DEPARTMENT: Physics  

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- New course with supporting documents
- Add existing course offered at another campus
- Change in course attributes (department head signature only)
- Change in instructional hours
- Change in course description
- Change in course requisites
- Change in semesters offered (department head signature only)
- Transfer from one department to another

PROPOSED:

Subject Abbreviation: PHYS
Course Number: 48002
Long Title: Senior Thesis II
Short Title: Senior Thesis II

TERMS OFFERED:
Check All That Apply:
- Fall
- Spring
- Summer

CAMPUS(ES) INVOLVED:
- Calumet
- Cont Ed
- Ft. Wayne
- Indianapolis
- M. Central
- Tech Statewide
- W. Lafayette

Abbr. title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

CREDIT TYPE

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<th>Credit Type</th>
<th>Minimum Cr. Hrs.</th>
<th>Maximum Cr. Hrs.</th>
<th>Equivalent Credit</th>
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<td>2. Variable Credit Range:</td>
<td>(Check One)</td>
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<td>Or</td>
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<td>Minimum Cr. Hrs.</td>
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<td>Maximum Cr. Hrs.</td>
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<td>3. Equivalent Credit:</td>
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COURSE ATTRIBUTES:

- Pass/Not Pass Only
- Satisfactory/Unsatisfactory Only
- Repeatable
- Maximum Repeatable Credit: |
- Credit by Examination
- Fees: | Coop | Lab | Rate Request |
- Include comment to explain fee
- Registration Approval Type
- Instructor
- Variable Title
- Honors
- Full Time Privilege
- Off Campus Experience

Schedule Type:

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<th>Meetings Per Week</th>
<th>Weeks Offered</th>
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<td>Prac/Observ</td>
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Cross-Listed Courses:

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Independent research under the supervision of a faculty adviser. Senior Thesis I and Senior Thesis II are required to graduate. They must be taken in the senior year.

Prerequisites: PHYS3400, PHYS3430, or PHYS3480 and one of the following:
ASTR3400, ASTR3700, ASTR4100, PHYS3200, PHYS3450, PHYS3500, PHYS36100, PHYS3500, PHYS35500, PHYS34801 and also a prerequisite, PHYS34802 is the second part of a two-semester course-track that starts with PHYS34601.

COURSE LEARNING OUTCOMES:

- The development of critical thinking.
- The ability to carry out independent research.
- The ability to present new material in clear, non-technical language.
- Understanding of the physics underlying the work.

Signature:

Calumet Department Head
Date

Calumet School Dean
Date

Ft. Wayne Department Head
Date

Ft. Wayne School Dean
Date

Indianapolis Department Head
Date

Indianapolis School Dean
Date

North Central Faculty Senate Chair
Date

Vice Chancellor for Academic Affairs
Date

West Lafayette Department Head
Date

West Lafayette College/School Dean
Date

West Lafayette Registrar
Date

OFFICE OF THE REGISTRAR
Tentative Syllabus Physics 48002

Senior Thesis II

Spring 2015

Instructor: Thesis adviser
Textbook: None
Credit hours: 0, Not repeatable.

This is the second part of a two-semester course that includes PHYS48001 from the previous fall semester. PHYS48001 and PHY48002 must be completed to receive your undergraduate degree.

In this course you will demonstrate your ability to conduct independent research. With the guidance of a faculty member, you will develop, carry out and report on a research topic of your choosing.

At this point in your undergraduate career, you have considerable experience, through The Modern Physics Lab or the Advanced Lab., of independent research. You will be thoroughly familiar with the scientific method and experimental practice. Your mastery of these will be put to the test in this two-semester course.

Plan of Research

By the time you start PHYS 48002, you will have a research plan. It must have:
1) A specific and testable hypothesis,
2) Clear goals,
3) A realistic strategy for achieving them,
4) Discussion of how the data will be gathered and analyzed,
5) Discussion of issues and challenges expected and how you will deal with them,
6) A time-line showing the steps toward completion in the two semesters allowed., and
7) Discussion, with references, of how the proposed project relates to published research your field of study.

Experimental Notebook

You will continue to keep a notebook detailing your progress. This will be periodically examined by your adviser. The journal must include details of experiments, and drawings, diagrams, and photos etc. to illustrate them. It should also include the original hypothesis and all carefully considered modifications to it. In addition, it should include analysis and interpretation of data.

Tentative Schedule
You will complete your research project in the two semesters of your final year.

Present the research plan to your department for review no later than the end of the spring semester prior to your senior year.

Submit an interim report at the end of the first semester.

Present your department with a word-processed thesis at the end of your senior year.

The completed research will be presented at a poster session at IPFW. This requirement may be waived, if you have presented your work at a professional meeting outside of IPFW or submitted the results of your research as a paper to a refereed journal. In any case, you will present your work to the faculty and the other Physics majors at a meeting of the IPPW Society of Physics Students.

Grading

This work will not be graded in the traditional way. You will not receive a percentage or a letter grade. You will receive a satisfactory/unsatisfactory. This will depend on the quality of your research work as shown in your notebook(s). To receive a “satisfactory” you must demonstrate critical thinking, understanding of the physics of your project, the ability to carry out independent research, and the ability to explain your research to an audience of your peers, who are not experts in your field.

Funding

You and your advisor are responsible for the purchase of any special equipment or services required and travel expenses.