Systems Engineering is concerned with analysis of needs and requirements, design, production, deployment, operation, maintenance, refinement, and retirement of reliable systems considering various system constraints. Systems Engineering comprises product, process, and resource management and focuses on architecture, human factors, decision support, performance and evaluation, and management.

Systems engineers are the visionaries who take a global perspective of the system. Whereas discipline-specific engineers deal with system components, the systems engineer is concerned with the integration of these components and the overall success of the system throughout its life cycle. Our educational and research program reflects the systems engineer’s unique perspective on the system life cycle.

Mason’s graduate program in Systems Engineering recognizes the importance of balancing an education in quantitative models and engineering tools with a proper understanding of the systems perspective. Concentration areas include Advanced Transportation Systems (ATS), Architecture-Based Systems Integration (ABSI), Command, Control, Communications, Computing, and Intelligence (C4I), Energy Systems (NRGS), Financial Systems Engineering (FNSE), Systems Engineering and Data Analytics (SEDA), Systems Engineering of Software-Intensive Systems (SESI) and Systems Management (SMG).

The graduate program leading to the Master of Science in Systems Engineering (MSSE) emphasizes both analytical and practical aspects of engineering complex systems. Students are expected to demonstrate proficiency in using qualitative and quantitative tools relevant to systems engineering practice. The program also prepares students for careers in research and development and for pursuing advanced graduate study leading to the PhD degree in Systems Engineering and Operations Research.

Admissions & Policies

Admissions

Foundation and Admission Requirements

Each applicant for the MS program should meet the following entrance requirements:

1. Have a baccalaureate degree from an accredited institution in engineering, mathematics, computer science, physical sciences, economics, or a related field.
2. Have completed courses in multivariate calculus, matrix algebra, differential equations, applied probability and statistics, and a computer language.
3. Provide evidence of satisfactory educational achievement in at least one of the following forms: a GPA of at least 3.00 as an undergraduate or an acceptable GPA in graduate courses. International students must also achieve satisfactory scores on the Graduate Record Examination (GRE).
4. Have achieved a satisfactory score on the TOEFL examination for non-native English speakers.
5. Have two letters of recommendation submitted by former professors or supervisors.

Requirements

Degree Requirements

Total credits: 30-33

To obtain the Master of Science degree, students must complete a minimum of 30 semester hours of graduate level courses that consists of five core courses, three concentration courses, an elective, and a systems engineering project.

Students must have a working background in engineering mathematics and computer systems. A student lacking these foundations may be required to take one or more foundation courses. The department offers SYST 500 Quantitative Foundations for Systems Engineering as an intensive review of undergraduate engineering mathematics, including matrix algebra, calculus, differential equations, probability and statistics. Students who have not completed a two-semester calculus sequence and matrix algebra will be required to complete these courses prior to taking SYST 500 Quantitative Foundations for Systems Engineering.

Approved basic methods and concentration courses for the eight concentration areas are listed below. Students are expected to select a set of concentration courses that constitute a clearly defined focus. These courses must be approved by the student’s advisor. Each student is required to have a current plan of study on file with the Systems Engineering and Operations Research Department.

Candidates for the MS must have a minimum GPA of 3.00 in course work applied to the degree, which may include no more than 6 credits of C. The GPA calculation excludes all transfer courses and Mason nondegree studies credits not formally approved for the degree.

Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 505</td>
<td>Systems Engineering Principles</td>
<td>15</td>
</tr>
</tbody>
</table>
SYST 510 Systems Definition and Cost Modeling
SYST 520 System Engineering Design
SYST 530 Systems Engineering Management I
SYST 611 System Methodology and Modeling

Total Credits 15

1 SYST 505 Systems Engineering Principles may be replaced by an approved elective for students who have work experience in systems engineering or who have been enrolled in the undergraduate BSSE program at Mason. SYST 505, if taken, must be taken in the first semester of enrollment in the MSSE program.

Basic Methods Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 531</td>
<td>Analytics and Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td></td>
</tr>
<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
<td></td>
</tr>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
<td></td>
</tr>
<tr>
<td>SYST 563</td>
<td>Evidence-Based Systems Engineering</td>
<td></td>
</tr>
<tr>
<td>SYST 568</td>
<td>Applied Predictive Analytics</td>
<td></td>
</tr>
<tr>
<td>or OR 568</td>
<td>Applied Predictive Analytics</td>
<td></td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis</td>
<td></td>
</tr>
<tr>
<td>SYST 620</td>
<td>Discrete Event Systems</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

1 Students must complete one basic methods course. The choice of basic methods course may depend on the student’s concentration and must be selected from the list above.

Concentrations

Students must complete 3 courses (9 credits) from their area of emphasis. Students may select one of the following eight areas of concentration, or may create their own emphasis area with the approval of their advisor and the Department Chair

- Advanced Transportation Systems (ATS)
- Architecture-Based Systems Integration (ABSI)
- Command, Control, Communications, Computing, and Intelligence (C4I)
- Energy Systems (NRGS)
- Financial Systems Engineering (FNSE)
- Systems Engineering and Data Analytics (SEDA)
- Systems Engineering of Software-Intensive Systems (SESI)
- Systems Management (SMG)

Concentration in Advanced Transportation Systems (ATS)
The air transportation system is among the most complex networked systems. This concentration is designed to provide students with the skills to address the next generation of challenges of the air transportation system. Topics addressed include congestion and safety of the national air space, economic and human factors, impact of technology innovation, and public policy. The program emphasizes design, modeling, and analysis to support decision making for government and the aviation industry.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 561</td>
<td>Introduction to Air Traffic Control</td>
<td>3</td>
</tr>
<tr>
<td>SYST 660</td>
<td>Air Transportation Systems Modeling</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
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</tr>
<tr>
<td>OR 531</td>
<td>Analytics and Decision Analysis</td>
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<tr>
<td>SYST 573</td>
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<td></td>
</tr>
<tr>
<td>SYST 620</td>
<td>Discrete Event Systems</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
</tbody>
</table>

One free elective, chosen under advisement: 3

Total Credits 12

Concentration in Architecture-Based Systems Integration (ABSI)

There is much interest today in the engineering of systems that comprise other component systems, where each of the component systems serves organizational and human purposes. These systems families are often categorized as systems of systems, federations of systems, or coalitions of systems. The design of architectures is a major ingredient in the design of systems families. Furthermore, it provides the conceptual basis for achieving system integration. This concentration covers the formulation of the system integration problem, definition of architecture frameworks, use of structured analysis and object-oriented methodologies for the design of architectures, modeling and simulation for the evaluation of architectures, and approaches to integration. Both defense and industrial applications are considered.

<table>
<thead>
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<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
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<td>SYST 563</td>
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</tr>
</tbody>
</table>

Required Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 618</td>
<td>Model-based Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 621</td>
<td>Systems Architecture Design</td>
<td>3</td>
</tr>
</tbody>
</table>
Concentration in Command, Control, Communications, Computing, and Intelligence (C4I)

C4I systems are concerned with gathering, retrieving, analyzing, and disseminating time-sensitive information to achieve mission-critical objectives. These systems support military operations across the spectrum of conflict, intelligence operations, transportation monitoring, emergency response, drug interdiction, and law enforcement, among others. C4I systems include the equipment, people, and procedures necessary to accomplish the mission. The equipment may include a variety of sensors, communications systems, and information processing and decision-support systems.

The program focuses on the analysis, design, development, and management of C4I systems. Topics addressed include C4I architectures and software, communications, decision support, modeling and simulation, and sensor data fusion.

**Code** | **Title** | **Credits**
---|---|---
OR 542 or ECE 528 | Operations Research: Stochastic Models in Electrical and Computer Engineering | 3
SYST 680 or ECE 670 | Principles of Command, Control, Communications, Computing, and Intelligence (C4I) | 3
SYST 584 | Principles of Command, Control, Communications, Computing, and Intelligence (C4I) | 3
SYST 680 | Principles of Command, Control, Communications, Computing, and Intelligence (C4I) | 3
SYST 680 | Heterogeneous Data Fusion | 3

Total Credits 12

Concentration in Energy Systems (NRGS)

With the rising economic and environmental costs to power homes, businesses and the transportation systems that move people and goods from place to place, innovative solutions are required to meet the world’s expanding energy needs. Students completing the energy systems concentration will build upon a foundation in systems engineering design by incorporating physical principles of thermal fluid energy transfer into system models. Students will develop the tools to model and analyze generation, transmission, and utilization systems in steady and dynamic operation. Students will optimize these systems by considering physical principles, economics, local policy and security concerns. Graduates will be able to apply their expertise to work with: traditional power generation facilities; renewable energy integration; national, local, and smart grids; mechanical and electrical energy storage systems; utilization of energy in building and transportation systems.

**Code** | **Title** | **Credits**
---|---|---
ME 521 | Energy Transfer | 3
ME 531 | Energy Transmission | 3
ME 541 | Power Generation | 3
One free elective, chosen under advisement: | | 3

Total Credits 12

Concentration in Financial Systems Engineering (FNSE)

Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions, as well as facilitating the risk management of those decisions. While mathematics is indispensable in financial engineering, the concentration will try best to focus on the concepts and ideas of finance, while limiting the math within a scope acceptable to most students in engineering.

**Code** | **Title** | **Credits**
---|---|---
SYST 538 | Analytics for Financial Engineering and Econometrics | 3
SYST 588 | Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives | 3
SYST 688 | Financial Systems Engineering II: Derivative Products and Risk Management | 3
One free elective, chosen under advisement: | | 3

Total Credits 12

Concentration in Systems Engineering and Data Analytics (SEDA)

Systems engineers must address a broad range of issues relevant to the design, implementation, analysis, and management of systems. This concentration provides methodological tools that can be applied to the systems engineering process. Areas of focus include decision support systems, distributed intelligent systems, knowledge-based planning systems, network systems, probabilistic reasoning systems, sensor fusion systems, and optimization methods.

**Code** | **Title** | **Credits**
---|---|---
OR 531 | Analytics and Decision Analysis | 3
SYST 568 | Applied Predictive Analytics | 3
SYST 573 | Decision and Risk Analysis | 3
One free elective, chosen under advisement: | | 3

Total Credits 12

Concentration in Systems Engineering of Software-Intensive Systems (SESI)

This concentration addresses the software component of the systems engineering life cycle. It specifically covers the allocation of system requirements to software. Practitioners are concerned with the theoretical and practical aspects of technology, cost, and the social effect of computer systems that are reliable, maintainable, secure, efficient, and cost effective. The program emphasizes the integration of hardware, software, and firmware, and the management of these complex computer systems over their life cycle through systems engineering methods, tools, and processes.

**Code** | **Title** | **Credits**
---|---|---
SYST 542 | Decision Support Systems Engineering | 3
SYST 618 | Model-based Systems Engineering | 3
One from the following: | | 3
ECE 528 | Introduction to Random Processes in Electrical and Computer Engineering | 3
OR 531  Analytics and Decision Analysis
OR 541  Operations Research: Deterministic Models
OR 542  Operations Research: Stochastic Models
OR 568  Applied Predictive Analytics
or SYST 568  Applied Predictive Analytics
SYST 563  Evidence-Based Systems Engineering
SYST 573  Decision and Risk Analysis
SYST 620  Discrete Event Systems
SYST 664  Bayesian Inference and Decision Theory
One free elective, chosen under advisement: 3
Total Credits 12

Concentration in Systems Management (SMG)
The management aspect of systems engineering involves tracking and control of system development through the major phases of the system lifecycle, identifying and resolving problems to minimize their effect on cost, schedule, or performance, and iteratively improving product and process. This concentration emphasizes the theory and practice of systems management and prepares students for careers in management.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 514</td>
<td>Systems Thinking</td>
<td>3</td>
</tr>
<tr>
<td>SYST 618</td>
<td>Model-based Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 630</td>
<td>Systems Engineering Management II</td>
<td>3</td>
</tr>
<tr>
<td>One free elective, chosen under advisement:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Project or Thesis
Students must complete three credit hours of SYST 699 Masters Project. Students in this course work in teams on an approved project. A project report is submitted at the end of the semester, and a final project presentation is made to the entire faculty of the SEOR Department.

Online MS in Systems Engineering
The graduate program leading to the Master of Science in Systems Engineering can be completed entirely online. The delivery mode for the online program is asynchronous, but many courses are also offered in synchronous mode. Students may also plan a program with some courses taken online and some in the classroom. The following courses are offered online at least once a year: SYST 500 Quantitative Foundations for Systems Engineering, SYST 505 Systems Engineering Principles, SYST 510 Systems Definition and Cost Modeling, SYST 520 System Engineering Design, SYST 530 Systems Engineering Management I, SYST 542 Decision Support Systems Engineering, SYST 573 Decision and Risk Analysis, SYST 611 System Methodology and Modeling, SYST 618 Model-based Systems Engineering, SYST 620 Discrete Event Systems, SYST 621 Systems Architecture Design, SYST 630 Systems Engineering Management II, SYST 699 Masters Project, OR 531 Analytics and Decision Analysis, OR 541 Operations Research: Deterministic Models and OR 542 Operations Research: Stochastic Models.

Accelerated Master’s

Bioengineering, BS/Systems Engineering, Accelerated MS
Overview
Highly-qualified students in the Bioengineering, BS have the option of obtaining an accelerated Systems Engineering, MS.

For more detailed information, see AP6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP6 Graduate Policies.

Admission Requirements
Mason undergraduate students majoring in Bioengineering, BS may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

Accelerated Options Requirement
Students must complete all credits that satisfy requirements for both the BS and MS programs. Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. The courses selected for this purpose must be approved by the academic advisors of both the BS and MS programs and by the SEOR department chair. For the BS programs that allow undergraduate electives from the department of system engineering and operations research, the students may chose the graduate version of such elective courses to replace the corresponding undergraduate courses.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Civil and Infrastructure Engineering, BS/Systems Engineering, Accelerated MS
Overview
Highly-qualified students in the Civil and Infrastructure Engineering, BS have the option of obtaining an accelerated Systems Engineering, MS.

For more detailed information, see AP6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP6 Graduate Policies.

Admission Requirements
Mason undergraduate students majoring in Civil and Infrastructure Engineering, BS may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.
Accelerated Options Requirement

Students must complete all credits that satisfy requirements for both the BS and MS programs. Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. The courses selected for this purpose must be approved by the academic advisors of both the BS and MS programs and by the SEOR department chair. For the BS programs that allow undergraduate electives from the department of system engineering and operations research, the students may choose the graduate version of such elective courses to replace the corresponding undergraduate courses.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Cyber Security Engineering, BS/Systems Engineering, Accelerated MS

Overview

Highly-qualified students in the Cyber Security Engineering, BS have the option of obtaining an accelerated Systems Engineering, MS.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP6 Graduate Policies.

Admission Requirements

Mason undergraduate students majoring in Cyber Security Engineering, BS may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

Accelerated Options Requirement

Students must complete all credits that satisfy requirements for both the BS and MS programs. Up to two courses (6 credit hours) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. The courses selected for this purpose must be approved by the academic advisors of both the BS and MS programs and by the SEOR department chair. For the BS programs that allow undergraduate electives from the department of system engineering and operations research, the students may choose the graduate version of such elective courses to replace the corresponding undergraduate courses.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Mechanical Engineering, BS/Systems Engineering, Accelerated MS

Overview

Highly-qualified students in the Mechanical Engineering, BS have the option of obtaining an accelerated Systems Engineering, MS.

For more detailed information, see AP6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP6 Graduate Policies.

Admission Requirements

Mason undergraduate students majoring in Mechanical Engineering, BS may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

Accelerated Options Requirement

Students must complete all credits that satisfy requirements for both the BS and MS programs. Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. The courses selected for this purpose must be approved by the academic advisors of both the BS and MS programs and by the SEOR department chair. For the BS programs that allow undergraduate electives from the department of system engineering and operations research, the students may choose the graduate version of such elective courses to replace the corresponding undergraduate courses.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Statistics, BS/Systems Engineering, Accelerated MS

Overview

Highly-qualified students in the Statistics, BS have the option of obtaining an accelerated Systems Engineering, MS.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP6 Graduate Policies.

Admission Requirements

Mason undergraduate students majoring in Statistics, BS may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

Accelerated Options Requirement

Students must complete all credits that satisfy requirements for both the BS and MS programs. Up to two courses (6 credit hours) of approved master’s level courses taken as part of the undergraduate
degree may be applied to the graduate degree. The courses selected for this purpose must be approved by the academic advisors of both the BS and MS programs and by the SEOR department chair. For the BS programs that allow undergraduate electives from the department of system engineering and operations research, the students may choose the graduate version of such electives to replace the corresponding undergraduate courses.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Systems Engineering BS/Systems Engineering, Accelerated MS**

**Overview**

Qualified undergraduate students may apply for a five-year accelerated BS/MS program leading to a Bachelor of Science in Systems Engineering and an MS degree in Systems Engineering.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP.6 Graduate Policies.

**Admission Requirements**

Mason undergraduate students majoring in systems engineering may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

**Accelerated Option Requirements**

Up to two courses (six credit hours) of master’s level courses may be applied to both the undergraduate and graduate degrees. These two courses may be chosen from the list of graduate courses in the following table. For Systems Engineering, BS students, these graduate courses replace the corresponding undergraduate courses listed in the table. The undergraduate version of these courses may not be applied toward the Systems Engineering, MS.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Credit requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 420</td>
<td>SYST 521/OR 643</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>SYST 473</td>
<td>SYST 573</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>OR 442</td>
<td>OR 542</td>
<td>Credit may not be received for both courses.</td>
</tr>
</tbody>
</table>

Any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and Graduate Recruitment and Enrollment Services. At the completion of MS requirements, a master’s degree is conferred.

**BS (selected)/Systems Engineering, Accelerated MS**

**Overview**

Highly-qualified students in BS programs have the option of obtaining an accelerated Systems Engineering, MS.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see AP.6 Graduate Policies.

**Admission Requirements**

Mason undergraduate students majoring in both engineering and non-engineering disciplines may apply to this option if 1) such an accelerated Systems Engineering, MS pathway is allowable from the student’s BS program, which will be determined by the academic advisors of both the BS and MS programs and by the SEOR department chair, 2) they have earned 90 undergraduate credits with an overall GPA of at least 3.30, and 3) they have completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for both the BS and MS programs. Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied
to the graduate degree. The courses selected for this purpose must be approved by the academic advisors of both the BS and MS programs and by the SEOR department chair.

For the BS programs that allow undergraduate electives from the department of systems engineering and operations research, the students may choose the graduate version of such elective courses to replace the corresponding undergraduate courses.

**Degree Conferral**
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.