

Physics M.S. 2016-2017

Physics Core Requirements

The following 24 hours of graduate physics courses are required for both the thesis and extended course work options.

[PHYS 5331](#) Electrodynamics

[PHYS 5311](#) Recitation for Electrodynamics

[PHYS 5431](#) Classical Mechanics

[PHYS 5411](#) Recitation for Classical Mechanics

[PHYS 5531](#) Mathematical Methods I

[PHYS 5511](#) Recitation for Mathematical Methods in Physics I

[PHYS 5631](#) Quantum Mechanics I

[PHYS 5611](#) Recitation for Quantum Mechanics I

[PHYS 5632](#) Quantum Mechanics II

[PHYS 5612](#) Recitation for Quantum Mechanics II

[PHYS 5731](#) Statistical Mechanics

[PHYS 5711](#) Recitation for Statistical Mechanics

[PHYS 5632](#), [PHYS 5612](#): (Not required for students completing the sub-plan in technical management)

Physics Advanced Electives

Advanced SCE courses (formal coursework) that meet the needs of students' professional goals may be selected in consultation with a faculty adviser.

Physics Thesis Option

Under the thesis option, a minimum of 24 hours of formal course work must be completed. In addition, students must complete a minimum of six hours of [PHYS 6939](#); Master's Thesis Research. A maximum of 12 hours of [PHYS 6939](#) can be applied toward graduation requirements. Remaining course work for a total of 36 hours may come from additional formal courses.

Physics Non-Thesis Option

Under the non-thesis option, a minimum of 30 hours of formal course work must be completed. In addition, students must choose an adviser and complete three credit hours of Independent Research ([PHYS 5739](#), [PHYS 5939](#) or [PHYS 6837](#)) and three hours in the Research Project and Seminar Course ([PHYS 6838](#)). Students completing the sub-plan in Technical Management should take either [PHYS 5739](#) or [PHYS 6838](#).

Physics Specialization

Technical Management Specialization

A good technical manager needs both an advanced broad-based technical background and insight into how to lead a team of people from different technical disciplines. Because physics is the scientific basis of all engineering, it can satisfy much of the broad-based technical requirement for a degree training technical managers. The physics core is complemented by a combination of systems engineering, engineering management and management courses in order to create a plan that provides both the technical background and the leadership training. This results in a unique new approach to training technical managers. Please note that students in this specialization are not required to take [PHYS 5632/PHYS 5612](#). Students enrolled in the Technical Management Specialization should choose 4 courses from those shown below.

Engineering Management

[EMGT 5130](#) New Business Development

[EMGT 5131](#) Legal Issues in Engineering Management

[EMGT 5231](#) Engineering Management Planning

[EMGT 5430](#) Professional Project Management

[EMGT 5530](#) Organizational Analysis and Management

[EMGT 5531](#) Technology Planning and Management

Systems Engineering

[SENG 5130](#) Systems Engineering Processes

[SENG 5230](#) Systems Engineering Economics

[SENG 5231](#) Concurrent Engineering

[SENG 5330](#) Risk Management

[SENG 5332](#) Decision Analysis for Systems Engineering

[SENG 5532](#) Advanced Decision Analysis for Systems Engineering

Management

[MGMT 5032](#) Human Behavior in Organizations

[MGMT 5133](#) Teamwork and Leadership Skills: Theory in Practice

[MGMT 5233](#) Entrepreneurship & Corporate Venturing

[MGMT 5331](#) Personnel Management

[MGMT 5636](#) Management of Technology

[MGMT 5638](#) Leading Technology