

Criterion B.1 Students

This chapter describes the degree programs, student enrollment, and graduation rates in the NMSU Department of Physics and the procedures for advising, transfer and graduation.

B.1.1 Degree Programs at NMSU Physics

In the first 30 years after introduction of a PhD program, the NMSU Department of Physics offered only the traditional Physics degrees: *Bachelor's of Science (BS)*, *Masters of Science (MS)*, and *Doctorate of Philosophy (Ph.D.) in Physics*. By the 90s, most of the emphasis had been on the graduate programs, and the BS was designed mostly to prepare students for graduate studies in Physics. However, the Physics faculty members recognized a steadily increasing demand for students with a more applied undergraduate degree, especially for industry and the public school systems. In addition, our BS degree did not adequately prepare students who wished to pursue other disciplines in graduate school. In response, the Department of Physics introduced a *Bachelor's of Arts (BA)* degree in 1998. The BA degree retains the core physics courses, but requires a minor in another department, while at the same time dropping some Chemistry and Physics Electives. Popular minors are Mathematics and Astronomy.

Even with the introduction of a BA degree, it became quickly apparent that this degree did not fully satisfy the needs of new-technology industries. At the same time, most traditional engineering curricula do not provide an in-depth coverage of important concepts in modern physics (quantum mechanics, laser optics, atomic physics, and nuclear physics), which play an important role in today's technology. Students had expressed concern about the job market in physics, especially at the BS level, even though these concerns were unfounded. In response, the department therefore proposed a *Bachelor's of Science in Engineering Physics (BSEP)* degree with options for Electrical Engineering (Electrical Option) and Mechanical Engineering (Mechanical Option). The degree was first placed in the NMSU catalog in 2002.

Table 1.1 shows the number of degrees granted by the Department of Physics over 6-year cycles since 1964.

Table 1.1: Physics degrees granted by NMSU.

Year	Graduates				
	BS	BA	BSEP	MS	PhD
<i>Fall 1964 – Spring 1970</i>	19	-	-	6	6
<i>Fall 1970 – Spring 1976</i>	25	-	-	9	6
<i>Fall 1976 – Spring 1982</i>	21	-	-	21	2
<i>Fall 1982 – Spring 1988</i>	25	-	-	11	1
<i>Fall 1988 – Spring 1994</i>	33	-	-	33	14
<i>Fall 1994 – Spring 2000</i>	13	-	-	9	45
<i>Fall 2000 – Spring 2006</i>	24	7	5	19	24

The BSEP degree is a full-curriculum engineering degree with a balance of Engineering and Physics courses. The BSEP program is quite demanding, and only exceptional students are expected to graduate with the BSEP degree. A particular feature of our BSEP degree is that

the Electrical Option is very lab-intensive, while the Mechanical Option is strongly design-oriented. As with most engineering degrees, the BSEP consists of 128 credit-hours minimum with few electives. It does not offer the flexibility of traditional physics degrees; however, it does offer a strong consistent degree that focuses on preparing students for high-technology industry.

B.1.2 Student Enrollment and Retention Rates

As shown in Diagrams 1.1A and 1.1B, undergraduate and graduate student enrollments in Physics at NMSU greatly varied over the past 40 years.

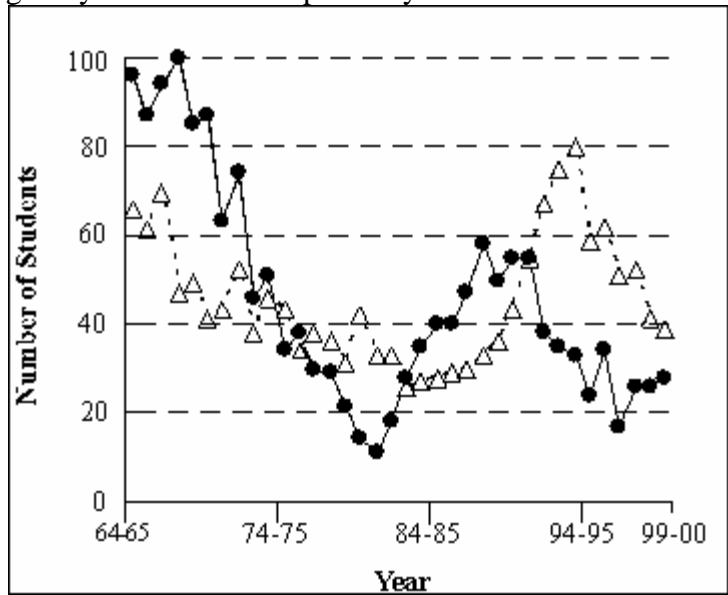


Diagram 1.1A: Enrollment history of undergraduate (circles) and graduate (triangles) students at NMSU Physics from 1964 until 2000.

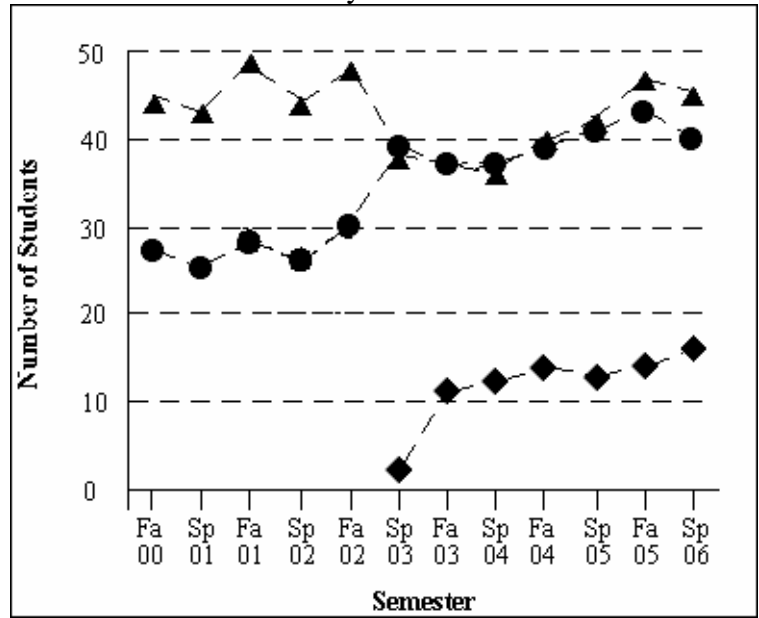


Diagram 1.1B: Enrollment history of BS/BA undergraduate (circles), graduate (triangles), and BSEP (diamonds) students at NMSU Physics from Fall of 2000 until Spring of 2006.

Graduate enrollment is mostly determined by the availability of research funds through grants and/or collaborations. For example, from about 1990 until 1995, the Department of Defense funded a huge research project with White Sands Missile Range, resulting in an enrollment high of 80 graduate students in 1993-94.

Unlike graduate enrollment, the undergraduate enrollment is determined by the field of study, reputation of the college, and the job market in that field (or the perceptions thereof). High-school graduates often do not have an adequate math and/or science background to directly start Physics at the college level. Furthermore, many high-school students believe that studying physics is 'too hard' and that there are few job opportunities for physicists. Subsequently, undergraduate enrollment in physics began to plummet nationwide after 1990, and student enrollment often dropped to unacceptable low numbers. The NMSU Department of Physics took a number of actions to counter the drop in student enrollment, and eventually these paid off. These actions included curriculum changes, improved recruitment and retention, and changes in the student advising system. There has been a significant increase (more than 50%) in the overall (BS, BA and EP) undergraduate enrollment from Fall of 2002 to Fall of 2003. About one half of the increase can be attributed to the BSEP degree, but a similar combined increase is seen for the BS and BA programs.

When the EP program was introduced, students transferred into the program from other majors, mostly from traditional physics and engineering programs. In many cases, these transfers had taken some of the required courses, and thus the program started off with mostly sophomores. The enrollment history of EP students is separated by level in Table 1.2. The students are almost evenly divided between the ME and the EE options. Our current retention rate of EP students is 78%, which is consistent our retention rate for other physics majors (80%). It should be noted that retention rates in Physics are among the highest in the College of Arts & Sciences.

Table 1.2: Enrollment history in Engineering Physics.

Year	EP Students					Total
	Fresh man	Sophomo res	Junio rs	Senio rs	2 nd Major	
<i>Spring 2003</i>	0	0	1	0	1	2
<i>Fall 2003</i>	1	5	1	2	2	11
<i>Spring 2004</i>	0	5	2	3	2	12
<i>Fall 2004</i>	1	5	3	3	2	14
<i>Spring 2005</i>	2	3	5	1	2	13
<i>Fall 2005</i>	3	4	3	2	2	14
<i>Spring 2006</i>	2	4	3	5	2	16

By Spring of 2006, a total of five students graduated with a BSEP degree from NMSU. Three of these graduates had chosen the ME option, and two graduated with the EE option. In Table

1.3A, we list details, i.e. entry dates, entry classes, graduation dates, present employment, etc. of those graduates. In Table 1.3B, we list similar data for past and current EP students, who did not or have yet to graduate.

Table 1.3A: BSEP graduates of NMSU Physics as of Spring `06.

<i>Student Label</i>	<i>Entered NMSU</i>	<i>Entered EP Program</i>	<i>Classes taken at EP entry</i>	<i>Graduation date</i>	<i>Did the student graduate on time?</i>	<i>Comment</i>
<i>Grad 1</i>	January 2001	August 2003	ME 426 Phys 454 Phys 480	May 2004	Yes	now enrolled as a graduate student in Physics at NMSU
<i>Grad 2</i>	August 1999	January 2004	EE 311 EE 315 Phys 451 Phys 455	May 2005	Yes	now enrolled as a graduate student in Mechanical Engineering at NMSU
<i>Grad 3</i>	August 2000	August 2003	EE 221 Phys 454 Phys 480	May 2005	Yes	now working for the State Department in Washington DC
<i>Grad 4</i>	August 1998	August 2003	EE 311 Phys 454 Phys 480	May 2006	slightly delayed	double majored in EE and EP; participated in several co-op internships; has a job offer from an communications company in Albuquerque NM
<i>Grad 5</i>	August 2002	August 2003	ME 236 ME 240 Phys 216 Phys 217	May 2006	Yes	has acceptance letters from several top universities for a graduate program in Nuclear Engineering

Table 1.3B: Details of past and current EP students who did not or have yet to graduate.
Students in shaded rows are no longer enrolled in the EP program.

Student Label	Entered NMSU	Entered EP Program	Classes taken at EP entry	Expected graduation date	Still in EP Program?	On track to graduate?	Comment
<i>A</i>	August 2001	August 2003	EE 211 EE 261 Phys 217	May 2006	Yes	No	bright student (GPA is 3.3) but struggles recently; has withdrawn from or failed many classes; skipped Fall 2004 semester
<i>B</i>	August 1992	August 2003	ME 159 ME 240 ME 260 Phys 217	May 2006	No	No	started at Alamogordo campus in Fall 1990, main campus Fall 1992; has had many majors; flunked all required EP classes
<i>C</i>	August 2002	August 2003	ME 236 ME 240 Phys 216 Phys 217	May 2006	No	Yes	switched to ME in summer 2004; did well; GPA is 3.7
<i>D</i>	June 2002	August 2003	ME 236 ME 260 Phys 216	May 2007	Yes	Yes	on track to graduate in May 2007
<i>E</i>	August 2003	August 2003	EE 111 EE 161 Phys 213	May 2007	Yes	No	struggling; failed some math and EE classes
<i>F</i>	August 2002	August 2004	ME 102 ME 240 Phys 216 Phys 217	May 2007	Yes	No	withdrew from, failed, or did not complete several required classes; skipped Fall 2005 semester; poor GPA of 2.3

Table 1.3B: (cont.) Details of past and current EP students who did not or have yet to graduate.
Students in shaded rows are no longer enrolled in the EP program.

Student Label	Entered NMSU	Entered EP Program	Classes taken at EP entry	Expected graduation date	Still in EP Program?	On track to graduate?	Comment
<i>G</i>	August 2002	August 2004	EE 161 Phys 213	May 2008	No	No	was a very good student; switched to Phys BS program; dropped out of school in January 2006
<i>H</i>	August 2004	January 2005	ME 102 ME 236 Phys 214	May 2008	Yes	Yes	doing well, GPA is 3.5
<i>I</i>	August 2002	January 2004	Math 191 Chem. 111	May 2008	Yes	Yes	doing well, GPA is 3.6
<i>J</i>	August 2003	August 2004	ME 102 ME 159 Phys 213	May 2008	No	No	switched to PSWK in Fall 2005 after flunking required math and physics classes
<i>K</i>	August 2004	August 2004	ME 102 ME 159 Phys 213	August 2008	Yes	Yes	doing well, GPA is 3.5
<i>L</i>	August 2002	Aug-05	EE 111 EE 161 Phys 213	May 2009	No	No	has had many majors, failed many classes; dropped out of school three times, most recently in Jan 2006
<i>M</i>	August 2004	August 2004	Math 191	May 2009	Yes	Yes	doing well, GPA is 3.4
<i>N</i>	August 2004	January 2006	ME 260 Phys 214	May 2009	Yes	Yes	doing well, GPA is 3.2

Table 1.3B: (cont.) Details of past and current EP students who did not or have yet to graduate.
 Students in shaded rows are no longer enrolled in the EP program.

Student Label	Entered NMSU	Entered EP Program	Classes taken at EP entry	Expected graduation date	Still in EP Program?	On track to graduate?	Comment
<i>O</i>	August 2005	August 2005	EE 111 EE 161 Phys 213	May 2009	Yes	Yes	doing well, GPA is 4.0
<i>P</i>	August 2003	January 2006	see comments	May 2009	Yes	unclear	completed Phys 215, 216, and EE 111, 161, 211 before joining EP program; has had several prior majors; GPA is 3.3
<i>Q</i>	August 2005	August 2005	remedial	unclear	Yes	unclear	enrolled in remedial classes at DABCC; has not officially started the EP program yet
<i>R</i>	June 2006	June 2006	new	unclear	Yes	unclear	transferred from Alamogordo branch

B.1.3 Evaluation and Monitoring of Student Quality

The *NMSU Undergraduate Catalog* states the formal student admission and evaluation policies. Students are required to have graduated from high school with a minimum grade-point-average of 2.0. NMSU uses a standard letter grading system of A-to-F with a 4-point grade-point-average system. Graduation requirements, academic-probation and suspension policies are coupled to the grade-point averages. Individual instructors set their own grade scales based on homework, tests, projects, reports, and presentations. EP students must receive a letter grade of C or better to pass a required course. Department heads and deans receive copies of instructor grades at the end of each semester and can review these to ensure consistency.

At NMSU, traditional indicators of student achievement are the Crimson Scholar and Dean's Honor lists. Crimson Scholars must have a 3.5 grade point average and are entitled to extra registration and library privileges. Approximately 10% of NMSU students have Crimson Scholar status. The Dean's Honor List consists of the top 15% of students in the Engineering College. Currently, about 21% of our EP students are on these lists, a larger proportion than the general student population. Another measure is the list of students with GPA's greater than or equal to 2.9. This list is also supplied by the Dean's office. It indicates that above half of our EP students had or have a grade average of B or better. Table 1.4 gives the numbers and percentages of EP students on the honor lists and with a grade-point average above 2.9.

Table 1.4: Numbers and percentages of EP students on honor's lists and with a grade average of B or better. The percentages are determined taking into account the enrollment in that particular semester.

Semester	Crimson Scholar Number (%)	Dean's Honor List Number (%)	Grade Point Average > 2.9 Number (%)
<i>Fall 2003</i>	not available	1 (9%)	not available
<i>Spring 2004</i>	-	1 (8%)	7 (58%)
<i>Fall 2004</i>	4 (29%)	0 (0%)	8 (58%)
<i>Spring 2005</i>	-	0 (0%)	8 (62%)
<i>Fall 2005</i>	3 (21%)	3 (21%)	9 (65%)

B.1.4 Evaluation and Monitoring Student Progress

The Department of Physics has been monitoring the progress of its undergraduate students for many years. Progress review meetings were held on an annual basis until 2004, since then they have been held biannually. The *Undergraduate Progress Review Meetings* address student progress towards achieving the Program Outcomes and Graduation Objectives. Undergraduate advisors, all undergraduate instructors and other relevant faculty and staff members attend these review meetings. For each student, progress towards achievement of the degree is evaluated on a scale ranging from 'Excellent' to 'Unsatisfactory'. Due to a lack of data, new students and transfers are not always evaluated. Students who do not take classes in a semester but indicate willingness to continue in the program are evaluated with 'No Progress'. The ranking of all undergraduate students (BS/BA and EP) since 2000 is given in Table 1.5.

Table 1.5: Ranking of the BS/BA and the EP students as determined at the *Undergraduate Progress Review Meetings*.
The percentages are determined taking into account the enrollment in that particular semester.

Date of Undergraduate Progress Review Meeting	Undergraduate Student Progress											
	<i>Excellent</i>		<i>Good</i>		<i>Satisfactory</i>		<i>Unsatisfactory</i>		<i>No Progress</i>		<i>Not Evaluated</i>	
	BS/BA Number (%)	EP Number (%)	BS/BA Number (%)	EP Number (%)	BS/BA Number (%)	EP Number (%)	BS/BA Number (%)	EP Number (%)	BS/BA Number (%)	BSEP Number (%)	BS/BA Number (%)	BSEP Number (%)
5/2000	9 (30%)	-	8 (26%)	-	7 (22%)	-	7 (22%)	-	0 (0%)	-	0 (0%)	-
10/2001	9 (32%)	-	11 (40%)	-	6 (22%)	-	1 (3%)	-	1 (3%)	-	0 (0%)	-
10/2002	7 (24%)	-	13 (43%)	-	4 (13%)	-	0 (0%)	-	1 (3%)	-	5 (17%)	-
11/2003	19 (46%)	5 (45%)	6 (15%)	1 (9%)	5 (12%)	1 (9%)	7 (17%)	0 (0%)	0 (0%)	1 (9%)	4 (10%)	3 (27%)
11/2004	14 (36%)	7 (50%)	5 (13%)	3 (21%)	2 (5%)	1 (8%)	3 (8%)	0 (0%)	0 (0%)	0 (0%)	15 (38%)	3 (21%)
3/2005	19 (46%)	7 (54%)	4 (10%)	5 (38%)	5 (12%)	1 (8%)	0 (0%)	0 (0%)	3 (8%)	0 (0%)	10 (24%)	0 (0%)
10/2005	21 (49%)	7 (50%)	10 (23%)	2 (14%)	3 (7%)	2 (14%)	2 (5%)	0 (0%)	0 (0%)	0 (0%)	7 (17%)	3 (22%)
3/2006	27 (68%)	9 (58%)	5 (13%)	2 (12%)	6 (15%)	3 (18%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)	2 (12%)

The advisors and instructors use the results of these meetings to identify and preempt any student difficulties and direct students appropriately. The review meetings also allow faculty to identify deficiencies in the program and make appropriate changes. The departmental goal is that at least half of our students score a 'Good' or better. The table shows that we are achieving this goal and that presently more students make good progress towards their degrees compared to five years ago.

B.1.5 Procedures for Advising Students

Advising is a crucial part of our undergraduate program, and all students must be advised before they are allowed to register for the next semester. There are two academic advisors within the Department of Physics – one for Physics and one for Engineering Physics. However, both advisors are familiar with the requirements for all physics programs, so that at least one advisor is always available. This provides for both consistent advising and strong academic points-of-contact for the student.

During the advisor/student meetings, the advisor and the student discuss progress, plans and difficulties, including class and internship experience. Advisors suggest an appropriate selection of courses for the upcoming semester. When appropriate, the advisor also discusses possible internship and career opportunities with the students. Both advisors keep a folder for each student, which includes transcripts, advising forms, photos, and any other student-specific documentation. To keep good records, both advisors use a set of standard forms i.e.:

- *Standard Semester Advising Form,*
- *Prerequisite Waiver Form,*
- *Course Substitution & Waiver Form,*
- *Course Flow Charts,*
- *Student Course Check Lists.*

These forms are attached in section B1.10. The purpose of some of these forms is described below.

Faculty members teaching ABET courses ensure that class prerequisites are enforced as specified in the NMSU catalog and the departmental ABET syllabi. Beginning in Spring 2007, this will be enforced automatically by the NMSU computer registration system. Occasionally, students may have the appropriate background for the course without the specific prerequisites. This is particularly true with transfer and exchange students. To enroll these students a *Prerequisite Waiver Form* must be filled out by the faculty and kept in the student's folder.

Departmental course substitutions are managed by *Course-Substitution & Waiver Form*. Courses should only be substituted when a similar course has already been taken or when a course is not available. A typical substitution is that many students opt to substitute the 'normal' freshman-physics sequence (Physics 213 and 214) with the freshman-engineering sequence (Physics 215 and 216). This is usually for scheduling or change-of-major reasons. Both courses are calculus based physics and cover essentially the same material. Similar substitutions may be made for the physics labs. The Physics Labs: 211L, 213L, and 215L cover essentially the same material and use the same text. The same is true for Physics Labs

212L, 214L, and 216L. The student advisor and the department head approve course substitutions.

‘Course waivers’ are rarely used but are possible with approval by the advisor and department head. They are only used when the student has substantial experience or coursework that cover the course material. Records on course waivers are kept using the above *Course Substitution & Waiver Form*. Course waivers cannot be used to decrease the total number of credits to less than the 128 needed for graduation.

In addition, the advisors use *Student Tracking Spreadsheets* that enable advisors to determine and evaluate retention rates, student progress, and student achievement after graduation. Reasons for students leaving the program are also identified.

B.1.6 Graduation Requirements

Students must satisfy three sets of requirements: University, College, and Departmental. Each of those requirements is described below.

The University requires at least 128 credits of coursework with the last 30 credits obtained at NMSU. The University coursework requirements are referred to as the General Education system. It ensures that students receive a broad background in English, social sciences, general sciences, and the arts. Some of the General Education courses, such as English, are also part of the Departmental Requirements.

The NMSU College of Engineering has no specific course requirements, although they do require that students receive a C or better in their coursework.

Engineering Physics requirements are set by the Physics, Electrical Engineering, and Mechanical Engineering Departments in consultation with the Dean of Engineering. They are published in the NMSU Undergraduate Catalog. The Department of Physics has developed appropriate flowcharts and checklists of these requirements that are available on the web.

At NMSU, students often arrive with deficiencies in English and Math. Based on SAT and ACT English scores, students may be required to take remedial English course, if necessary. All NMSU students are required to take at least two college level English courses. Similarly, Math placement is based on SAT or ACT scores plus a Math Placement Exam administered by the Math Department. The Engineering Physics curriculum presumes students begin Calculus (Math 191) during their first semester. Students who are not prepared to start at the Calculus level take preparatory math courses, chemistry, and General Education courses during that transitional period. Those students generally take longer than other students to complete their degrees. The advisors try to meet the challenge of keeping these students interested and involved in the EP program by placing them into 100-level Physics courses.

Per semester, a typical student course load is 16 credits. The university has a maximum credit load of 18 that can only be exceeded by petition. Only under exceptional circumstances will the department allow this.

B.1.7 Policy for Transfer Students

Students who have begun their education at other schools are welcome at NMSU. Over half of current Engineering Physics students have transferred from another institution. The transfer student policy is provided in the *NMSU Undergraduate Catalog*. Many courses, such as general education courses, freshman level math and physics courses, are automatically transferred if NMSU offers a comparable course. NMSU has branch campuses at Dona Ana Community College, Grants Campus, Alamogordo Campus, and Carlsbad Campus for which NMSU establishes instructor requirements. Courses taken at branch campuses share a common course numbering system to facilitate student transfer to the main campus. The Engineering College oversees the transfer of more advanced courses. In some cases, the College will consult with the departmental advisors prior to making a decision. Courses are transferred only to similar courses at NMSU and students must have obtained a grade of C or better in the course. At least 30 credits required for the degree must be taken at NMSU's main campus.

B.1.8 Final Graduation Requirements

The departmental advisors make final degree checks in consultation with the College. A *Student Course Check List* is used to verify that the curriculum has been fulfilled, and note any course substitutions or waivers that may have occurred. These are forwarded from the Department of Physics advisor to the Dean of Engineering prior to graduation. In 2005 the *STAR (STudent Academic Requirements) Degree Audit System* was introduced to NMSU. STAR allows both students and advisors to perform interactive degree-checks and identify shortcomings.

B.1.9 Student-Learning Environment

The NMSU chapter of the Society of Physics Students (SPS) plays a major role in student education and retention. The department provides space, computers and wireless service for them. The SPS gives students a wider perspective of physics through contact with their peers at both NMSU and other institutions. Students gain experience by participating in a professional organization and are introduced to physics as a profession. SPS activities include regional zone meetings, seminars, webpage hosting, and field trips. They regularly hold our spring Physics picnic, participate in our Physics Olympics and other recruitment and educational activities. In 2004 NMSU hosted the annual SPS Zone meeting with participants from other universities in the Southwest.

Outstanding Engineering Physics students may be inducted into the international Sigma-Pi-Sigma Physics honor society (sigmapisigma.org). Sigma-Pi-Sigma membership requirements are strict and few students are inducted, however, membership is an honor and bestows professional benefits upon students that can last their career. To date, we have inducted four Engineering Physics students into Sigma-Pi-Sigma.

Departmental activities that include undergraduate students are seminars, picnics, and the annual Physics Olympics. Research opportunities are available with faculty. Contact between students, faculty and advisors is also maintained using a departmental email server that sends email to all students. Generally, these consist of job or internship announcements,

information related to the Student Physics Society, advising information, or other departmental or career related information. Both the Department of Physics and the Society of Physics Students maintain web pages that enhance communication by providing recruitment and advising information to prospective students.

B.1.10 Forms for Advising, Course Requirements and Student Progress

The following forms are attached in the Appendix:

- *Standard Student Advising Form*
- *Prerequisite Waiver Form,*
- *Course Substitution & Waiver Form,*
- *Course Flow Chart for EP – Electrical Option,*
- *Course Flow Chart for EP – Mechanical Option,*
- *Student Course Check List for EP – Electrical Option,*
- *Student Course Check List for EP – Mechanical Option.*

Standard Student Advising Form 1/1

NMSU Department of Physics

Physics Advising Form

(Spring 2006 version)

This form is used to document undergraduate advising within the Department of Physics.

Student Name:

Student Email:

Semester advised for:

Years at NMSU or starting date:

Degree sought: Engineering Physics EE, Engineering Physics ME, Physics BS, Physics BA

Minor degrees or other majors sought:

Expected date of graduation:

Student progress?

Internship experience?

Class recommendations:

Other comments:

Name of advisor and date:

Prerequisite Waiver Form

I, _____, am being allowed to take _____ with the consent of the course instructor, department head, and Associate dean even though I do not meet the course prerequisite of _____. I agree to take the prerequisite course as a co requisite or, if not taught in the same semester, the next time it is offered. By signing below, I also understand that I may have difficulty with the course content because I do not have the prerequisite skills.

Reason for the Request (see back):

Signed: _____ Dated: _____
Student

Signed: _____ Dated: _____
Department Head

Comments:

Signed: _____ Dated: _____
Course Instructor

Comments:

Signed: _____ Dated: _____
Associate Dean

Comments:

Prerequisite Policy

The College of Engineering policy is to enforce prerequisites for all engineering and engineering technology courses. With that said, under certain special circumstances, prerequisites will be waived but only with the consent of the course instructor, department head and associate dean. If the waived prerequisite course is being taught in the same semester as the follow on the course, the student must enroll in the prerequisite course as a co requisite. Other stipulations may be placed on the student in order to have a prerequisite waived.

Typical special circumstances include:

1. A student that has credit for the prerequisite course from another institution but the official transcript has not yet been evaluated (student will be asked to provide an unofficial transcript to verify that the prerequisite course has been taken and passes with a C grade or higher).
2. A student has work or other experience that provides knowledge of the prerequisite material deemed sufficient to meet basic requirements for success in the follow on course (student may be asked to take an evaluation exam to verify that they have knowledge of the prerequisite material.)
3. Foreign or domestic exchange students whose transcripts from their home institutions are not officially evaluated (students may be asked to provide an unofficial transcript from their home institution or take an evaluation exam to verify that they have knowledge of the prerequisite material).
4. Meeting basic skills requirements, minimum GPA requirements, or class standing prerequisites is judged to not have an adverse impact on performance in the course.
 - You were called out to active duty in the semester that the prerequisite was last taught,
 - Illness or other catastrophic events prevented you from completing the prerequisite course the last time it was taught (you received an I grade),
 - You were out on a Co-op phase the semester that the prerequisite was last taught.

Exceptions of this type may be granted in the senior year (or very rarely in the junior year). This will occur on a case-by-case basis and with a written petition to do so by the student sent to the course instructor, department head, and the associate dean for approval. The student must enroll in the prerequisite course as a co-requisite should the prerequisite be waived and the prerequisite course is being taught.

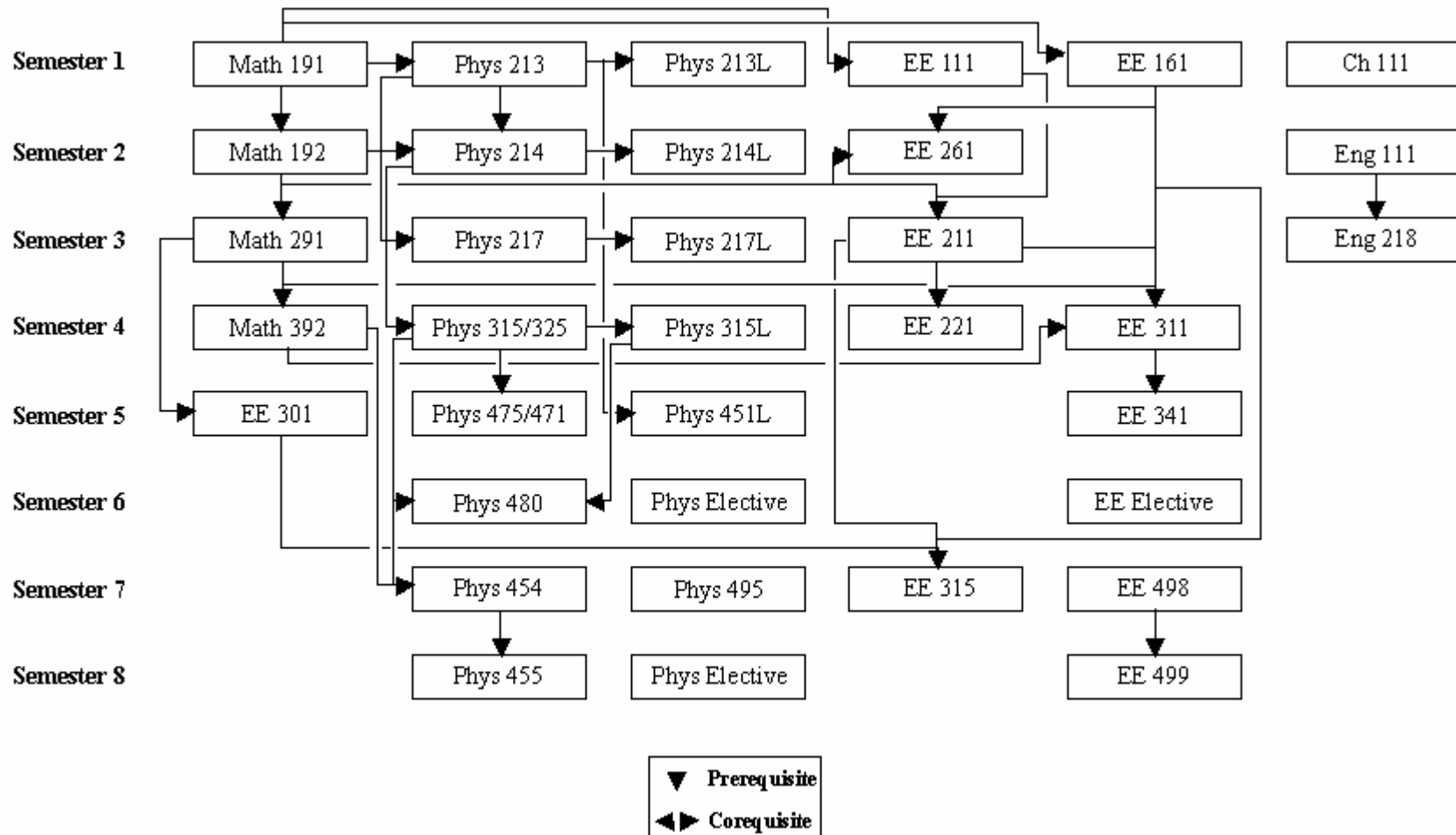
Reasons for not waiving prerequisites include:

1. But all of my friends are in the class and they will help me.
2. Not having the course at this time will delay my graduation.
3. I didn't get a C grade or higher in the prerequisite course but really do know the material.
4. It is my responsibility should I not pass the course.

Last semester the prerequisite course conflicted with another class I taking and therefore I was unable to take the prerequisite course.

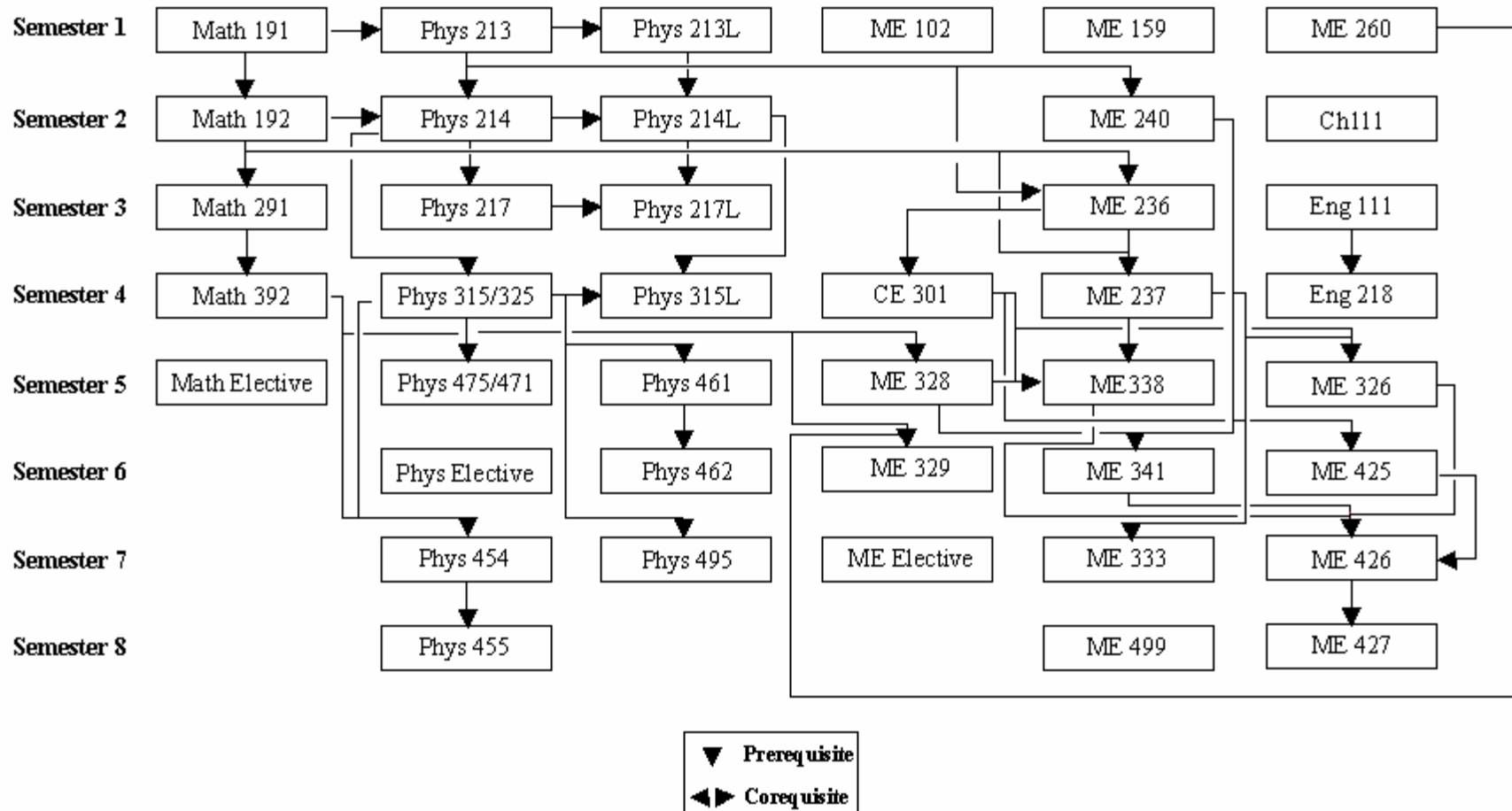
Flow-Chart Engineering Physics – Electrical Option 1/1

Diagram 1.2A: Engineering Physics Electrical Option Flowchart 2005-2006
(does not include General Education courses.)



Flow-Chart Engineering Physics – Mechanical Option 1/1

Diagram 1.2B: Engineering Physics Mechanical Option Flowchart 2005-2006
(does not include General Education courses)



Course Check List: Engineering Physics – Electrical Option 1/2

Engineering Physics, Electrical Option, 2005-2006 Catalog				
Student Name:				
Student Number:				
Catalog Year:				
Course	Course Name	Credits (128+)	Completed Grade	Notes
<i>Physics Requirements</i>		<i>40 or 41</i>		
Phys 213	Mechanics	3		
Phys 213L	Experimental Mechanics	1		
Phys 214	Electricity and Magnetism	3		
Phys 214L	Electricity and Magnetism Laboratory	1		
Phys 217	Heat, Light, and Sound	3		
Phys 217L	Experimental Heat, Light, and Sound	1		
Phys 315	Modern Physics	3		
Phys 315L	Experimental Modern Physics	2		
Phys 451	Intermediate Mechanics I	3		
Phys 454	Intermediate Modern Physics I	3		
Phys 455	Intermediate Modern Physics II	3		
Phys 475 (or Phys 471)	Advanced Experimental Modern Physics (or Modern Experimental Optics)	3 or 2		
Phys 480	Thermodynamics	3		
Phys 495	Mathematical Methods of Physics I	3		
Physics Elective I		3		
Physics Elective II		3		
<i>Electrical Engineering Requirements</i>		<i>44</i>		
EE 111	Introduction to Electrical and Computer Engineering	4		
EE 161	Computer-Aided Problem Solving	4		
EE 211	AC Circuits	4		
EE 221	Electronics I	4		
EE 261	Digital Design I	4		
EE 301	Vector Principles for Electrical Engineers	3		
EE 311	Signals and Systems	4		
EE 315	Electromagnetics I	4		
EE 341	Control Systems	4		

Course Check List: Engineering Physics – Electrical Option 2/2

EE 498	Capstone Design I	3		
EE499	Capstone Design II	3		
EE Elective		3		
<i>Math Requirements</i>		12		
Math 191	Calculus and Analytic Geometry I	3		
Math 192	Calculus and Analytic Geometry II	3		
Math 291	Calculus and Analytic Geometry III	3		
Math 392	Ordinary Differential Equations	3		
<i>Natural Science Requirement</i>		4		
Chem. 111	General Chemistry I	4		
<i>General Education Requirements</i>		28		
Engl. 111G	Rhetoric and Composition	4		
Engl. 281G	Technical and Scientific Communication	3		
Critical Thinking and Analysis	<i>(non-computer; EE 161 already counted for this category)</i>	3		
Historical Perspectives		3		
Human Thought		3		
Social Analysis		3		
Literature and Fine Arts		3		
Viewing a Wider World I		3		
Viewing a Wider World II		3		
<i>(Viewing a Wider World courses must not be in Engineering or Physics)</i>				
Final Approvals and Date	Advisor:			
	Department Head:			
	Dean:			

Course Check List: Engineering Physics – Mechanical Option 1/2

Engineering Physics, Mechanical Option, 2005-2006 Catalog				
Student Name:				
Student Number:				
Catalog Year:				
Course	Course Name	Credits (128)	Completed Grade	Notes
<i>Physics Requirements</i>		38		
Phys 213	Mechanics	3		
Phys 213L	Experimental Mechanics	1		
Phys 214	Electricity and Magnetism	3		
Phys 214L	Electricity and Magnetism Laboratory	1		
Phys 217	Heat, Light, and Sound	3		
Phys 217L	Experimental Heat, Light, and Sound	1		
Phys 315	Modern Physics	3		
Phys 315L	Experimental Modern Physics	2		
Phys 454	Intermediate Modern Physics I	3		
Phys 455	Intermediate Modern Physics II	3		
Phys 461	Intermediate Electricity and Magnetism I	3		
Phys 462	Intermediate Electricity and Magnetism II	3		
Phys 475	Advanced Experimental Modern Physics	3		
Phys 495	Mathematical Methods of Physics I	3		
Physics Elective		3		
<i>Mechanical Engineering Requirements</i>		43		
ME 102	Introduction to Mechanical Engineering	1		
ME 159	Graphical Communication and Design	2		
CE 301	Mechanics of Materials	3		
ME 236	Engineering Mechanics I	3		
ME 237	Engineering Mechanics II	3		
ME 240	Thermodynamics	3		
ME 260	Mechanical Engineering Problem Solving	3		
ME 328	Engineering Analysis I	3		
ME 329	Engineering Analysis II	3		
ME 333	Intermediate Dynamics	3		
ME 338	Fluid Mechanics	3		
ME 341	Heat Transfer	3		

Course Check List: Engineering Physics – Mechanical Option 2/2

ME 426	Design Project Laboratory I	3		
ME 427	Design Project Laboratory II	3		
ME 449	Senior Seminar	1		
Engineering Elective		3		
<i>Math Requirements</i>		15		
Math 191	Calculus and Analytic Geometry I	3		
Math 192	Calculus and Analytic Geometry II	3		
Math 291	Calculus and Analytic Geometry III	3		
Math 392	Ordinary Differential Equations	3		
Math Elective	(From Math 391, 471,472,473, 480, Stat 371, ESt 465, or IE 310)	3		
<i>Natural Science Requirement</i>		4		
Chem. 111	General Chemistry I	4		
<i>General Education Requirements</i>		28		
Engl 111G	Rhetoric and Composition	4		
Engl 281G	Technical and Scientific Communication	3		
Critical Thinking and Analysis	(<i>non-computer; ME 260 already counted for this category</i>)	3		
Historical Perspectives		3		
Human Thought		3		
Social Analysis		3		
Literature and Fine Arts		3		
Viewing a Wider World I		3		
Viewing a Wider World II		3		
<i>(Viewing a Wider World courses must not be in Engineering or Physics)</i>				
Final Approvals and Date	Advisor:			
	Department Head:			
	Dean:			