

Indiana University South Bend

Memorandum

To: CLAS Curriculum Committee
From: Department of Physics and Astronomy
Date: January 11, 2003
Subject: Proposed Physics Course Changes

New Course Request: *PHYS P323 – Physics 3*

New Course Request: *PHYS P324 – Physics 4*

Course Change Request: *PHYS P303 – Digital Electronics*, from variable 1.0-3.0 cr. hrs. to variable 1.0 to 4.0 cr. hrs.

Course Change Request: *PHYS P309 – Modern Physics Laboratory*, from fixed 2.0 cr. hrs. to variable 2.0 to 3.0 cr. hrs.

The accompanying New Course Requests and Course Change Requests are presented in an attempt to strengthen instruction in modern physics for physics majors and other interested students, as well as to tailor our instruction in electronics to better meet the needs of computer science majors, our principal clientele for this instruction.

We have long felt that the range of topics covered in our modern physics course, *PHYS P301 – Physics 3*, which is the standard set of topics for similar courses around the country, is so broad that it allows only superficial coverage. We propose to replace *PHYS P301* at IUSB with a two-semester sequence, *PHYS P323 – Physics 3* and *PHYS P324 – Physics 4*, which will cover essentially the same topics in modern physics, but in greater depth.

At the same time, we propose to reduce our offerings in electronics from two 3-credit hour courses, *PHYS P281 – Solid State Electronics* and *PHYS P303 – Digital Electronics*, to a single 4-credit hour version of *PHYS P303*. While we have required both these electronics courses for our physics majors, the major clientele for the courses is computer science majors. It is really the content of *PHYS P303* that interests and benefits these students, but because *PHYS P281* is a prerequisite for *PHYS P303*, those computer science majors who wish to take *PHYS P303* have generally also taken *PHYS P281*. Discussions with our colleagues in the Department of Computer Science over the last year or so have led us to the decision to discontinue *PHYS P281* and to slightly expand *PHYS P303* to include those elements of analog electronics that are essential for proper understanding of the material in *PHYS P303*. The Department of Computer Science has correspondingly decided to require *PHYS P303* for their majors, which will ensure strong enrollment for this course.

This change, especially when coupled with the additional semester of modern physics, is also beneficial for our physics majors. There is substantial overlap between the content of *PHYS P281* and that of *PHYS P222 – Physics 2*, which is also required for physics majors, and the remainder of the *PHYS P281* material, solid state devices, will now be covered, in more depth and from a more physical point of view, in *PHYS P324 – Physics 4*.

In addition, we wish to begin offering *PHYS P309*, our upper-level laboratory course for majors, as a 3-cr. hr. course. This will also provide a boost to our instructional efforts in both modern physics and laboratory techniques. For both *PHYS P303* and *PHYS P309* we propose to make the courses variable credit, rather than fixed at 4.0 and 3.0 credit hours, respectively, since these course numbers are also utilized at other IU campuses.

The net change in the number of courses we will offer is zero, though the credit hour increases in *PHYS P303* and *PHYS P309* will constitute a very small increase in assigned credit hours.