report:** Purpose (framing the problem within professional practice and justifying an interdisciplinary approach); Content (accurate, advanced technical knowledge from multiple engineering disciplines); Critical Thinking (evaluating the effectiveness, tradeoffs, and appropriateness of solutions).
- **Capstone Presentation:** Content and Organization; Application of interdisciplinary techniques and tools; Delivery and Communication to technical and non-technical audiences.

Exact due dates are posted in the GE 8003 Canvas course each semester. Students should also expect questions related to their completed coursework.

Non-Thesis Task List

Task	When
Confirm GE 8003 on your Program of Study and Advising Request	Semester before Capstone
Apply to graduate	Early in semester of graduation (check the Academic Calendar)
Submit Literature Review Draft, Capstone Report, Final Abstract and Reflective Memo	As scheduled in GE 8003
Deliver Capstone Presentation	As scheduled in GE 8003
Complete the Bagley College of Engineering Graduate Exit Survey	End of final semester

Thesis Option

A thesis is a research experience that demonstrates knowledge of, and contributes to, the engineering discipline. Thesis students should begin work on their thesis by their second or third semester to finish on time. Thesis students must pass an oral defense of the thesis before graduating.

Major Professor and Graduate Committee

Thesis students are responsible for choosing their research area and for identifying and securing an engineering faculty member with a graduate faculty appointment as their major professor within their first year in the program (earlier is preferred). The major professor should have expertise in the student's research area and directs the thesis research. The Program Advisor continues to serve as the student's advisor.

Working with the major professor, the student selects the remaining committee members before beginning thesis work. The committee is declared with the Committee Request form. Faculty levels and appointing departments are listed in the Graduate Faculty listing in the Graduate Catalog. Email the Program Advisor the names and departments of your major professor and committee members.

Research Hours

MENG thesis students complete 6 hours of XX 9000 Research/Thesis in their major professor's department and section. Research is a variable-credit course: Banner registers you for the minimum hours, so after registering you must change the hours to the number you planned under the Schedule and Options tab. Research hours are graded Satisfactory (S) or Unsatisfactory (U); see Academic Dismissal for the consequences of U grades.

Research Facilities and Compliance

Thesis research is identical for online and on-campus students, and MSU students have access to many software programs through ITS or individual departments. Research is governed by federal, state, and university regulations; students must seek approval from the appropriate university office when required (for example, IRB approval for human subjects research; see the Office of Research Compliance, www.orc.msstate.edu).

Online students typically conduct thesis research at non-MSU facilities. Faculty usually cannot loan specialized equipment, so plan accordingly.

Thesis Formatting Course (LIB 9010)

LIB 9010 is a required, free, zero hour online course developed by MSU Libraries and the Graduate School. It guides students through the thesis format review and submission process and offers tutorials, workshops, and copyright information. Thesis students enroll through Banner in their final semester.

Thesis-Dissertation Checklist

In the semester before your defense, review the Bagley College of Engineering Thesis-Dissertation Checklist (www.bagley.msstate.edu/grad/forms). All documents can be signed

digitally and emailed to the Dean's Office as instructed on the checklist. See also the Thesis Student Checklist in the Thesis Track module in Canvas and the procedure in Appendix B.

Graduation

Applying to Graduate

Students must apply for their degree early in the semester they plan to graduate. Log in to myState, open the Banner tab, and select Apply for a Degree under Academic Records. Deadlines are on the Academic Calendar. Application fees increase the later you apply, so do not miss the deadline. Contact the Program Advisor the semester before graduation with any questions and email the Program Advisor once you have applied.

Graduate Degree Audit

About 8 weeks before the end of each semester, the Graduate Coordinator receives a list of students who have applied to graduate and reviews each student's file, transcript, and Degree Works audit to confirm all forms and requirements are complete. If anything is missing, the student and advisor are notified immediately and a plan is developed. Depending on what is found, graduation may be delayed.

Commencement and Diplomas

Commencement ceremonies are held in the Fall and Spring; Summer graduates are invited to walk in the Fall ceremony. Online students are welcome to attend. Students attending are responsible for obtaining all required regalia through the MSU bookstore. Diplomas are mailed about six weeks after the semester ends, once all degree requirements are confirmed. Keep your mailing address in myState current. See the Graduation Checklist in the Graduation module in Canvas for a complete list of steps.

Appendix A: Course Ideas by Area of Interest

All MENG students complete Engineering Statistics I and Project Management unless previously completed (see Program Requirements). The MENG requires 30 hours for both thesis and non-thesis options. The courses below are popular options offered online in the past. Offerings vary by semester; check the Master Class Schedule and confirm your choices with the Program Advisor. Special topics (XX 6990/8990) and directed individual study (XX 7000, content approved before enrolling) may also be available.

Aeronautics and Aerodynamics

- ASE 6233 Structural Dynamics
- ASE 6423 Introduction to Computational Fluid Dynamics
- ASE 6433 Fundamentals of Numerical Grid Generation
- ASE 6813 Advanced Orbital Mechanics
- ASE 8313 Advanced Computational Aerodynamics I
- ASE 8323 Advanced Computational Aerodynamics II
- ASE 8343 Incompressible Viscous Laminar Flow
- ASE 8353 Turbulent Flow
- ASE 8413 Computational Fluid Dynamics I
- ASE 8423 Computational Fluid Dynamics II
- CSE 8233 Software Engineering Project Management
- EM 8113 Theory of Continuous Media
- IE 8753 Network Flows and Dynamic Programming
- MA 8203 Applied Mathematics I

Civil, Transportation, and Construction Systems

- CE 6183 Water Transportation
- CE 6513 Engineering Hydrology
- CE 6523 Open Channel Hydraulics
- CE 6563 Sedimentation Engineering
- CE 6733 Construction Engineering Equipment and Methods
- CE 6883 Engineering Environmental Systems
- CE 8453 Physical Properties of Soils
- CE 8503 Data Analysis for CEE
- CE 8543 Tidal Hydraulics
- CE 8563 Groundwater Resources Evaluation
- CE 8573 Hydro-environmental Analysis
- CE 8593 Environmental Hydrology
- CE 8923 Surface Water Quality Modeling
- CE 8953 Fine Sediment Processes

- GR 6303 Principles of GIS
- GR 6603 Climatology
- GR 8613 Hydrometeorology

Coastal and Water Management

- CE 6183 Water Transportation
- CE 6523 Open Channel Hydraulics
- CE 6533 Computational Methods in Water Resources Engineering
- CE 6563 Sedimentation Engineering
- CE 6863 Water and Wastewater Engineering
- CE 8533 Hydromechanics
- CE 8563 Groundwater Resources Evaluation
- CE 8573 Hydro-environmental Analysis
- CE 8593 Environmental Hydrology
- CE 8923 Surface Water Quality Modeling
- CE 8953 Fine Sediment Processes

Management and Leadership

- IE 6513 Engineering Administration
- IE 6553 Engineering Law and Ethics
- IE 8583 Enterprise Systems Engineering
- IE 8733 Decision Theory
- IE 8913 Engineering Economy II
- EC 8103 Economics for Managers (non-engineering)
- MGT 8113 Leadership Skills (non-engineering)
- MKT 8153 Strategic Marketing Management (non-engineering)

Electrical and Computer Systems

- ECE 6653 Introduction to Power Electronics
- ECE 6743 Digital Systems Design
- ECE 8223 Analog Design
- IE 6733 Linear Programming I
- IE 8733 Decision Theory
- BQA 8233 Quantitative Analysis and Business Research (non-engineering)

Engineering Systems

- ASE 6423 Introduction to Computational Fluid Dynamics
- ECE 6333 RF and Microwave Engineering
- ECE 6653 Introduction to Power Electronics
- EM 8213 Fracture Mechanics

- IE 6113 Human Factors Engineering
- IE 6173 Occupational Safety Engineering
- IE 6513 Engineering Administration
- IE 6553 Engineering Law and Ethics
- IE 6573 Process Improvement Engineering
- IE 6623 Engineering Statistics II
- IE 6653 Industrial Quality Control I
- IE 6733 Linear Programming I
- IE 6753 Systems Engineering and Analysis
- IE 8143 Applied Ergonomics Methods
- IE 8153 Cognitive Engineering
- IE 8163 Macroergonomics
- IE 8353 Manufacturing Systems Modeling
- IE 8733 Decision Theory
- ME 6123 Failure of Engineering Materials
- ME 6193 Automotive Engineering
- BIS 8113 Management of Information Technology and Systems (non-engineering)
- GG 8423 Earthquakes and Volcanoes (non-engineering)
- MGT 8113 Leadership Skills (non-engineering)

Materials and Fluids

- ASE 6553 Engineering Design Optimization
- ASE 8343 Incompressible Viscous Laminar Flow
- ASE 8413 Computational Fluid Dynamics I
- EM 6123 Introduction to Finite Elements
- EM 6213 Advanced Mechanics of Materials
- EM 8213 Fracture Mechanics
- IE 6513 Engineering Administration
- IE 6553 Engineering Law and Ethics
- IE 6653 Industrial Quality Control I
- IE 8163 Macroergonomics
- IE 8733 Decision Theory
- ME 6123 Failure of Engineering Materials
- ME 6133 Mechanical Metallurgy
- ME 6443 Mechanical Systems Design

Structural and Mechanical

- EM 6213 Advanced Mechanics of Materials
- EM 8213 Fracture Mechanics

- ME 6123 Failure of Engineering Materials
- ME 6133 Mechanical Metallurgy
- ME 6443 Mechanical Systems Design
- ME 8253 Fatigue in Engineering Design
- MGT 8113 Leadership Skills (non-engineering)

Military Engineering Concentration

The following courses have been identified as Military Engineering Approved Electives. Electives require approval of the Graduate Coordinator. New courses for this concentration are under development.

Engineering Courses

- CE 6513 Engineering Hydrology
- CE 6523 Open Channel Hydraulics
- CE 6533 Computational Methods in Water Resources Engineering
- CE 6923 Structural Dynamics
- CE 8303 Materials Characterization
- CE 8433 Advanced Foundation Engineering
- CE 8443 Soil Behavior
- CE 8503 Data Analysis for CEE
- CE 8673 Blast Effects and Structural Response
- CE 8683 Finite Element Analysis in Structural Engineering
- CE 8933 Surface Water Quality Modeling II
- CSE 6253 Secure Software Engineering
- CSE 6273 Introduction to Computer Forensics
- CSE 6363 Software Reverse Engineering
- CSE 6383 Cryptography and Network Security
- CSE 6503 Database Management Systems
- CSE 6633 Artificial Intelligence
- CSE 6643 AI Robotics
- CSE 6653 Cognitive Science
- CSE 6753 Computation Fundamentals
- CSE 6763 Cyber Law
- CSE 8153 Advanced Data Communications
- CSE 8673 Machine Learning
- CSE 8713 Advanced Cyber Operations
- CSE 8723 Cyber Law and Policy
- CSE 8743 Advanced Network Security
- EM 6123 Introduction to the Finite Element Method
- EM 6213 Advanced Mechanics of Materials

- GE 8303 Introduction to Military Engineering
- IE 6333 Production Control I
- IE 6513 Engineering Administration
- IE 6533 Project Management
- IE 6543 Logistics Engineering
- IE 6573 Process Improvement Engineering
- IE 6613 Engineering Statistics I
- IE 6753 Systems Engineering and Analysis
- IE 6773 Systems Simulation I
- IE 8583 Enterprise Systems Engineering
- ME 6123 Failure of Engineering Materials
- ME 8253 Fatigue in Engineering Design
- GE 8003 MENG Capstone (non-thesis)

Non-Engineering Courses

- BL 8113 Law, Ethics, and Dispute Resolution
- GR 6303 Principles of GIS
- MGT 8113 Leadership Skills
- PPA 8703 Government Organization and Administrative Theory
- PPA 8723 Public Budgeting and Financial Management
- PPA 8733 Public Program Evaluation
- PPA 8743 Administrative Law
- PPA 8903 Public Policy

Sample Programs of Study

Sample 30-hour programs of study for thesis and non-thesis students are available in the Degree Requirements & Graduate Guide module of the MENG Advising course in Canvas. All programs of study must be approved by the Program Advisor.

1. Aeronautics & Aerodynamics

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
ASE 6423	Introduction to Computational Fluid Dynamics	3
ASE 6433	Fundamentals of Numerical Grid Generation	3
ASE 6813	Advanced Orbital Mechanics	3

Course	Title	Hours
ASE 8313	Advanced Computational Aerodynamics I	3
ASE 8413	Computational Fluid Dynamics I	3
ASE 8353	Turbulent Flow	3
IE 8753	Network Flows and Dynamic Programming	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 0 hours · Engineering disciplines: ASE, IE
Thesis version: Replace GE 8003 and ASE 6813 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

2. Civil, Transportation & Construction Systems

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
CE 6183	Water Transportation	3
CE 6513	Engineering Hydrology	3
CE 6523	Open Channel Hydraulics	3
CE 8543	Tidal Hydraulics	3
CE 8563	Groundwater Resources Evaluation	3
CE 8573	Hydro-environmental Analysis	3
CE 8923	Surface Water Quality Modeling	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 0 hours · Engineering disciplines: CE, IE
Thesis version: Replace GE 8003 and CE 6183 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

3. Coastal & Water Management

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
CE 6523	Open Channel Hydraulics	3
CE 6563	Sedimentation Engineering	3
IE 6513	Engineering Administration	3
CE 8533	Hydromechanics	3
CE 8593	Environmental Hydrology	3
CE 8953	Fine Sediment Processes	3
MGT 8113	Leadership Skills*	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 3 hours · Engineering disciplines: CE, IE
Thesis version: Replace GE 8003 and CE 6563 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.
This option must include management-based coursework (IE 6513 and MGT 8113 in this sample).

4. Management & Leadership

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
CE 6703	Construction Engineering and Management	3
IE 6513	Engineering Administration	3
IE 6553	Engineering Law and Ethics	3
IE 8583	Enterprise Systems Engineering	3
IE 8733	Decision Theory	3
IE 8913	Engineering Economy II	3
MGT 8113	Leadership Skills*	3

Course	Title	Hours
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 3 hours · Engineering disciplines: CE, IE
Thesis version: Replace GE 8003 and IE 6553 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

5. Electronics & Electric & Computer Systems

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
ECE 6653	Introduction to Power Electronics	3
ECE 6743	Digital Systems Design	3
IE 6733	Linear Programming I	3
ECE 8223	Analog IC Design	3
IE 8583	Enterprise Systems Engineering	3
IE 8733	Decision Theory	3
BQA 8233	Quantitative Analysis and Business Research*	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 3 hours · Engineering disciplines: ECE, IE
Thesis version: Replace GE 8003 and IE 6733 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

6. Engineering Systems

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
ECE 6333	RF and Microwave Engineering	3
ECE 6653	Introduction to Power Electronics	3

Course	Title	Hours
IE 6623	Engineering Statistics II	3
IE 8153	Cognitive Engineering	3
IE 8353	Manufacturing Systems Modeling	3
IE 8733	Decision Theory	3
BIS 8113	Management of Information Technology and Systems*	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 3 hours · Engineering disciplines: ECE, IE
Thesis version: Replace GE 8003 and IE 6623 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

7. Materials & Fluids

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
ASE 6553	Engineering Design Optimization	3
EM 6123	Introduction to Finite Elements	3
ME 6123	Failure of Engineering Materials	3
ASE 8343	Incompressible Viscous Laminar Flow	3
ASE 8413	Computational Fluid Dynamics I	3
IE 8163	Macroergonomics	3
IE 8733	Decision Theory	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 0 hours · Engineering disciplines: ASE, EM, IE, ME
Thesis version: Replace GE 8003 and ASE 6553 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

8. Military Engineering

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
CE 6523	Open Channel Hydraulics	3
IE 6543	Logistics Engineering	3
ME 6123	Failure of Engineering Materials	3
CE 8503	Data Analysis for CEE	3
CE 8673	Blast Effects and Structural Response	3
GE 8303	Introduction to Military Engineering	3
IE 8583	Enterprise Systems Engineering	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 0 hours · Engineering disciplines: CE, GE, IE, ME
Thesis version: Replace GE 8003 and ME 6123 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.
Military students take 21 hours (non-thesis) or 18 hours (thesis) of Military Engineering Approved Electives; all electives require Graduate Coordinator approval.

9. Structural & Mechanical

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
EM 6213	Advanced Mechanics of Materials	3
ME 6123	Failure of Engineering Materials	3
ME 6443	Mechanical Systems Design	3
EM 8203	Applied Elasticity	3
EM 8213	Fracture Mechanics	3
ME 8223	Inelasticity	3

Course	Title	Hours
ME 8253	Fatigue in Engineering Design	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 0 hours · Engineering disciplines: EM, IE, ME
Thesis version: Replace GE 8003 and ME 6443 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

10. Agriculture

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
AEC 6113	Agribusiness Firm Management*	3
AEC 6363	Economics of Precision Agriculture*	3
IE 6753	Systems Engineering and Analysis	3
IE 8733	Decision Theory	3
MGT 8113	Leadership Skills*	3
—	8000-level engineering course of choice (second discipline)	3
—	8000-level engineering course of choice (second discipline)	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 9 hours
Thesis version: Replace GE 8003 and AEC 6363 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

11. City/County Engineers

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3

Course	Title	Hours
IE 6753	Systems Engineering and Analysis	3
IE 8733	Decision Theory	3
PPA 8133	Seminar in City and County Management*	3
PPA 8183	Local Government Finance*	3
PPA 8903	Public Policy*	3
—	8000-level engineering course of choice (second discipline)	3
—	8000-level engineering course of choice (second discipline)	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 21 hours · Outside engineering: 9 hours
Thesis version: Replace GE 8003 and IE 6753 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

12. Mechanical/Engineering Mechanics

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
EM 6123	Introduction to Finite Elements	3
ME 6123	Failure of Engineering Materials	3
ME 6443	Mechanical Systems Design	3
CE 8303	Materials Characterization	3
EM 8203	Applied Elasticity	3
ME 8223	Inelasticity	3
ME 8253	Fatigue in Engineering Design	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 15 hours · Outside engineering: 0 hours · Engineering disciplines: CE, EM, IE, ME

Thesis version: Replace GE 8003 and ME 6443 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

13. Industrial/Civil

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
CE 6133	Geometric Design of Highways	3
CE 6963	Steel Structures	3
CE 8303	Materials Characterization	3
CE 8333	Pavement Rehabilitation	3
GR 8833	Weather and Society*	3
MGT 8063	Survey of Management*	3
MGT 8113	Leadership Skills*	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 18 hours · Outside engineering: 9 hours · Engineering disciplines: CE, IE
Thesis version: Replace GE 8003 and CE 6963 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

14. Industrial/Computer Science

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
IE 6623	Engineering Statistics II	3
IE 6753	Systems Engineering and Analysis	3
CSE 8673	Machine Learning	3
CSE 8990	Special Topics: Big Data Visualization	3
BQA 8443	Statistical Analysis for Business Decisions*	3
MA 8203	Foundations of Applied Mathematics I*	3

Course	Title	Hours
MGT 8113	Leadership Skills*	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 18 hours · Outside engineering: 9 hours · Engineering disciplines: CSE, IE
Thesis version: Replace GE 8003 and IE 6623 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

15. Business

Course	Title	Hours
IE 6533	Project Management	3
IE 6613	Engineering Statistics I	3
IE 6113	Human Factors Engineering	3
EM 8213	Fracture Mechanics	3
ME 8253	Fatigue in Engineering Design	3
BQA 8233	Quantitative Analysis and Business Research*	3
EC 8103	Economics for Managers*	3
MGT 8113	Leadership Skills*	3
MKT 8153	Strategic Marketing Management*	3
GE 8003	MENG Capstone	3
Total		**30**

Checks: 8000-level: 21 hours · Outside engineering: 12 hours · Engineering disciplines: EM, IE, ME
Thesis version: Replace GE 8003 and IE 6113 with XX 9000 Research/Thesis (6 hours), and add LIB 9010 (0 hours) in your final semester.

Appendix B: Thesis Preparation and Oral Defense

The following describes the general thesis process. Not every required form is listed; see the Graduate Catalog and the Thesis-Dissertation Checklist for all forms.

1. With the consent and advice of the major professor, the student selects a tentative thesis topic (by the second semester).
2. The student and major professor identify committee members, and the student asks each whether they are willing to serve. The student submits the Committee Request form.
3. The student prepares a written thesis proposal including a detailed literature review with a complete reference list, a detailed research plan, and the expected contribution to the field.
4. The major professor approves the proposal and shares it with the committee, and the student begins research.
5. The major professor directs the research and writing; committee members are available for guidance. The major professor may schedule a progress meeting with the committee. The student should follow the Library's Thesis and Dissertation Guide and enroll in LIB 9010 in the final semester.
6. The major professor approves the final draft. At least 3 weeks before the defense, the student schedules the defense with the committee and submits the Declaration/Announcement of Comprehensive Examination/Defense form. At least 2 weeks before the defense, the student sends the thesis to the committee and the Program Advisor, and the defense is announced. No defenses are scheduled during dead days or final exams.
7. The defense begins with a 15–30-minute presentation of the thesis, followed by questions (typically 1–2 hours total).
8. The committee decides on pass, fail, or retest. Students who do not perform well will not be passed. A retest may be held no sooner than 2 weeks after the original defense.
9. Immediately after the defense, the major professor submits the Report of Examination Results, and the student completes the Bagley College of Engineering Graduate Exit Survey.
10. With the major professor, the student makes the changes required by the committee and collects signatures on the thesis signature page.
11. The student submits the thesis and all related forms to the MSU Library for format review by the deadline on the Academic Calendar.