



Program Approval Form

For approval of new programs and deletions or modifications to an existing program.

Action Requested:

- Create New (SCHEV approval required except for minors)
- Inactivate Existing
- Modify Existing (check **ALL** that apply)
 - Title (SCHEV approval required except for minors)
 - Concentration** (Choose one): Add Delete Modify
 - Degree Requirements
 - Admission Standards/ Application Requirements
 - Other Changes: _____

Type (Check one):

- B.A. B.S. Minor (req. C3 approval)
- M.A. M.S. M.Ed.
- Ph.D.
- Undergraduate Certificate* (req. C3 approval)
- Graduate Certificate*
- Bachelor's/Accelerated Master's Other:

College/School: **Department:**
Submitted by: **Ext:** **Email:**

Effective Term: Fall **Please note:** For students to be admitted to a new degree, minor, certificate or concentration, the program must be fully approved, entered into Banner, and published in the University Catalog.

Justification: (attach separate document if necessary)

Program Title: (Required)
 Title must identify subject matter. Do not include name of college/school/dept.

Concentration(s):

Admissions Standards / Application Requirements: (Required only if different from those listed in the University Catalog)

Degree Requirements:
 Consult University Catalog for models, attach separate document if necessary using track changes for modifications

Courses offered via distance:
 (if applicable)

TOTAL CREDITS REQUIRED:

Existing	New/Modified
Applied and Engineering Physics	Applied and Engineering Physics
none	none
See attachment	See attachment

*For Certificates Only: Indicate whether students are able to pursue on a Full-time basis Part-time basis

Approval Signatures

Department _____ Date _____ College/School _____ Date _____ Provost's Office _____ Date _____
Required for Minors and Interdisciplinary Programs

If this program may impact another unit or is in collaboration with another unit at Mason, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Minors and UG Certificates only (Cross-College Curriculum Committee Approval)

C3 Committee Member _____ Provost Office _____ C3 Committee Approval Date _____

For Graduate Programs Only

Graduate Council Member _____ Provost Office _____ Graduate Council Approval Date _____

Justification

M.S. Program in Applied and Engineering Physics is offered by the Department of Physics and Astronomy in the College of Science. This program is divided into three areas of emphasis: the standard emphasis; the applied physics emphasis; and the engineering physics emphasis.

Engineering physics refers to the study of the combined disciplines of physics, mathematics and engineering in order to develop an enhanced understanding of the interrelationship between them. The curriculum requirement for the current engineering physics emphasis is tailored to electrical engineering only due to historic reasons. With the creation and/or expansion of the graduate programs in Bioengineering, Civil, Environmental, and Infrastructure Engineering, as well as Mechanical Engineering in the Volgenau School of Engineering and graduate programs in Mathematical Science, it is necessary to expand the curriculum requirement for the current engineering physics emphasis to include graduate courses from other engineering disciplines and mathematics.

Existing Degree Requirements for Engineering Physics Emphasis

Candidates for the degree must successfully complete 30 credits in the categories shown below:

Core (6 credits):

PHYS 684 or PHYS 502

PHYS 685 or PHYS 513

Emphasis (15 credits):

PHYS 510

PHYS 533

9 credits of graduate ECE courses

General Electives (9 credits)

New Degree Requirements for Engineering Physics Emphasis

Candidates for the degree must successfully complete 30 credits in the categories shown below:

Core (6 credits):

PHYS 684 or PHYS 502 or PHYS 690

PHYS 685 or PHYS 513 or PHYS 620

Emphasis (15 credits):

PHYS 510

PHYS 533 or PHYS 613

9 credits of graduate PHYS, ECE, CEIE, MATH courses (advisor approval required)

General Electives (9 credits)

Course numbers and titles listed above

- PHYS 502 - Introduction to Quantum Mechanics and Atomic Physics
- PHYS 510 - Computational Physics I
- PHYS 513 - Applied Electromagnetic Theory
- PHYS 533 - Modern Instrumentation
- PHYS 613 - Computational Physics II
- PHYS 620 - Continuum Mechanics
- PHYS 684 - Quantum Mechanics I
- PHYS 685 - Classical Electrodynamics I
- PHYS 690 - Engineering Thermodynamics

Program Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference.
Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL PROGRAMS

Program Title: Applied and Engineering Physics, MS

Date of Departmental Approval: March 4, 2016

FOR MODIFIED PROGRAMS

- Summary of the Modification:

The curriculum requirement for the current engineering physics emphasis of the MS Program in Applied and Engineering Physics is expanded to include new and existing physics courses in applied mechanics and computational physics, graduate courses from other engineering disciplines and mathematics in addition to the graduate courses from electrical engineering.

- Text before Modification (title, degree requirements, etc.):

Degree Requirements for Engineering Physics Emphasis

Candidates for the degree must successfully complete 30 credits in the categories shown below:

Core (6 credits):

PHYS 684 or PHYS 502

PHYS 685 or PHYS 513

Emphasis (15 credits):

PHYS 510

PHYS 533

9 credits of graduate ECE courses

General Electives (9 credits)

- Text after Modification (title, degree requirements, etc.):

Degree Requirements for Engineering Physics Emphasis

Candidates for the degree must successfully complete 30 credits in the categories shown below:

Core (6 credits):

PHYS 684 or PHYS 502 or PHYS 690 (new)

PHYS 685 or PHYS 513 or PHYS 620

Emphasis (15 credits):

PHYS 510

PHYS 533 or PHYS 613

9 credits of graduate PHYS, ECE, CEIE, MATH courses (advisor approval required)

General Electives (9 credits)

- Course numbers and titles listed above
 - PHYS 502 - Introduction to Quantum Mechanics and Atomic Physics

- PHYS 510 - Computational Physics I
 - PHYS 513 - Applied Electromagnetic Theory
 - PHYS 533 - Modern Instrumentation
 - PHYS 613 - Computational Physics II
 - PHYS 620 - Continuum Mechanics
 - PHYS 684 - Quantum Mechanics I
 - PHYS 685 - Classical Electrodynamics I
 - **PHYS 690 - Engineering Thermodynamics** (see **new** course proposal attached)
- Reason for the Modification:

Engineering physics refers to the study of the combined disciplines of physics, mathematics and engineering in order to develop an enhanced understanding of the interrelationship between them. The curriculum requirement for the current engineering physics emphasis is tailored to electrical engineering only due to historic reasons. With the creation and/or expansion of the graduate programs in Bioengineering, Civil, Environmental, and Infrastructure Engineering, as well as Mechanical Engineering in the Volgenau School of Engineering and graduate programs in Mathematical Science, it is necessary to expand the curriculum requirement for the current engineering physics emphasis to include graduate courses from other engineering disciplines and mathematics.