Applied Physics

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An Interdisciplinary Program

An interdisciplinary program leading to the degree of Doctor of Philosophy in Engineering with a concentration in Applied Physics is available. A specific program, depending on the research interest of the student, is established by consultation between the student and his/her advisor. The program requires a master's degree (either thesis or non-thesis) from Mississippi State University or another recognized university as a prerequisite for admission to the Applied Physics Ph.D. graduate program.

Major areas of study are:

- computational physics,
- theoretical and experimental optics;
- diagnostics using the techniques of conventional, imaging, and laser spectroscopy;
- experimental and theoretical nuclear structure physics;
- microwave spectroscopy;
- astrophysics;
- astrochemistry; and
- physics education.

Graduate research and teaching assistantships are available. For a complete listing of requirements and other pertinent information, please reference information provided in Physics and Astronomy (http://catalog.msstate.edu/archives/2014-15/graduate/colleges-degree-programs/arts-sciences/physics-astronomy) , College of Arts and Science, located in this publication.

Doctor of Philosophy in Engineering, Applied Physics Concentration

Core Curriculum [1]		
PH 8213	Mechanics	3
PH 8233	Methods of Theoretical Physics I	3
PH 8243	Methods of Theoretical Physics II	3
PH 8313	Electromagnetic Theory	3
PH 8743	Quantum Mechanics I	3
PH 8753	Quantum Mechanics II	3
Other Requirements		
Additional coursework in the area of specialization		
PH 9000	Dissertation Research /Dissertation in Physics	20
Total Hours		38

[1] All Ph.D. candidates must pass written preliminary examinations on Physics core courses and, if required by their graduate advisory committee or the Physics department head, on their Engineering or other applied courses.

After passing preliminary exams, all Ph.D. candidates must then pass an oral preliminary examination on the proposed dissertation topic and coursework. A dissertation is required of all Ph.D. candidates.