

Appendix N



The Center for Leadership Education
Master of Science in Engineering Management
Graduate Student Guide
2018 - 2019

Masters of Engineering Management

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Welcome

Welcome to the Master of Science in Engineering Management Program! This manual can help you plan a program of graduate study leading to the Master of Science in Engineering Management (MSEM) degree. Its pages are devoted to policies, rules, procedures, and suggestions that can be useful as you plan your studies.

If you need additional information or have any questions or concerns, please contact us at: msem@jhu.edu or call the MSEM Coordinator at 410-516-6274. Our offices are located on the Johns Hopkins Homewood campus in 105 Whitehead Hall and our doors are always open for students! Additionally, for more information on the program, please peruse the MSEM website: <https://msem.engineering.jhu.edu/>

Upon arrival at Johns Hopkins University, please stop by the office in Suite 105 and introduce yourself. We look forward to meeting you. At this time, we will also give you keys to the building, to Suite 105 and to the dedicated MSEM Lounge, specifically designated for your use and productivity. Additionally, during the MSEM Orientation, we will take a picture of you to include in our MSEM directory.

For your reference, please find our faculty and staff directory after the table of contents.

Faculty and Staff Directory

Director:

Pamela H. Sheff: pamsheff@gmail.com

Full Time Faculty:

Lawrence Aronhime: aronhime@jhu.edu

Jenny Bernstein: jberns12@jhu.edu

Annette Leps: aleps@jhu.edu

Trevor Mackesey: tmackes1@jhu.edu

Charlotte O'Donnell: codonne7@jhu.edu

Julie Reiser: juliereiser@jhu.edu

Eric Rice: ericmrice@gmail.com

William Smedick: smedick@jhu.edu

Leslie Kendrick: kendrick@jhu.edu

Illyssa Izenberg: izenberg@jhu.edu

Staff:

Carey Arkwright: carey.arkwright@jhu.edu

Administrative Secretary, CLE

410-516-8205

Lindsey Conklin: lconkli4@jhu.edu

Sr. Academic Program Coordinator, CLE & MSEM

410-516-1108

Bettina Tharps: btharps1@jhmi.edu

Administrative Manager, CLE

410-516-5734

Course Requirements for Degree Completion

Course No.	Course Title	Semester/Year	Credits
662.611	Strategies: Accounting & Finance – <i>required cohort</i>	Fall	3
662.692	Strategies for Innovation & Growth– <i>required cohort</i>	Fall	3
663.618	Professional Presentations – <i>required cohort</i>	Fall	3
662.643	The Practice of Consulting – <i>required cohort</i>	Winter	1.5
663.660	Managing People/Resolving Conflict – <i>required cohort</i>	Spring	1.5
663.671	Leading Change – <i>required cohort</i>	Spring	1.5
662.802	MSEM Internship- <i>optional</i>	Optional	3
663.xxx	Elective	Elective	1.5
663.653	Innovation and Entrepreneurship (<i>elective</i>)	Fall & Spring	6
662.811/812	MSEM Seminar – <i>required cohort</i>	Fall & Spring	1

Students must take the following for degree completion:

- *Required*: five advanced courses in a declared technical area of engineering or applied science.
- *Fall semester*: a cohort-based management curriculum consisting of three required courses, plus the MSEM seminar:
 - Strategies in Accounting and Finance
 - Strategies for Innovation and Growth
 - Professional Presentations
- *Winter Intersession*: The Practice of Consulting
- *Spring Semester*: Two half-semester courses:
 - Managing People/Resolving Conflict
 - Leading Change
- *Electives*: two required electives, selected from an approved list of Professional Development Program seven-week modules, or the internship. Please note: students may choose as many electives as they can comfortably complete. In addition, 663.653 Innovation and Entrepreneurship also serves as a Management Elective or a Technical Concentration course with the approval of your advisor. Students in the Civil Engineering concentration already have approval.

Other Requirements

Interdivisional Course Registration:

Students may need to register in another division. You must register in person in Garland Hall.

Engineering for Professionals Courses:

The WSE's Engineering for Professionals (EP) program offers a variety of classroom and online courses. Depending on the policies of your technical concentration, you may count up to two EP courses towards your degree. EP courses at the 400-level or above are considered graduate level courses. For more information, please refer to <http://ep.jhu.edu/>

Whiting School of Engineering Degree Requirements:

All Whiting School of Engineering master's degree candidates must meet the requirements found below:

- Every student must register for a minimum of two semesters as a full-time, graduate student.
- Full time students are required to take a minimum of nine credits each semester.
- Every student must provide certification by a department or program committee that all departmental or committee requirements have been fulfilled.
- All courses applied to the master's degree must be at the 400-level or higher. At their discretion, individual graduate programs may institute a higher course level as the minimum for their students.
- Every student must earn the master's degree within five consecutive academic years (10 semesters). Only semesters during which a student has a university-approved leave of absence are exempt from the ten-semester limit.

Specific Requirements to MSEM:

- Candidates must complete all of the required courses.
- Only one C will apply toward the degree (no grade lower than a C will apply to degree)
- All courses must be at the 400-level or higher (departmental graduate level).
- Departments sponsoring technical concentrations may impose stricter requirements for coursework within the concentration.
- With permission of the student's advisor, an MSEM student may double-count **one** JHU course or apply undergraduate or graduate courses taken at JHU or elsewhere but not applied to a degree (in accordance with conditions in the [WSE Policy on Double-Counting Courses](#)).

RULES & REGULATIONS

Academic Ethics:

Enrollment in the online tutorial EN.500.603 Academic Ethics, which instructs on academic and ethical responsibilities, is automatic. This 20-minute tutorial is mandatory and to be completed within the first eight weeks of the student's first semester. The Whiting School of Engineering will notify new students when the course is available.

Academic Probation:

Students who receive more than one C in the program will be placed on Academic Probation. The student will be required to meet with the director on a regular basis during the following semester and to replace the course in which he/she received the second C with another course. If the student receives another C, he or she is subject to dismissal from the program. Please find more information on WSE Probation Policies [here](#).

General Graduate Student Policies: <http://homewoodgrad.jhu.edu/academics/policies/>

Diversity Information: <http://homewoodgrad.jhu.edu/?s=Diversity>

Dual Degrees:

JHU MSEM students may not enroll in another graduate program simultaneously. Students may have two concentrations within MSEM, but may not begin another graduate program until the MSEM degree is complete.

Advising:

The Registrar's Office will assign an engineering advisor. Students are required to obtain approval for *all engineering concentration course choices* from their technical advisor. The MSEM director, Pamela Sheff, or MSEM coordinator, Angela Ruddle, will advise students on management courses. Technical advisors will have the authority and responsibility of placing holds, releasing holds, and clearing students' technical courses for acceptance at the time of graduation. In order to allow flexibility within the concentrations, advisors have the authority to approve changes and/or substitutions to any courses in their concentration they deem acceptable and appropriate.

Graduation:

Students will receive individual course check sheets for verification each semester. Concentration Advisors will receive graduating advisees check sheets for approval and signature in the weeks before graduation and then forwarded to the Dean's Office.

MSEM TECHNICAL CONCENTRATIONS & ADVISORS

Currently, our technical concentrations and their sponsoring departments are:

Department	Advisor & Email	Concentrations
Applied Mathematics	Amitabh Basu basu.amitabh@jhu.edu	Operations Research Probability & Statistics
Chemical & Biomolecular Engineering	Marc Donohue mdd@jhu.edu	Chemical & Biomolecular Engineering
Civil Engineering	James Guest jkguest@jhu.edu	Civil Engineering
Computer Science	Russ Taylor rht@jhu.edu	Computer Science
Cyber Security	Anton Dahbura antondahbura@jhu.edu	Computer Science/Information Security Institute
Electrical & Computer Engineering	Ralph Etienne Cummings retienne@jhu.edu	Communications Science Smart Product & Device Design
Geography & Environmental Engineering	Benjamin Hobbs bhobbs@jhu.edu	Environmental Systems Analysis, Economics & Public Policy
Materials Science & Engineering	Timothy Mueller tmueller@jhu.edu	Biomaterials, Materials Science & Engineering, Nano-Biotechnology, Nanomaterials & Nanotechnology
Mechanical Engineering	Gretar Tryggvason gtryggv1@jhu.edu	Fluid Mechanics, Mechanical Engineering, Mechanics & Materials
Systems Engineering	Sauleh Siddiqui siddiqui@jhu.edu	Systems Engineering

MSEM TECHNICAL CONCENTRATION REQUIREMENTS

1. **Biomaterials** (*Sponsored by the Department of Materials Science & Engineering*)

Prerequisites (5)

- UG calculus, chemistry, biology, physics and introductory biomaterials course equivalent to 510.316

Required Courses (3)

Approval of substitutions for required courses are at the discretion of the advisor

- 510.606 Chemical and Biological Properties of Materials (PR: UG chemistry and biology or permission)
- 510.607 Biomaterials II (PR: 510.606 Biomaterials I or equivalent)
- 510.621 Structure and Thermodynamics of Biomolecules

Electives (2)

- Electives should be related to Materials Science and Engineering and must be approved by the DMSE graduate committee.

List of Pre-approved Electives

Courses not on this list are at the advisor's discretion.

- 510.400 Introduction to Ceramics
- 510.403 Materials Characterization
- 510.405 Materials Physics
- 510.422 Micro- and Nano-structured Materials and Devices
- 510.426 Biomolecular Materials
- 510.428 Materials Science Laboratory I
- 510.429 Materials Science Laboratory II
- 510.430 Biomaterials Lab
- 510.431 Biocompatibility of Materials
- 510.456 Introduction to Surface Science
- 500.619 Fundamental Physics and Chemistry of Nanomaterials
- 510.604 Mechanical Properties of Materials
- 510.605 Electronic, Optical and Magnetic Properties of Materials
- 510.606 Chemical and Biological Properties of Materials
- 510.607 Biomaterials II
- 510.608 Electrochemistry

- 510.611 Solid State Physics
- 510.612 Solid State Physics
- 510.617 Advanced Topics in Biomaterials
- 510.620 Amorphous and Nano crystalline Metals
- 510.622 Micro- and Nano-Structured Materials and Devices
- 510.624 Theory of X-ray Diffraction
- 510.650 Principles of Quantum Physical Interactions
- 510.657 Materials Science of Thin Films

2. **Chemical and Biomolecular Engineering** (*Sponsored by the Department of Chemical and Biomolecular Engineering*)

Required Courses (3)

Substitutions for required course can be made at the advisor's discretion.

- 540.671 Advanced Thermodynamics in Practice
- 540.604 Advanced Chemical Reaction Engineering in Practice
- 540.673 Transport Phenomena in Practice

Elective Courses (2)

- Any two courses from 540.6xx or above, or 545.6xx or above (excluding seminar)
- Other elective courses must be approved at the advisor's discretion

3. **Civil Engineering** (*Sponsored by the Department of Civil Engineering*)

Required Courses (3)

Approval of substitutions for required courses are at the discretion of the advisor

- 560.604 Solid Mechanics for Structures
- 560.440 Applied Finite Methods
- OR**
- 560.730 Finite Element Methods

Elective Courses (2)

Alternative selections are at the discretion of the advisor

- Any two courses from 560.4xx or above, or 565.4xx or above (excluding seminar)
- One course from 560.6xx or 560.7xx (excluding seminar)

4. **Communications Science** (*Sponsored by the Department of Electrical & Computer Engineering, ECE*)

Required (5)

A combination of five courses in communications and related fields from the list below. Approval of substitute courses are at the discretion of the advisor.

- 520.435 Digital Signal Processing
- 520.447 Introduction to Information Theory & Coding
- 520.628 Satellite Communication System
- 520.646 Wavelets and Filter Banks
- 520.651 Random Signal Analysis
- 520.652 Filtering and Smoothing
- 520.666 Information Extraction
- 520.735 Sensory Information Processing

Substitutions for required courses can be made at the advisor's discretion.

- Elective Courses (2)

Courses not listed below are approved at the advisor's discretion.

Option #1: Geared toward those with interest in a broad range of communications
Any two (2) of the following courses, approved by the faculty advisor:

Courses in ECE:

520.447 Information Theory and Coding

520.460 Error Control Coding

520.435 Digital Signal Processing

Courses in the Johns Hopkins Engineering for Professionals (EP) Program:

520.608 Next Generation Telecommunications

525.616 Communications Systems Engineering

525.618 Antenna Systems

525.631 Adaptive Signal Processing

525.638 Introduction to Wireless Technology

525.641 Computer and Data Communication Networks

525.654 Communications Circuits Laboratory

525.708 Iterative Methods in Communications Systems

525.721 Advanced Digital Signal Processing

525.722 Wireless and Mobile Cellular Communications

525.738 Advanced Antenna Systems

525.751 Software Radio for Wireless Communications

525.762 Signal Processing with Wavelets

525.768 Wireless Networks

525.771 Propagation of Radio Waves in the Atmosphere

Option #2: Geared toward those with interest in optical communications
Any two (2) of the following courses, approved by the faculty advisor:

525.613 Fourier Techniques in Optics

525.625 Laser Fundamentals

520.636 Optics and Photonics Laboratory
525.753 Optical Propagation, Sensing and Backgrounds
525.772 Fiber-Optic Communications Systems
525.797 Advanced Fiber Optic Laboratory

Courses not on this list can be used at the advisor's discretion.

5. Computer Science (Sponsored by the Department of Computer Science)

Pre-requisites

- Entering students must have completed a program of study equivalent to that required by the B.S. in computer science.
- Applicants from other disciplines are required to have coursework (or equivalent experience) in intermediate programming (C++ and Java), data structures, automata theory, computer systems fundamentals and algorithms.

Required (5)

Alternative selections are made at the advisor's discretion.

- Any five regular graduate courses, 400-level or higher, from the Department of Computer Science, not including the senior thesis.
- MSEM students in this concentration may take no more than three graduate-level courses in one semester.

6. Cybersecurity (Sponsored by the Information Security Institute)

Pre-Requisites:

- Entering students are expected to have completed a program of study equivalent to that required by at least an undergraduate minor in computer science and a computer science BS is recommended.
- Applicants from other disciplines must have coursework (or equivalent experience) in Computer System Fundamentals, Programming, Data Structures, and Discrete Math.
- If the necessary background courses are lacking, students must take undergraduate courses to possess these prerequisites. These courses will not count toward the MSEM degree but will appear on the transcript.

Curricular Requirements (5):

- A combination of five graduate courses, 600-level or higher, are taken from the Information Security Institute required as below:
 - Two courses from the Core Technology and/or the Elective Technology course lists;
 - One Core Policy course and one Core Management course;

- The fifth course from any of the above course categories.
- No more than three graduate-level courses by the Information Security Institute may be taken in one semester by an MSEM student in this concentration.

Alternative selections are allowed at the advisor's discretion.

7. Fluid Mechanics (*Sponsored by the Department of Mechanical Engineering and the Department of Materials Science and Engineering*)

Required (5)

Alternative selections can be made at the advisor's discretion.

- Any five course in Fluid Mechanics or closely related discipline, at the 400-level or higher, as approved by the Faculty advisor.
- At least two of the required technical courses must be at the 600-level or higher.

8. Materials Science & Engineering (*Sponsored by the Department of Materials Science & Engineering*)

Prerequisites (3)

- UG calculus, chemistry and physics; biology is recommended

Required Courses (1)

Approval of alternative courses are at the discretion of the advisor.

- 510.601 Structures of Materials (PR: UG calculus, chemistry and physics or permissions)

Electives (4)

- Electives related to Materials Science and Engineering and are approved by the DMSE graduate committee.
- Approval of alternative courses are at the discretion of the advisor.

List of Pre-approved Electives

- 510.400 Introduction to Ceramics
- 510.403 Materials Characterization
- 510.405 Materials Physics
- 510.422 Micro- and Nano-structured Materials and Devices
- 510.426 Biomolecular Materials
- 510.428 Materials Science Laboratory I
- 510.429 Materials Science Laboratory II
- 510.430 Biomaterials Lab
- 510.431 Biocompatibility of Materials
- 510.456 Introduction to Surface Science
- 510.604 Mechanical Properties of Materials

- 510.605 Electronic, Optical and Magnetic Properties of Materials
- 510.606 Chemical and Biological Properties of Materials
- 510.607 Biomaterials II
- 510.608 Electrochemistry
- 510.611 Solid State Physics
- 510.612 Solid State Physics
- 510.619 Biopolymer Synthesis
- 510.620 Metallic Glasses
- 510.622 Micro- and Nano-Structured Materials and Devices
- 510.657 Materials Science of Thin Films

9. Mechanical Engineering *(Sponsored by the Department of Mechanical Engineering)*
Approval of alternative courses are at the discretion of the advisor.

Required (5)

- Any five courses in Mechanical Engineering, or closely related discipline at the 400-level or higher, as approved by the Faculty advisor.
- At least two of the required technical courses must be at the 600-level or higher.

10. Mechanics and Materials *(Sponsored jointly by the Department of Mechanical Engineering and the Department of Materials Science & Engineering)*

Required Courses (3)

Approval of alternative courses are at the discretion of the advisor.

- 510.601 Structures of Materials
- 510.604 Mechanical Properties of Materials
- 530.602 Mechanics of Solids

Elective Courses (2)

Approval of alternative courses are at the discretion of the advisor.

Any two (2) of the following courses, approved by the faculty advisor:

- 510.403 Materials Characterization
- 510.428 Materials Science Laboratory I
- 530.405 Mechanics of Solids and Structures
- 530.414 Computer-Aided Design
- 530.416 Advanced Mechanical Design
- 530.418 Aerospace Structures
- 530.454 Manufacturing Engineering
- 530.487 Introduction to Microelectromechanical Systems
- 510.602 Thermodynamics of Materials
- 510.603 Phase Transformations in Materials

- 530.612 Computational Solid Mechanics

11. Nano-Biotechnology *(Sponsored by the Department of Materials Science & Engineering)*

Prerequisites (5)

UG calculus, chemistry, biology, physics and introductory biomaterials course equivalent to 510.316

Required Courses (3)

Substitutions for required course are at the advisor's discretion.

- 510.422 Micro-and Nano-Structured Materials and Devices
- 510.607 Biomaterials II (PR: 510.316 - Biomaterials I or permission)
- 670.619 Fundamental Physics and Chemistry of Nanomaterials

Electives (2)

- Electives should be related to Materials Science and Engineering and must be approved by the DMSE graduate committee
- Elective courses on the list below can be approved at the advisor's discretion

List of Pre-approved Electives

- 510.400 Introduction to Ceramics
- 510.403 Materials Characterization
- 510.405 Materials Physics
- 510.422 Micro- and Nano-structured Materials and Devices
- 510.426 Biomolecular Materials
- 510.428 Materials Science Laboratory I
- 510.429 Materials Science Laboratory II
- 510.430 Biomaterials Lab
- 510.431 Biocompatibility of Materials
- 510.456 Introduction to Surface Science
- 500.619 Fundamental Physics and Chemistry of Nanomaterials
- 510.604 Mechanical Properties of Materials
- 510.605 Electronic, Optical and Magnetic Properties of Materials
- 510.606 Chemical and Biological Properties of Materials
- 510.607 Biomaterials II
- 510.608 Electrochemistry
- 510.611 Solid State Physics
- 510.612 Solid State Physics
- 510.617 Advanced Topics in Biomaterials
- 510.619 Biopolymer Synthesis
- 510.620 Amorphous and Nano crystalline Metals
- 510.622 Micro- and Nano-Structured Materials and Devices
- 510.624 Theory of X-ray Diffraction
- 510.650 Principles of Quantum Physical Interactions

- Materials Science of Thin Films

12. Nanomaterials and Nanotechnology (*Sponsored by the Department of Materials Science & Engineering*)

Prerequisites (3)

UG calculus, chemistry, and physics

Required Courses (2)

Approval of substitutions for required course are made at the advisor's discretion

- 510.422 Micro- and Nano-Structured Materials and Devices
- 500.619 Fundamental Physics and Chemistry of Nanomaterials (PR: Permission of the instructor)

Electives (3)

- Electives should be related to Materials Science and Engineering and must be approved by the DMSE graduate committee
- Courses not on this list are at advisor's discretion.

List of Pre-approved Electives

- 510.400 Introduction to Ceramics
- 510.403 Materials Characterization
- 510.405 Materials Physics
- 510.422 Micro- and Nano-structured Materials and Devices
- 510.426 Biomolecular Materials
- 510.428 Materials Science Laboratory I
- 510.429 Materials Science Laboratory II
- 510.430 Biomaterials Lab
- 510.431 Biocompatibility of Materials
- 510.456 Introduction to Surface Science
- 500.619 Fundamental Physics and Chemistry of Nanomaterials
- 510.604 Mechanical Properties of Materials
- 510.605 Electronic, Optical and Magnetic Properties of Materials
- 510.606 Chemical and Biological Properties of Materials
- 510.607 Biomaterials II
- 510.608 Electrochemistry
- 510.611 Solid State Physics
- 510.612 Solid State Physics
- 510.617 Advanced Topics in Biomaterials
- 510.619 Biopolymer Synthesis
- 510.620 Amorphous and Nano crystalline Metals
- 510.622 Micro- and Nano-Structured Materials and Devices
- 510.624 Theory of X-ray Diffraction

- 510.650 Principles of Quantum Physical Interactions
- 510.657 Materials Science of Thin Films

12. Operations Research (*Sponsored by the Department of Applied Mathematics & Statistics, Geography, and Environmental Engineering*)

Prerequisites:

- Calculus-based background in Probability and Statistics. Students wishing to strengthen their background in this area may enroll in 550.420 (Probability) and/or 550.430 Statistics), but these courses may not be used in fulfillment of this concentration's requirements.

Required Courses (3)

Substitutions for required courses are at the advisor's discretion

- 570.495 Mathematical Foundations for Public Decision Making

OR

- 550.661 Foundations of Optimization
- 570.497 Risk and Decision Analysis
- 570.608 Uncertainty Modeling for Policy & Management Decision Making

OR

- 550.400 Mathematical Modeling & Consulting

Elective Courses (2)

Courses not on this list are at the advisor's discretion

- 570.493 Economic Foundations for Public Decision Making
- 570.496 Math Models/Urban System
- 570.607 Energy Planning and Policy Modeling
- 550.662 Optimization Algorithms
- 550.426 Stochastic Processes
- 550.427 Stochastic Processes in Finance
- 550.433 Monte Carlo Simulation
- 550.463 Network Models

13. Probability and Statistics (*Sponsored by the Department of Applied Mathematics & Statistics*)

Prerequisites:

- One upper-division undergraduate course in probability (equivalent to 550.420 Introduction to Probability)
- One upper-division undergraduate course in mathematical statistics (equivalent to 550.430 Introduction to Statistics)

Required (5)

Any five (5) of the following courses, or an elective approved by the discretion of the faculty advisor:

- 550.413 Applied Statistics and Data Analysis
- 550.426 Introduction to Stochastic Processes
- 550.432 Linear Statistical Models

- 550.433 Monte Carlo Simulation and Reliability
- 550.434 Nonparametric and Robust Methods
- 550.435 Bioinformatics and Statistical Genetics
- 550.436 Data Mining
- 550.437 Information, Statistics, and Perception
- 550.438 Statistical Methods in Computer Intrusion Detection
- 550.439 Time Series Analysis
- 550.620 Probability Theory I
- 550.630 Statistical Theory I
- 550.631 Statistical Theory II
- 550.632 Multivariate Statistical Theory
- 550.633 Time Series Analysis
- 550.634 Nonparametric and Robust Inference
- 550.635 Topics in Bioinformatics
- 550.730 Topics in Statistics
- 550.731 Case Studies in Applied Statistics

Additional Requirements

- An overall GPA of 3.0 must be maintained in courses used to meet the program's technical requirements
- At most two course grades of C or C+ are allowed, and the rest of the course grades must be B- or better.
- Students must satisfy the department's graduate student computing requirement.
- With advisor's approval, one non-departmental course containing appropriate mathematical or statistical content can count to satisfy the five-course requirement.

14. Smart Product and Device Design *(Sponsored jointly by the Department of Mechanical Engineering and the Department of Electrical & Computer Engineering)*

Required (3)

Substitutions for required courses are at the advisor's discretion.

- 530.414 Computer-Aided Design
- OR**
- 520.491 CAD of Digital VLSI Systems
- 530.421 Mechatronics
- OR**
- 520.448 Electronics Design Laboratory
- OR**
- 530.487 Introduction to Microelectromechanical Systems

Elective Courses (2)

Any two (2) related courses, approved by the faculty advisor

15. Environmental Systems Analysis, Economics and Public Policy (*Sponsored by the Department of Geography & Environmental Engineering*)

Required (3)

- **Economics (preferably with calculus):** This requirement may be waived by their advisor if the student has already had an intermediate microeconomics course. A list of qualifying courses is available from the advisor.
- **Mathematics of Decision Making:** 570.695 Environmental Health & Engineering Systems Design
- **Policy & Decision Making:** 570.697 Risk & Decision Analysis
OR 570.607 Energy Planning & Policy Modeling

Electives (2)

Courses not on this list are at advisor's discretion.

- 570.496 Mathematical Models for Managing Urban and Environmental Systems
- 570.618 Multi-objective Programming and Planning
- 570.676 Stochastic Programming
- Other courses in environmental economics, systems, or policy, as approved by the advisor.

Additional Notes

- The student's advisor must approve all courses.
- All courses must be at the 400-level or above.
- No more than one course in environmental engineering may be used to fulfill the area of concentration and only with careful consultation with the student's advisor.

16. Systems Engineering (*Sponsored by the Department of Systems Engineering*)

Required (3)

- **Two courses** with numbers from EN.560.640-EN.560.659 or EN.560.740-EN.560.759,
OR choose one from both
- *Substitutions for courses can be made the advisor's direction.*

Electives (3)

Three courses from any combination of the following:

- 560.6xx or above, or 565.4xx or above (excluding seminar)
- 645.6xx or above (EP Systems Engineering)
- 570.495 Mathematical Foundations for Public Decision Making
- 550.661 Foundations of Optimization
- 570.497 Risk and Decision Analysis

- 570.608 Uncertainty Modeling for Policy & Management Decision Making
- 550.400 Mathematical Modeling and Consulting
- 570.493 Economic Foundations For Public Decision Making
- 570.496 Math Models/Urban System
- 570.607 Energy Planning and Policy Modeling
- 663.653 Innovation and Entrepreneurship
- 663.657 Innovation and Entrepreneurship II

Courses not on this list can be used at the advisor's discretion.

History of MSEM at JHU

The Johns Hopkins Master of Science in Engineering Management (MSEM) Program was sent to MHEC (Maryland Higher Education Commission) in August 2008 and approved shortly thereafter. Our first students were accepted for the spring of 2009 and our first class of 13 students graduated in May 2010.

MSEM or MEM degrees are growing in popularity, but in 2009 only UMBC offered an Engineering Management degree locally. JHU MSEM was admitted to the Master of Engineering Management Programs Consortium (MEMPC) in 2016. Other members include Northwestern, Cornell, Dartmouth, Duke, Massachusetts Institute of Technology, Tufts and the University of Southern California.

In addition to our full-time, Homewood based program, the Whiting School also offers a Master's in Engineering Management through the Engineering for Professionals School; their program is part-time for working professionals and many of their courses are on-line.

MSEM began with 12 concentrations, and we have added three additional concentrations (Civil Engineering, Operations Research and Chemical & Biomolecular Engineering). We anticipate other concentrations in the future, among them Energy, BME, Computational Medicine, Electrical Engineering and Robotics.

NOTES REGARDING A FEW MSEM COURSES

662.643, The Practice of Consulting, a January Intersession program that enables students to put their management and engineering expertise to use in a real-world setting. Known in the program as the Immersion Experience, the course allows students to work intensively in teams on a client problem either in the US or abroad. Our students have worked in Israel, Honduras, Panama and Portugal thus far. Future destinations include Denmark and New Zealand.

662.802 The MSEM Internship is an optional, 3-credit course under the direction of Dr. William Smedick and used to replace two management electives. Both the Immersion and the Internship programs are on the Management side of the MSEM program. Please see the Internship description: Students may complete an internship with a **company anywhere in the world** and work on a well-defined project under the direction of the MSEM Internship Director William Smedick (smedick@jhu.edu). It will be at least 8 weeks long (generally spanning 8-12 weeks) and at least 320 hours in duration

RESOURCES FOR MSEM STUDENTS

Campus Map (Homewood)

<https://www.jhu.edu/maps-directions/>

Counseling Center

3003 N. Charles St., Homewood Apartments, Suite S-200

<https://studentaffairs.jhu.edu/counselingcenter/>

Disability Services

Garland Hall Room 385

<http://homewoodgrad.jhu.edu/student-services/disabilities-services-at-jhu/>

Graduate & Postdoctoral Affairs (Graduate Credits)

<http://homewoodgrad.jhu.edu/academics/wse-graduate-credit-hours/>

Health Insurance

<https://studentaffairs.jhu.edu/student-health/insurance/>

Housing

<https://studentaffairs.jhu.edu/community-living/offcampus/>

Insurance and Fees

<https://studentaffairs.jhu.edu/student-health/insurance/>

International Student Offices

Garland Hall, Room 385

http://ois.jhu.edu/Contact_Us/Homewood/index.html

IT

Garland Hall basement

<http://www.it.jhu.edu/>

Recreation Center

Ralph S. O'Connor Recreation Center

<https://studentaffairs.jhu.edu/recreation/experiential-education/trips/backpacking-hiking/>

Registrar

75 Garland Hall (Basement)

<https://studentaffairs.jhu.edu/registrar/>

Safety & Security (410-516-7777)

3001 Remington Avenue

<http://security.jhu.edu/>

JH Shuttles

<http://ts.jhu.edu/Shuttles/>

Student Accounts (Billing)

Garland Hall, Suite B31 (Basement)

<https://studentaffairs.jhu.edu/student-accounts/>

Student Employment Services

Garland Hall, Suite 72 (Basement)

<https://studentaffairs.jhu.edu/studentemployment/>

Student Health & Wellness

1 E. 31st St

<https://studentaffairs.jhu.edu/student-health>

Tax Information

<https://studentaffairs.jhu.edu/student-accounts/tax-information/>

Transportation

<http://ts.jhu.edu/Shuttles/>

Whiting School of Engineering Dean

Dean ED Schlesinger

Wyman Park Building, 6th floor

<https://engineering.jhu.edu/about/ed-schlesinger-benjamin-t-rome-dean/>

Whiting School of Engineering Asst. Dean of Graduate & Postdoc Academic Affairs

Christine Kavanagh

Wyman Park Building, 4th floor

<http://homewoodgrad.jhu.edu/>

ZIP Cars

<http://ts.jhu.edu/Services/ZipCar/>

ACADEMIC CALENDAR

Fall 2018

Saturday, August 25–Wednesday, August 29	Orientation for all new undergraduates
Thursday, August 30	First day of classes Meet according to Monday Schedule
Monday, September 3	Labor Day – no classes
Friday, September 14	Last day to add courses
Sunday, October 14	Last day to drop courses
Friday, October 19–Sunday, October 21	Fall Break – classes suspended
Monday, November 5	Graduate registration for spring term
Monday, November 5 – Seniors Wednesday, November 7 – Juniors Friday, November 9 – Sophomores Monday, November 12 – Freshmen	Undergraduate registration for spring term opens each day at 7:00 a.m.
Friday, November 16	Last day for course withdrawal Undergraduate's last day to change to S/U option
Monday, November 19–Sunday, November 25	Thanksgiving vacation
Friday, December 7	Last day of classes
Saturday, December 8–Tuesday, December 11	Reading period
Wednesday, December 12–Friday, December 21	Final examination period
Saturday, December 22–Sunday, January 6	Mid-year vacation

Spring 2019

Monday, January 7 - Friday, January 25	Intersession
Monday, January 21	Observance of Dr. Martin Luther King, Jr. birthday; No Intersession classes
Monday, January 28	First day of classes
Friday, February 8	Last day to add courses
Sunday, March 10	Last day to drop courses
Monday, March 18 - Sunday, March 24	Spring vacation
Monday, April 8 – Rising and Continuing Seniors Wednesday, April 10 – Rising and Continuing Juniors Friday, April 12 – Rising and Continuing Sophomores	Undergraduate registration for fall term opens each day at 7:00 a.m.
Monday, April 8	Graduate registration for fall term
Friday, April 19	Last day for course withdrawal Undergraduate's last day to change to S/U option
Friday, May 3	Last day of classes
Saturday, May 4 - Tuesday, May 7	Reading period
Wednesday, May 8 - Thursday, May 16	Final examination period
Thursday, May 23	University Commencement

