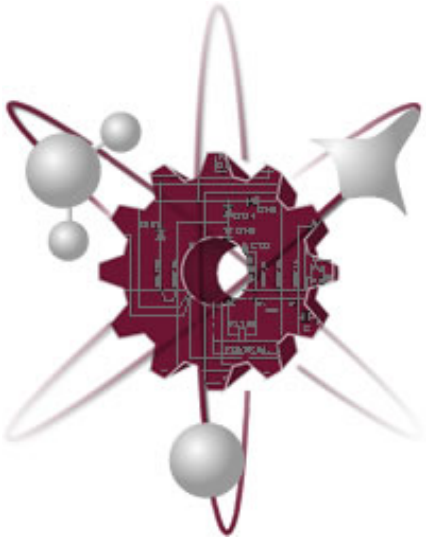
Supplementary Documentation/Information

Engineering Physics

Bachelor of Science in Engineering Physics



New Mexico State University

Degree Checklist Engineering Physics with Aerospace Concentration

Engineering Physics, Aerospace Option, 2011-2012 Catalog				
Student Name:				
Student Number:				
Catalog Year:				
Course	**Course Name**	**Credits (133)**	**Completed Grade**	**Notes**
Physics Requirements		*36*		
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	3		
Phys 395	Intermediate Mathematical Methods of Physics	3		
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 Physics Laboratory	3		
Electives		*3*		
Phys. or AE elective		3		
Aerospace Engineering Requirements		*45*		
AE 339	Aerodynamics I	3		
AE 362	Orbital Mechanics and Space Environment	3		
AE 363	Aerospace Structures	3		
AE 364	Flight Dynamics and Controls	3		
AE 419	Propulsion	3		
AE 424	Aerospace Systems Engineering	3		
AE 428	Aerospace Capstone Design	3		
AE 429	Aerodynamics II	3		

AE 447	Aerofluids Laboratory	3		
CE 301	Mechanics of Materials	3		
ME 102	Mechanical Engineering Orientation	1		
ME 159	Graphical Communication and Design	2		
ME 236	Engineering Mechanics I	3		
ME 237	Engineering Mechanics II	3		
ME 240	Thermodynamics	3		
ME 345	Experimental Methods I	3		

Math Requirements		*14*		
Math 191	Calculus and Analytic Geometry I	4		
Math 192	Calculus and Analytic Geometry II	4		
Math 291	Calculus and Analytic Geometry III	3		
Math 392	Ordinary Differential Equations	3		
Natural Science Requirement		*4*		
Chem. 111	General Chemistry I	4		
General Education Requirements		*31*		
Engl. 111G	Rhetoric and Composition	4		
Written Comm.		3		
Oral Communication		3		
Math Requirement	*(already counted in EP curriculum)*			
Natural Science I &II	*(already counted in EP curriculum)*			
Social and Behavioral Sciences		6-9		
Humanities & Fine Arts		6-9		
Viewing a Wider World I & II	*(Viewing a Wider World courses must not be in Engineering or Physics)*	6		
Final Approvals and Date	***Advisor:***			
	Department Head:			
	Dean:			

Degree Checklist Engineering Physics with Chemical Concentration

Engineering Physics, Chemical Engineering Option, 2011-2012 Catalog				
Student Name:				
Student Number:				
Catalog Year:				
Course	**Course Name**	**Credits (132)**	**Completed Grade**	**Notes**
Physics Requirements		*36*		
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	3		
Phys 451	Intermediate Mechanics	3		
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 Physics Laboratory	3		
Electives		*3*		
Phys 395 or ChE elective		3		
Chemical Engineering Requirements		*28*		
ChE 111	Computer Calculations in Ch. E.	3		
ChE 201	Material and Energy Balances	4		
ChE 301	Chemical Engineering Thermodynamics I	3		
ChE 302	Chemical Engineering Thermodynamics II	3		
ChE 305	Transport Operations I: Fluid Flow	3		
ChE 306	Transport Operations II: Heat and Mass Transfer	3		
ChE 307	Transport Operations III: Staged Operations	3		

ChE 361	Engineering Materials	3		
ChE 441	Chemical Kinetics and Reaction Engineering	3		

Math Requirements		*14*		
Math 191	Calculus and Analytic Geometry I	4		
Math 192	Calculus and Analytic Geometry II	4		
Math 291	Calculus and Analytic Geometry III	3		
Math 392	Ordinary Differential Equations	3		
Natural Science Requirements		*20*		
Chem. 115	Principles of Chemistry I	4		
Chem 116	Principles of Chemistry II	4		
Chem 313	Organic Chemistry I	3		
Chem 314	Organic Chemistry II	3		
Chem 315	Organic Chemistry Laboratory	2		
Chem 371	Analytical Chemistry	4		
General Education Requirements		*31*		
Engl. 111G	Rhetoric and Composition	4		
Written Comm.		3		
Oral Communication		3		
Math Requirement	*(already counted in EP curriculum)*			
Natural Science I &II	*(already counted in EP curriculum)*			
Social & Behav. Sci		6-9		
Humanities & Fine Arts		6-9		
Viewing a Wider World I & II	*(Viewing a Wider World courses must not be in Engineering or Physics)*	6		
Final Approvals and Date	***Advisor:***			
	Department Head:			
	Dean:			

Degree Checklist for Engineering Physics with Electrical Concentration

Engineering Physics, Electrical Option, 2011-2012 Catalog				
Student Name:				
Student Number:				
Catalog Year:				
Course	**Course Name**	**Credits (133)**	**Completed Grade**	**Notes**
Physics Requirements		*36*		
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	3		
Phys 395	Intermediate Mathematical Methods of Physics	3		
Phys 451	Intermediate Mechanics I	3		
Phys 454	Intermediate Modern Physics I	3		
Phys 455	Intermediate Modern Physics II	3		
Phys 475	Advanced Physics Laboratory	3		
Phys 480	Thermodynamics	3		
Electives		*15*		
Phys 461 & 462 or EE 310 & 351	Intermed. Elec. & Magnetism I & II or Eng. Analysis II and Applied Electromagnetics	6		
Phys. and EE electives		9		
Electrical Engineering Requirements		*33*		
EE 161	Computer-Aided Problem Solving	4		
EE 162	Digital Circuit Design	4		

EE 210	Engineering Analysis I	4		
EE 260	Embedded Systems	4		
EE 280	DC and AC Circuits	4		
EE 312	Signals and Systems I	3		
EE 380	Electronics I	4		
EE 419 or Phys 450	Capstone Design II	3		
Math Requirements		*14*		
Math 191	Calculus and Analytic Geometry I	4		
Math 192	Calculus and Analytic Geometry II	4		
Math 291	Calculus and Analytic Geometry III	3		
Math 392	Ordinary Differential Equations	3		
Other Requirements		*4*		
Chem. 111	General Chemistry I	4		
General Education Requirements		*31*		
Engl. 111G	Rhetoric and Composition	4		
Written Communication		3		
Oral Communication		3		
Math Requirement	*(already counted in EP curriculum)*			*Done*
Natural Science I &II	*(already counted in EP curriculum)*			*Done*
Social and Behavioral Sciences		6-9		
Humanities and Fine Arts		6-9		
Viewing a Wider World I & II	*(Viewing a Wider World courses must not be in Engineering or Physics)*	6		
Final Approvals and Date	***Advisor:***			
	Department Head:			
	Dean:			

Degree Checklist for Engineering Physics with Mechanical Concentration

Engineering Physics, Mechanical Option, 2011-2012 Catalog				
Student Name:				
Student Number:				
Catalog Year:				
Course	**Course Name**	**Credits (131)**	**Completed Grade**	**Notes**
Physics Requirements		*36*		
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	3		
Phys 395	Int. Mathematical Methods of Physics	3		
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 Physics Laboratory	3		
Electives		*9*		
Phys 451 or ME 333	Intermediate Mechanics or Intermediate Dynamics	3		
Phys. and EE electives		6		
Mechanical Engineering Requirements		*37*		
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 338	Fluid Mechanics	3		
ME 341	Heat Transfer	3		
ME 426	Design Project Laboratory I	3		
ME 427	Design Project Laboratory II	3		
ME 449	Senior Seminar	1		
Math Requirements		*14*		
Math 191	Calculus and Analytic Geometry I	4		
Math 192	Calculus and Analytic Geometry II	4		
Math 291	Calculus and Analytic Geometry III	3		
Math 392	Ordinary Differential Equations	3		
Natural Science Requirement		*4*		
Chem. 111	General Chemistry I	4		
General Education Requirements		*31*		
Engl. 111G	Rhetoric and Composition	4		
Written Communication		3		
Oral Communication		3		
Math Requirement	*(already counted in EP curriculum)*			
Natural Science I &II	*(already counted in EP curriculum)*			
Social and Beh. Sci		6-9		
Humanities & Fine Arts		6-9		
Viewing a Wider World I & II	*(Viewing a Wider World courses must not be in Engineering or Physics)*	6		
Final Approvals and Date	***Advisor:***			
	Department Head:			
	Dean:			

Advising Form

NMSU Department of Physics
Physics Advising Form

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

Student Name: Student Banner ID:

Student E-mail: Semester advised for:

Years at NMSU or a starting date:

Degree sought: Engineering Physics EE, Engineering Physics ME, Aerospace Engineering AE, Chemical Engineering ChE, Physics BS, Physics BA

Minor degrees or other majors sought:

Expected date of graduation:

Student Progress?

Internship Experience?

Class recommendations:

Other comments:

Name of adviser and date:

Senior-Exit Interview Form

Engineering Physics
Senior Exit Interview, 2005-2006

Student Name: Interviewer:

1. Which Engineering Physics option?	A. Electrical Engineering	B. Mechanical Engineering
2. Which would you rather do upon graduation?	A. Full-Time Employment	B. Full-Time Graduate School

A. If **Full-time Employment:**

3. How many interviews did you schedule through Placement and Career for full-time employment?						
4. How many on-site interviews for full-time employment did you go on?						
5. How many job offers for full-time employment did you receive?						
6. For the offer that you think you will accept please tell us:						
a. Company Name:						
b. Location:						
c. Job title:						
d. Starting Salary Range (e.g., $40,000-$45,000)						
e. Level of Enthusiasm for this job. (5 = highest)	1	2	3	4	5	

B. If **Full-Time Graduate School:**

7. From how many graduate programs did you obtain information?						
8. To how many graduate programs did you apply?						
9. To how many graduate programs were you accepted?						
10. For the graduate program that you think you will attend, please tell us:						
a. School Name:						
b. Location:						
c. Program:						
d. Amount of Initial Support						
e. Level of enthusiasm for this program (5 = highest)	1	2	3	4	5	
11. How many credit hours did you earn as an NMSU student?						
12. What's your GPA?						
13. How many campus-sponsored career fairs did you attend?						
14. How many co-ops or summer internships did you go on?						

15. Rank on a on a scale of 1 to 4 how well your education at NMSU and/or in the Engineering Physics Program prepared you in each of the following areas
1 =agree, 2=neutral, 3=disagree, 4=not important.

a. Scientific expertise – knowledge of concepts and notation	1	2	3	4
1. Mechanics	1	2	3	4
2. Electricity and Magnetism	1	2	3	4
3. Modern Physics	1	2	3	4
b. Experimental training	1	2	3	4
1. Physics experimental training	1	2	3	4
2. Engineering experimental training	1	2	3	4
3. Electronics training	1	2	3	4
4. Mechanical training	1	2	3	4
c. Design abilities	1	2	3	4
1. Project design	1	2	3	4
2. Project implementation	1	2	3	4
3. Project completion	1	2	3	4
d. Teamwork	1	2	3	4
1. Ability to work within a team	1	2	3	4
2. Ability to lead a team	1	2	3	4
e. Problem solving in Physics and Engineering	1	2	3	4
1. Problem solving in Physics	1	2	3	4
2. Problem solving in Engineering	1	2	3	4
f. Professional responsibilities and ethics	1	2	3	4
g. Communications skills	1	2	3	4
1. Oral communication skills	1	2	3	4
2. Written communication skills	1	2	3	4
h. Societal impact – broader impact of engineering on society	1	2	3	4
i. Lifelong learning	1	2	3	4
1. Preparation for the workplace	1	2	3	4
2. Career development skills	1	2	3	4
3. Ability to learn new skills	1	2	3	4
j. Contemporary knowledge	1	2	3	4
1. up-to-date knowledge of physics	1	2	3	4
2. up-to-date knowledge of engineering	1	2	3	4
k. Technical skills	1	2	3	4
1. Computing skills	1	2	3	4
2. Math skills	1	2	3	4
3. Electronics skills	1	2	3	4
4. Mechanical skills	1	2	3	4
5. Statistics and probability skills	1	2	3	4

Concerning the duration of your stay at New Mexico State University, please answer, where: 1=poor, 2=neutral, 3=great, and 4=not important or doesn't apply:

16. Rate the quality of academic advisement that you received	1	2	3	4
17. Rate the quality of career advisement that you received.	1	2	3	4
18. Did the core classes prepare you for the electives (breadth, depth), and capstone classes?	1	2	3	4
19. Rate the facilities:				
a. Physics Department Computing Facilities:				
1. Hardware	1	2	3	4
2. Software	1	2	3	4
b. Physics Department Laboratory Facilities	1	2	3	4
c. Engineering Facilities	1	2	3	4
c. Chemistry Facilities:	1	2	3	4
d. Classrooms	1	2	3	4

16. In your opinion, what are the top three courses in the EP Program that you took?

a.
b.
c.

17. In your opinion, what are the three weakest courses in the Engineering Physics Program?

a.
b.
c.

17. What motivated you to come to NMSU?

18. What motivated you to major in Engineering Physics?

20. Did you transfer into NMSU?	YES	
	NO	

21. What Math did you start with?	

22. Please provide any additional suggestions for improving the educational experience for future EP students.

23. Are you a member of any professional physics, engineering, or science societies?

For the purposes of keeping contact with you after graduation and sending you our annual Quantum Times, the Physics Department Newslettter, we would like information about how to reach you in the future. This information will be kept confidential and will be detached from the survey.

Name	
Graduating Year and Semester	
Address after Graduation	
Phone after Graduation	
Email after Graduation	

Alumni Survey Form

Survey for Engineering Physics Alumni

Name:

Address:

City/State/Zip:

Home Phone:

Work Phone:

Term and year of Graduation:

Major:

1. Are you presently employed? □ Yes □ No

If yes, full time or part time? □ Full time □ Part time

If no, are you presently looking for employment? □ Yes □ No

If not employed skip to question 9

2. What is the title of your position?

What is your current salary at this position? (optional)

3. Who is your present employer?

4. How long have you worked for you present employer?

5. In your present job, how many individuals do you supervise?

6. How long did it take you to find your first position after graduation from NMSU?

□ Had a position lined up before graduating

□ 1 month

□ 2-3 months

□ 4-5 months

□ 6 months or longer

7. In your present job, do you participate on any teams, or on any multidisciplinary projects?

□ Yes □ No

If yes, what disciplines are represented on these projects or teams?

8. Please briefly describe the primary responsibilities of your job.

9. Did you pursue graduate studies after graduating from NMSU? □ Yes. □ No

If yes, where?

Did you receive a degree? □ Yes □ No

If yes, in what field and what kind of degree (e.g. MS, MBA, Ph.D., etc.)?

10. How many positions (total of employers and positions with each employer) have you held since graduating from NMSU?

11. Of these positions, how many are directly related to the training and education received in the Engineering Physics program at NMSU?

12. What would you consider as the most significant factors for success in your career?

Why:

13. Did the NMSU Engineering Physics Program achieve its Educational Objectives?

1: **Competitiveness.** Graduates are competitive in internationally-recognized academic, government and industrial environments;

□ Strongly Agree □ Agree □ No Opinion □ Disagree □ Strongly Disagree

2: **Adaptability.** Graduates exhibit success in solving complex technical problems in a broad range of disciplines subject to quality engineering processes;

□ Strongly Agree □ Agree □ No Opinion □ Disagree □ Strongly Disagree

3: **Teamwork and Leadership.** Graduates have a proven ability to function as part of and/or lead interdisciplinary teams;

□ Strongly Agree □ Agree □ No Opinion □ Disagree □ Strongly Disagree

14. I am satisfied with my overall learning experience and preparation from NMSU.

□ Strongly Agree □ Agree □ No Opinion □ Disagree □ Strongly Disagree

15. Are you a member of any professional associations? □ Yes □ No

16. Have you received, or are you in the process of pursuing any special engineering licenses or certifications? □ Yes □ No

17. What suggestions do you have for the Engineering Physics program to better prepare students for the workplace?

Written and Oral Report Forms

Project Written Report Evaluation

New Mexico State University
Department of Physics

Please score each on a scale of 0 to 10 (10 highest) and include any written comments.

Project Title:

Project Team:

Grammar, spelling, punctuation:

Appropriate length:

Structure:

Proper referencing:

Graphics:

Content:

Project Oral Report Evaluation Form

Project Oral Report Evaluation

New Mexico State University
Department of Physics

Please score each on a scale of 0 to 10 (10 highest) and include any written comments.

Project Title:

Project Team:

Verbal communication:

Visual communication:

Preparation:

Content:

Teamwork:

Teamwork Evaluation Form

Teamwork Evaluation Form

Physics Department Group Evaluation Form

Lab Class/Semester:_____

Please write down the class you are in. The numbering of students is rand and the information is confidential, thus do NOT write your name or the names of any group members.

How much did your other group members or lab partners contribute (circle one):

Specific comments:

Student 1:
Did everything
Substantial contribution
Good contribution
Little contribution
No contribution
Disruptive

Student 2:
Did everything
Substantial contribution
Good contribution
Little contribution
No contribution
Disruptive

Student 3:
Did everything
Substantial contribution
Good contribution
Little contribution
No contribution
Disruptive

Student 4:
Did everything
Substantial contribution
Good contribution
Little contribution
No contribution
Disruptive

Student 5:
Did everything
Substantial contribution
Good contribution
Little contribution
No contribution
Disruptive

Please rate yourself in terms of your contribution:

Yourself:
I did everything
Substantial contribution
Good contribution
Little contribution
No contribution
Disruptive

Any other written comments about group performance:

Post-Course Instructor Comment Form

Post-Course Instructor Comment Form (2012 version)

Course: _____

☐ lecture course ☐ instructional laboratory ☐ other, specify _____

Semester: _____

Instructor: _____

Estimated average class attendance (in %, after drop date): _____

Final Grade Distribution:

A	B	C	D	F	withdrawn	incomplete	**average grade**
___	___	___	___	___	___	___	____

A. Grade Basis (check all that apply)

☐ **tests and exams**

How many? _____

☐ take-home ☐ in class

☐ **homework**

How many assignments? _____

☐ written ☐ on-line, using _____

☐ from textbook ☐ other sources ☐ own problems

☐ **quizzes**

How many? _____

☐ announced ☐ unannounced

☐ written ☐ oral

☐ **projects/reports/essays**

How many (per student)? _____

☐ written ☐ oral

☐ individual ☐ group, how many group members? ____

☐ course material ☐ related material

☐ other, specify: _____

☐ **class participation/attendance**

☐ attendance list

☐ in-class participation; how measured? _____

☐ other, specify: _____

☐ **other**, specify: _____

B. Textbook

Textbook used: _____

Chapters covered: _____

- Considering the educational goals of this course, the textbook provides a _____*(fill in)*_____ foundation of the material to be taught.

☐ complete and comprehensive ☐ solid ☐ adequate ☐ marginal ☐ poor

- For future courses, the use of this textbook is:

☐ recommended ☐ recommend with reservations ☐ not recommended.

- List main deficiencies of the textbook (if any):

_____

_____

_____

C. Teaching Strategies (check all that apply)

Lecture sequence:

☐ followed textbook ☐ followed textbook, but provided supplementary material

☐ used my own sequence ☐ did not use the book, because _____

Lecture Style:

☐ chalk board ☐ power point ☐ overhead slides

☐ other (e.g. movies), specify:_____

In-class learning tools:

☐ in-class demonstrations ☐ instant feedback tools

How often? _____ ☐ clickers ☐ flash cards ☐ other, specify: _____

Involving students? yes / no

☐ group work, specify:_____

Hand-Outs:

☐ lecture notes ☐ supplementary material ☐ homework solutions ☐ test/exam solutions

☐ other, specify: _____

D. Program outcomes

Measuring specific ABET program outcomes

The ABET-style course syllabus dictates that each course is required to independently measure one or several of the EP program outcomes (a-k). The final course grade is not an acceptable measure, thus you need to specify what has been used as an independent measure. For some courses this may include pre-tests and post-tests designed to measure the student's prerequisite knowledge or improvement. Other possible measures include embedded GRE questions in tests, evaluations of student team performance in labs, and evaluation of student presentations or projects. In case you measured other ABET outcomes as well, feel free to include them as well, but mark them with an asterisk (*). Please also append copies of any measuring tools or forms as part of this reprot

Program Outcomes	**Measuring Tool** (e.g.: GRE, skill-building homeworks etc.)	**Target[a]** (in %)	**Result** (in %)	**Exceed Target** (in %)

[a]: The target is given by: ☐ national average ☐ department avg. over last __ years plus 5%
☐ other, specify: _____

E. Instructor's notes and suggestions for future course

List some possible improvements, necessary changes, suggestions and useful teaching strategies for the course in future:

_____
_____
_____
_____
_____
_____
_____

F. Course inprovements

List changes made in response to past instructor suggestions:

_____
_____
_____
_____
_____
_____
_____

Example STAR audit

Web Audit https://aggieapps.nmsu.edu:8088/degreeaudit/servlet/ParseAuditServlet?...

OK E P Core Requirements - Courses in this requirement may
also meet Common Core requirements. See your advisor.
NO Mathematics Requirement (14 credits)
OK Natural Sciences Requirement (4 credits)
NO Physics Course Requirements (36 credits)
NO Mechanical Engineering Requirement (35 credits)
Courses in Excess of Specific Requirements
Courses not earning academic credit
*********** *NEW MEXICO STATE UNIVERSITY STAR REPORT* ***********
This student academic requirements (STAR) report is a planning
tool and is not a contract between the student and the university. This report has been designed to assist you with
planning courses to complete degree requirements. Every effort has been made to insure its accuracy; however, final
confirmation of degree requirements is subject to department,
college and university approval. Students must apply for degrees within deadline dates for the semester in which they
anticipate to graduate. If you have questions about your degree audit, please contact your academic advisor.
AT LEAST ONE REQUIREMENT HAS NOT BEEN SATISFIED
NO Minimum Grade Point Average and Credit Hour Requirements
Your Bachelor's degree requires a minimum of 129 completed
degree hours, a minimum GPA of 2.00 in all course work, and completing at least 30 of the last 36 hours at NMSU.
+ Cumulative grade point average
4.000 GPA
+ Total degree hours earned. (excludes developmental courses)
125.0 CREDITS
IN-P---> 13.0 CREDITS
- Upper-division courses: Student must complete a mimimum

of 48 hours at or above the 300-level.
4.0 CREDITS
+ Residency requirement: At least 30 of the last 36 degree credits must be completed at NMSU.
English Basic Skills Requirement - satisfied.
Mathematics Basic Skills Requirement - satisfied.
OK General Education Common Core Area I (9-10 Credits)
Communications
+ Complete three credits of English composition - Level 1 with a grade of C or better.
02S1 ENGL111G 3.0 CR RHETORIC/COMPOSITION
+ Complete three credits of English composition - Level 2
03SP ENGL218G 3.0 CR TCHNCL & SCNTFC CMNCTN
+ Complete three credits of oral communication.
03SP COMM253G 3.0 CR PUBLIC SPEAKING
OK General Education Common Core Area II (3 Credits)
Mathematics
+ Complete 3/4 credits of college level Mathematics or higher.
03S1 MATH190G 4.0 CR TRIG & PRE-CALCULUS
OK General Education Common Core Area III (8 Credits)
Laboratory Sciences
+ Chemistry:
12SP CHEM111G 4.0 A GENERAL CHEMISTRY I
+ Misc. Laboratory Sciences:
03FA C S 171 4.0 CR COMPUTER SCIENCE
NO General Education Common Core Areas IV & V (15 credits)
Social/Behavioral Sciences and Humanities/Fine Arts
Complete 6 - 9 credits in Social/Behavioral Sciences.
SELECT FROM: AG E 210, ANTH 120, 125, 201, 202, 203, C J 101, C EP 110, ECON 201, 251, 252, GEOG 112, 120 GOVT 100, 110, 150, 160, HL S 150, HON 203, HON 232, 235, 237, 248, 249, JOUR 105, LING 200, PSY 201, SOC 101, 201, S WK 221, W S 201, 202
Complete 6 - 9 credits in Humanities/Fine Arts.
SELECT FROM: ART 101, 110, 295, 296, DANC 101, ENGL 115, 116, 220, 244, HIST 101, 102, 110, 111, 112, HIST 201, 202, 211, 212, 221, 222, HON 208, 216, 220, HON 221, 222, 225, 226, 227, 228, 229, 230, 234, 239, HON 241, 242, 244, 270 MUS 101, 201, PHIL 100, 101, 124 PHIL 136, 201, 211, 223, THTR 101.

+ Social/Behavioral Sciences.
02SP PSY 201G 3.0 CR INTRDN-PSYCHOLOGY
11FA LING200G 3.0 A INTRDN TO LANGUAGE
- Humanities and Fine Arts.
03S1 PHIL201G 3.0 CR INTRN TO PHILOSOPHY
- Complete 3 credits of Social/Behavioral Science, Humanities, or Fine Arts.
NO Viewing a Wider World Requirement
Engineering Physics - Mechanical Option
Take six credits at the 300 or 400 level in General Education courses. One of the two courses must be in a department and ouside College of Arts & Sciences.
***See catalog for list of acceptable courses.**
OK E P Core Requirements - Courses in this requirement may
also meet Common Core requirements. See your advisor.
+ Complete English 111 and 218.
02S1 ENGL111G 3.0 CR RHETORIC/COMPOSITION
03SP ENGL218G 3.0 CR TCHNCL & SCNTFC CMNCTN
+ Complete MATH 191 or 192 or 291.
11FA MATH191G 4.0 A- CALCULUS I
NO Mathematics Requirement (14 credits)
- Complete the following math courses
11FA MATH191G 4.0 A- CALCULUS I
12SP MATH192G 4.0 A CALCULUS II
12FA MATH291G 3.0 IP CALCULUS III
SELECT FROM: **MATH191***,**MATH192***,**MATH392**,
OK Natural Sciences Requirement (4 credits)
+ Complete CHEM 111.
12SP CHEM111G 4.0 A GENERAL CHEMISTRY I
NO Physics Course Requirements (36 credits)
- Complete the following physics courses
11FA PHYS213 3.0 A+ MECHANICS
11FA PHYS213 L 1.0 A EXPERIMENTAL MECHANICS
12SP PHYS214 3.0 A+ ELECTRICITY/MAGNETISM
12SP PHYS214 L 1.0 A ELEC MAGNETISM LAB
12FA PHYS217 3.0 IP HEAT, LIGHT, AND SOUND
12FA PHYS217 L 1.0 IP EXP HEAT,LIGHT,SOUND
SELECT FROM: **PHYS217***,**PHYS217***,**PHYS315***,**PHYS315***,**PHYS395** ,**PHYS454**,
PHYS455 ,**PHYS461** ,**PHYS462** ,**PHYS475**,
- Complete PHYS 451 or E E 310 and M E 333.
- Complete 6 additional credits in electives in PHYS and M E.

11FA PHYS280 1.0 A INDEPENDENT STUDY
12SP PHYS280 1.0 A INDEPENDENT STUDY
SELECT FROM: **PHYS*** M E ***
NO Mechanical Engineering Requirement (35 credits)
- Complete the following mechanical engineering courses
11FA M E 102 1.0 A+ M E ORIENTATION
11FA M E 159 2.0 A+ GRPHCL CMNCTN/DESIGN
12FA M E 236 3.0 IP ENGR MECHANICS I
12FA M E 240 3.0 IP THERMODYNAMICS
SELECT FROM: **C E 301 M E 237** , **M E 261** , **M E 328** , **M E 338**,
M E 341 , **M E 426** , **M E 427** , **M E 449**,
Courses in Excess of Specific Requirements
02SP B A 104 4.0 CR INTRDN TO BUSINESS
03WI BCIS110G 4.0 CR INTRO COMPUTERIZRD INFO SYSTE
02SP C S 110G 4.0 CR COMPUTER LITERACY
12SP CHEM101 1.0 A GEN SUPPL INST I
08WI ENGL112 3.0 CR RHETORIC & COMPOSITION II
03S1 HL S355 3.0 CR RSPNDNG TO EMERGENCIES LD
03FA MATH100 E 4.0 CR MATH ELECTIVE LD
02S1 MATH180 5.0 CR TRIGONOMETRY
02S1 OECS100 E 1.0 CR OECS ELECTIVE L.D.
02S1 OECS100 E 1.0 CR OECS ELECTIVE L.D.
02S1 OECS100 E 1.0 CR OECS ELECTIVE L.D.
02FA OECS100 E 1.0 CR OECS ELECTIVE L.D.
02FA OECS100 E 1.0 CR OECS ELECTIVE L.D.
02FA OECS100 E 1.0 CR OECS ELECTIVE L.D.
03WI OECS100 E 1.0 CR OECS ELECTIVE L.D.
03SP OECS100 E 2.0 CR OECS ELECTIVE L.D.
03S1 OECS100 E 1.0 CR OECS ELECTIVE L.D.
03S1 OECS100 E 1.0 CR OECS ELECTIVE L.D.
03FA OECS100 E 4.0 CR OECS ELECTIVE L.D.
02FA OECS125 3.0 CR OPERATING SYSTEMS
02FA OECS128 1.0 CR OPR SYSTMS-LINUX/UNIX
02S1 OECS207 1.0 CR WINDOWS
02S1 OECS215 1.0 CR SPRDSHT APPLCTNS
02FA OECS230 4.0 CR DATA CMNCTN/NTWRKS I
02S1 OECS231 1.0 CR DATA CMNCTNS/NTWRK II
03WI OECS231 4.0 CR DATA CMNCTNS/NTWRK II
03SP OECS232 4.0 CR IMPLMNT/SUPRTNG NTWRKS I
03SP OECS233 4.0 CR IMPLMNT/SUPRTNG NTWRKS II
02SP OECS235 3.0 CR STRUCTURE QUERY LANG
03WI OECS255 3.0 CR SPECIAL TOPICS
02FA OECS280 1.0 CR DESKTOP PBLSHNG TECHQ

03FA P E 336 1.0 CR SCUBA DIVING LD

Courses not earning academic credit

02SP C S 100 E 0.0 NE COMPUTER SC ELECTIVE LD
02FA OECS100 E 0.0 GW OECS ELECTIVE L.D.
12SP HON 208G 0.0 W MUSIC IN TIME & SPACE
=======* LEGEND *=========================
DEGREE AUDIT CODES:
NO REQUIREMENT NOT COMPLETE }R REPEAT - GRADE IN GPA
OK REQUIREMENT COMPLETE }X REPEAT - GRADE NOT IN GPA
IP REQUIREMENT IN PROGRESS }P PLANNED COURSE GRADE IN GPA
+ SUB-REQUIREMENT COMPLETE }< ADJUSTED CREDIT OPTION
- SUB-REQUIREMENT NOT COMPLETE }S COURSE SPLIT
IN-P---> IN-PROGRESS SUMMARY }N REMEDIAL COURSE-GRADE IN GPA
* THIS AUDIT IS SUBJECT TO ADMINISTRATIVE APPROVAL *=====
AND ASSUMES IN-PROGRESS COURSES WILL BE COMPLETED SUCCESSFULLY
=========
********** *NEW MEXICO STATE UNIVERSITY STAR REPORT*
****
********** END OF ANALYSIS
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Printer Friendly Version

Example Program Outcomes Review

Engineering Physics Outcome Assessment Report
ABET Outcome (i), Spring 2012

Prepared by: **Igor Vasiliev**

Outcome name and description

Outcome (i) – a recognition of the need for, and an ability to engage in lifelong learning.

Courses measuring this outcome Available reports

- PHYS 315 Modern Physics S2009, S2010, S2011, S2012
- PHYS 470 Physical Optics --
- PHYS 488 Condensed Matter Physics F2011
- PHYS 489 Introduction to Modern Materials F2006, F2008, F2009, S2011, S2012

Method of measurement

PHYS 315: In the *Modern Physics* course, the outcome (i) has been measured using a separate assessment impact in essay that students were required to write as a part of the course curriculum. Students were asked to include a brief future outlook in their essay. This part of the essay was intended to provide a measure of recognition for life-long learning. Students could get a maximum of 5 or 10 points for this portion of the essay. The benchmark for this measure was set at 80% of the maximum score (4 points out of 5, or 8 points out of 10).

PHYS 488: In the *Condensed Matter Physics* course, the outcome (i) has also been measured using a separate assessment impact in essay. The benchmark for this measure was set at 70% of the maximum score.

PHYS489: In the *Introduction to Modern Materials* course, the outcome (i) has been measured using selected homework problems or a separate assessment impact in oral presentations. The homework sets included one or more special problems designed to ascertain whether students understand the need for life-long learning. The benchmark for this measure was set at 80% of the maximum score for these problems. A part of the student's oral presentation was intended to provide a measure of recognition for life-long learning. The benchmark for this measure was set at 75% of the maximum score.

Numerical results

The numerical results for the measured outcome are shown in the attached spreadsheet. The spreadsheet shows that the average results achieved by students for the outcome (i) between 2006 and 2010 have for the most part been below the benchmark, while some of the more recent results exceeded the benchmark. The results obtained in PHYS 315 and PHYS 489 demonstrate a gradual improvement in the average student score. The average results for PHYS 315 have improved from 81% in Spring 2009 and 93% in Spring 2010 to 111% in Spring 2011. The result for PHYS 315, however, has fallen to 89% of the benchmark value in Spring 2012. The average results for PHYS 489 have increased from 78% of the benchmark value in Fall 2006 to 115% of the benchmark value in Spring 2012.

Assessment of the assessment process for this outcome

The goal of the outcome (i), "a recognition of the need for, and an ability to engage in lifelong learning ", has been incorporated directly into the curricula of PHYS 315, PHYS 488, and PHYS 489. In my opinion, the instructors of these courses have done a very good job on the assessment of the outcome (i), especially considering the difficulty of quantitatively measuring such an inherently qualitative outcome as "life-long learning". One issue of potential concern is the limited amount of data available for measuring the outcome (i). The only courses that measure the outcome (i) on a regular basis are PHYS 315 and PHYS 489. The majority of courses for which the outcome (i) is measured are electives that have a relatively low enrollment and may not be offered every year. Furthermore, the course PHYS 470, *Physical Optics* is being eliminated from the curriculum. This course needs to be replaced with the new course PHYS 473, *Introduction to Optics* in the EP Outcomes Matrix.

I have indicated in my previous reports that the selected benchmark for the measurement of the outcome (i) appeared to be somewhat arbitrary and that the expectation value was possibly set too high. The new data collected in 2011 and 2012 alleviate this concern to some degree, as the results achieved by the students in the most recent classes exceeded the benchmark for the outcome (i). In the future, I would recommend using statistical data from the previous years to set up a more accurate benchmark for the outcome (i).

Assessment Report for ABET Outcome (I), Spring 2012

Course	Semester	Assessment Tool	Measure	Number of Students	Result (%)	Target (%)	R/T (%)	R>T (%)
PHYS 315								
Spring 2009	essay	separate assessment	22		65%	80%	81%	63%
Spring 2010	essay	separate assessment	20		74%	80%	93%	55%
Spring 2011	essay	separate assessment	25		89%	80%	111%	88%
Spring 2012	essay	separate assessment	32		71%	80%	89%	71%
PHYS 488								
Fall 2011	oral presentation	separate assessment	10		89%	70%	127%	100%
PHYS 489								
Fall 2006	homework	selected problems	9		62%	80%	78%	11%
Fall 2008	homework	selected problems	8		58%	80%	73%	25%
Fall 2009	homework	selected problems	15		72%	80%	90%	33%
Spring 2011	oral presentation	separate assessment	11		46%	75%	61%	n/a
Spring 2012	oral presentation	separate assessment	5		86%	75%	115%	n/a

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Members of the 2011-2012 External Engineering Physics Advisory Board:

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Dr. Ronald Tafoya, Senior Software Engineer, Intel Corporation, Albuquerque, NM.

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