

CRITERION 6. FACULTY

A. Faculty Qualifications

Describe the qualifications of the faculty and how they are adequate to cover all the curricular areas of the program and also meet any applicable program criteria. This description should include the composition, size, credentials, and experience of the faculty. Complete Table 6-1. Include faculty resumes in Appendix B.

The *Engineering Physics (EP) Program* in the NMSU College of Engineering is offered jointly by the *Department of Physics* in the *College of Arts & Sciences* and the *Departments of Mechanical & Aerospace Engineering (MAE)*, *Electrical & Computer Engineering (ECE)*, and *Chemical & Materials Engineering (ChME)* in the *College of Engineering*. Specialty courses in engineering are typically taught by the respective ABET-accredited departments in the College of Engineering. On rare occasions, physics faculty will teach cross-listed courses, particularly between EE or ChME and physics. The *Department of Physics* provides a strong fundamental physics education in support of these disciplines and overall program management.

The instructional faculty members and staff of the *Departments of Physics* and the participating *Engineering Departments* are summarized in Table 6-1.a-d. The combination of Physics and Engineering faculty is well qualified to cover all the curricular areas of the E) program.

As of May 2017, the Physics faculty consists of the following:

- thirteen tenure-track and tenured faculty members (13 full-time equivalent lines),
- two college faculty members with teaching responsibilities (1.0 full-time equivalent).
- one professional staff member with responsibility for instructional support and involvement in instructional laboratory development,
- several graduate teaching assistants with outstanding teaching skills, who are assigned as instructors of record for introductory physics courses or instructional laboratories, usually under close supervision of the department head or another faculty member.

All faculty members, who teach courses needed for the EP program, have Doctorate degrees in Physics, other Sciences, or Engineering. The professional support staff member has an M.S. degree in Physics and a BS degree in EP. Only truly outstanding graduate assistants (top 10%) are assigned as lecturers for introductory physics courses or as instructors of record for the instructional laboratories. Some of them have been mentored with a “Preparing Future Faculty” fellowship by the *NMSU Graduate College* or participated in teaching workshops organized by the *NMSU Teaching Academy*. Following new guidelines to determine the qualifications of faculty established by the *Higher Learning Commission (HLC)* (formerly *North-Central Association of Colleges and Schools*), NMSU implemented *Administrative Rule and Procedure (ARP) 6.50* to verify that all faculty have credentials in the discipline they teach consistent with these HLC guidelines. Resumes of all faculty members, staff and graduate students who have been involved in teaching duties are provided in Appendix B. The faculty, teaching assistants, and staff are well qualified to teach the required curriculum.

Two of the physics faculty members (Drs Matthias Burkardt and Stefan Zollner) are *Fellows of the American Physical Society (APS)*. Dr. Zollner is also a *Fellow of the American Vacuum Society (AVS)*. Dr. Zollner has served a four-year term in the *FIAP (Forum of Industrial and*

Applied Physics of the APS) Chair-line, a four-year term as *FIAP Councilor*, a four-year term on the *APS Council*, a two-year term on the *APS Executive Board*, and on many APS committees. Dr. De Antonio has served in the Chair line of the *Physics Committee of the American Society for Engineering Education (ASEE)*. He was also the Conference General Chair of the *Frontiers in Education 2015 Conference* held in El Paso, TX, about 50 miles from the NMSU main campus. Dr. Nakotte has served a four-year term as a member of the Executive Committee of the *Four Corners Section of the APS*. Samantha Sword-Fehlberg currently serves as the student member of the *Executive Committee of the Four Corners Section of the APS*. Dr. Zollner also serves a two-year term on the executive committees of the *New Mexico Chapter of the American Vacuum Society (AVS)*. Dr. Matthias Burkardt recently (2015) completed a four-year term in the Chair-line of the *Topical Group on Hadronic Physics in the APS*. Dr. Zollner serves as a member of the board of the *New Mexico Consortium (NMC)*, a non-profit established by the three New Mexico research universities and *Los Alamos National Laboratory* to link these institutions through research and education. Other accomplishments of faculty are listed in the Appendix B.

B. Faculty Workload

Complete Table 6-2, Faculty Workload Summary and describe this information in terms of workload expectations or requirements.

Faculty workloads are presented in Table 6.2.a-d, which lists all faculty members (and some staff and students) who have a vested interest and/or taught courses related to the EP program in the Departments of *Physics, Mechanical & Aerospace Engineering, Electrical & Computer Engineering, and Chemical & Materials Engineering*, respectively.

As can be seen in Table 6.2.a, the teaching loads in the *Department of Physics* are relatively low. In the *College of Arts & Sciences*, the nominal teaching load for tenured and tenure-track faculty of a PhD-granting department (such as Physics) is three formal courses (9 credit hours) per year, which is considered to be a 37.5% teaching load. In addition, regular faculty members are expected to carry out active externally funded research programs, support and supervise undergraduate and graduate student research, and perform service. At the discretion of the Department Head and with approval of the *Dean of Arts & Sciences*, teaching loads are increased for faculty members, who are less active in research or supervise fewer graduate students. All regular (tenured) faculty members have active research programs, most of them externally supported by government or industrial agencies. Some faculty further reduce their teaching load by using grant funds to “buy out” academic year teaching and spend more time on research. Several physics faculty members (Fohtung, Cooper, Schlegel, Waszek) have bridged appointments with research institutions (*Los Alamos National Lab, Department of Energy, Brookhaven National Lab, Australian National University*) which pay 50% of the faculty members academic salary, in lieu of a 50% reduction in teaching responsibilities. Faculty workloads are also modified during sabbatical leave. The strong funded research component allows the department to offer well supported undergraduate and graduate research opportunities. Unlike Physics, there is no similar (fairly) uniform percent allocation in the engineering departments (*College of Engineering*), and the distribution of effort is typically left to the individual departments and their heads.

Faculty members are evaluated annually for their performance in the areas of teaching, research, outreach, and service as specified by the *College of Arts & Sciences* and NMSU policy and

procedures. The evaluation is performed by a committee consisting of two tenured faculty members elected by the faculty and the Department Head. This evaluation is used as the primary basis for awarding merit-based salary increases and for determining future teaching loads, and it is considered in the promotion and tenure process. Criteria for teaching may include student and peer evaluations, direct measures of learning, mentoring of graduate students, and extra effort preparing course or instructional laboratory materials. Participation in the *ABET* assessment process is also considered. (In rare cases, faculty members who do not offer evidence of teaching effects or other documents required for the *ABET* assessment process receive a rating of “Does Not Meet Expectations” for teaching.) Research is evaluated on the basis of number and quality of publications, conference presentations, proposals submitted and funded, and support of students. Service can include professional service, such as refereeing publications or proposals, organization of conferences, service on university committees, and community service. Major prizes won in any of these areas also influence the rating. In addition to the annual evaluations faculty are also evaluated every 3 to 5 years by the *Graduate School* for membership on the graduate faculty. The primary criteria are a) creative activity; b) continual study in their field; and c) successful teaching.

C. Faculty Size

Discuss the adequacy of the size of the faculty and describe the extent and quality of faculty involvement in interactions with students, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners including employers of students.

The size of the physics faculty is adequate to teach all courses required for the EP curriculum at least once per year. First-year introductory physics courses are taught in both fall and spring semesters and also during the summer. Like many science departments, the *Department of Physics* has lost several faculty members over the last 20 years. We have responded to this loss of faculty lines by reducing the frequency of physics electives. To increase elective opportunities for students, some courses are taught jointly between physics and engineering, for example *Introduction to Nanotechnology* (with *Chemical & Materials Engineering*), *Optics* (with *Electrical & Computer Engineering*), and *Modern Materials or Intermediate X-ray Diffraction* (taught by Physics).

Exit interviews usually show that students are very satisfied with the quality of advising they receive. All EP students meet with a faculty advisor at least once every semester (usually a week before course registration starts for the following semester). The advising responsibility is presently shared by three *Engineering Physics Advisors* (Drs Heinz Nakotte, Tom Hearn, and Stephen Pate).

Four faculty members (Drs Boris Kiefer, Lauren Waszek, Michael De Antonio, Heinz Nakotte) engage with students through the *Society of Physics Students (SPS)* and the *Society for Engineering Physics (S/EPh) students*. These societies meet weekly (sometimes jointly) to review important skills (opportunities for jobs and internships, resume writing, applying for graduate school, taking standardized test), usually in the evening. In many instances, the department pays for pizza at such events to encourage student attendance. We also have society meetings (moderated by faculty) where students report on their undergraduate research or capstone projects.

The most significant challenge related to faculty is the following: Due to space limitations in Gardiner Hall, very limited start-up funds for new faculty, and limited cash cost-share contributions for equipment proposals, few faculty members (Drs Stefan Zollner, Jacob Urquidi, Robert Cooper, and Edwin Fohitung) have on-campus physics research laboratories suitable for capstone projects and undergraduate research. Therefore, most EP students fulfill their capstone requirement utilizing research facilities that are available in the engineering departments. Moreover, a substantial fraction of physics faculty members perform theoretical research or experimental off-campus research (especially at national laboratories, such as *Los Alamos*, *Brookhaven*, or *Fermi National Accelerator Lab*). Therefore, the shortage of experimental facilities in the Department of Physics limits employment opportunities for students as undergraduate research aides or for undergraduate research and capstone projects.

D. Professional Development

Provide detailed descriptions of professional development activities for each faculty member.

All tenured faculty members are eligible for sabbaticals as described in NMSU Administrative Rule and Procedure 8.54. “*The purpose of a sabbatical leave is to promote professional growth.*” After at least 12 semesters of full-time service, faculty members apply for a sabbatical during the spring semester, requiring approval from the *Head of the Department of Physics*, the *Dean of Arts & Sciences*, and the *Executive Vice President and Provost*. Sabbatical leaves are for one semester at no reduction in salary or for a year at 60% of salary. The other 40% of salary plus travel expenses are often covered, at least in part, by a host institution visited by the faculty member on sabbatical, such as *Los Alamos National Laboratory*, *Fermilab*, *Air Force Research Lab*, *University of New Mexico*, or *Jefferson Laboratory* in recent history. Sabbatical leave is also available to the Department Head.

The *Department of Physics* has a vibrant weekly colloquium speaker series. Typically, about two thirds of colloquium speakers are external. In addition to giving a colloquium about their research, the colloquium speakers also meet individually with faculty and students throughout the day to exchange ideas about topics of common interest (teaching, research, service). Both, the colloquium and the individual meetings, contribute to faculty development. Many colloquia are held jointly with other academic departments.

Most tenured and tenure-track physics faculty members (all except two) have significant external research grants (in excess of typically 100 k\$ per year per faculty member). Their research grants typically contain funds for travel to conferences or other institutions, and almost all faculty members regularly attend meetings and conferences, since this is an expectation listed in the *Functions and Criteria* document of the department. Although the primary purpose of conference attendance is often dissemination of research results and exchange of knowledge, many conferences such as the March or April meetings of the *American Physical Society* usually also have sessions contributing to professional development in physics education. Most of our faculty members tend to attend such sessions.

The *Department of Physics* (from its operational I&G funds) and the *College of Arts & Sciences* provide travel support for College Faculty to attend a regional or national meeting on Physics Education (such as the annual meeting of the *American Society of Engineering Education* or the *American Association of Physics Teachers*). Sometimes, such attendance is also supported by the conference organizers, often through travel grants earmarked for minority-serving institutions.

The Department Head and other departmental leaders (undergraduate program heads) attend physics leadership conferences, such as the biennial physics department chair conference (organized by *APS* and *AAPT*) and meetings intended to increase *STEM* education and enrollment, development of peer learning assistants, or physics teacher education. Learning obtained at such conferences and workshops is shared with relevant physics faculty members.

The physics faculty meets at least once or twice per month to discuss (and decide, if appropriate) departmental business. There are also special faculty meetings dedicated to continuous improvement of our undergraduate physics programs. Some of these meetings involve faculty from the participating engineering departments. The *Engineering Physics External Advisory Board (EPEAB)* and the *Physics External Advisory Board* (two separate entities, which meet annually) also provide valuable information, advice, and recommendations to the physics faculty, both in their reports and also in meetings with individual faculty or with groups of faculty. Finally, development opportunities for faculty are offered by the *NMSU Teaching Academy*. Topics of their courses include engagement of students through active teaching methods, on-line instruction, learning management systems, serving specific demographic groups like veterans, minorities, or students with disabilities, and institutional promotion and tenure procedures. The Dean and Department Head remind faculty about important policies, such as Title IX, accommodation of students with disabilities, or measuring effective teaching.

While NMSU is a minority-serving institution with very limited funds for professional development, there are nevertheless ample opportunities to achieve this aim. Typically, all physics faculty members travel at least once per year, many of them more often. Therefore, institutional support for faculty development appears adequate.

E. Authority and Responsibility of Faculty

Describe the role played by the faculty with respect to course creation, modification, and evaluation, their role in the definition and revision of program educational objectives and student outcomes, and their role in the attainment of the student outcomes. Describe the roles of others on campus, e.g., dean or provost, with respect to these areas.

As shown in Table 6.2.a, all physics faculty contribute to the guidance and execution of the EP program, although some contribute a greater portion of their effort than others. It should be noted that neither the physics nor the engineering departments offer any course dedicated to EP students only. There are two reasons for that: a) the number of EP students is too low (39 students in Fall 2017) in order to ensure the minimum enrollment of 10 students required for any undergraduate course, and b) none of the departments has the personnel strength to teach additional courses. In Table 6.2, we list only the physics and engineering courses, which have been (or could have been) taken by EP students in order to fulfill course requirements or electives. Generally, the majority of students enrolled in those courses were other engineering or physical science (including physics) majors.

Because of that, it is also not necessarily straightforward to provide a realistic estimate of the actual time devoted to the EP program by individual faculty members from the different departments. We used the following scheme to come up with some rough estimates:

NMSU considers eight 3-credit courses per semester as a full load. i.e. each course counts for 12.5% of time commitment. Given that undergraduate enrollments of physics and EP majors are

fairly similar, we can estimate that teaching three relevant undergraduate courses per year (1.5 per semester) therefore translates to 18.75% of time commitment due to *actual teaching in the EP program*. For any of the physics courses, the faculty member was given full credit as he/she is expected to fully comply with all EP assessment requirements, regardless whether there were several or no EP students enrolled in the course. For any engineering course, the faculty member received only half of the credit since none of those courses has any EP-specific assessment requirements.

Some differences between *actual teaching in the EP program* and *percentage teaching assignment* (column 4 in Table 6.2) are due to teaching of non-relevant courses (e.g. physics for non-science majors, graduate courses); however, some of it can be attributed to course curriculum development and/or advising. Curriculum changes are proposed by the *EP Program Committee*, reviewed by the *Physics Department Curriculum Committee*, and then approved by the entire physics faculty in a faculty meeting. Therefore, all physics faculty members are involved in course/curriculum development for the EP program, and we estimated the commitment as 2.5% (for non-members of the *Curriculum Committee*), 5% (for members) and 7.5% (for the *Curriculum Committee Chair*, Dr. Igor Vasiliev).

The time commitment of faculty members involved in advising of EP students was estimated at 5%.

Time commitments for serving on the *EP Program Committee* were estimated at 5% for committee members (including *ex officio*) and 10% for the *Chair of the Committee* Dr. (Heinz Nakotte).

Faculty members who worked with EP students on research or educational projects in the past year received another 5%.

The resulting percentages of time devoted were then rounded to next integer. It has to be pointed out that some of the contributions are not solely dedicated to EP alone (i.e. the contributions computed from teaching).

The percentage of time devoted to the EP program is listed in the last column in Table 6.2. It does not include advising of graduate student research, teaching of graduate courses, and teaching of algebra-based or conceptual physics courses. A faculty member on sabbatical will also, by definition, contribute very little to the EP program.

All faculty contribute to the assessment of *ABET Program Outcomes*. Each instructor completes a *Post Course Instructor Comment Form* after each semester. The faculty members also report on their teaching effectiveness (including evidence of student learning and/or evidence from other professionals) in their annual performance reports on the *NMSU Digital Measures* web site. Every faculty member is responsible for analyzing assessment data for one outcome and he or she reviews all relevant post-instruction forms for this outcome. There is an annual assessment faculty meeting, where the faculty report on their outcomes and discuss solutions to address findings and improve the program. This ensures that all faculty members have a stake in the EP program and contribute to continuous improvement. All faculty members are expected to meet with the EP advisory board members during a pizza lunch at the annual board meeting. (Unexcused absences are considered non-collegial and addressed by the Department Head in the annual performance appraisals.) Many faculty members contributed to the writing of the *ABET* self-study. In particular, assessment of individual program outcomes and compilation of different criteria for this *Self-Study Report* were assigned to different faculty members.

The Physics Department Head documents contributions to continuous improvement of the physics degree programs in his annual performance appraisal of the faculty members. Usually,

almost all faculty members meet expectations with their contributions to the program. The Associate Deans for Academics in both colleges work with the Physics Department Head to encourage compliance with institutional and ABET assessment deliverables by all faculty members. For example, faculty members who do not properly document their teaching effectiveness in the *NMSU Digital Measures* web site receive a performance rating of “Does not meet expectations” for their teaching contributions. The institutional expectations for documentation of teaching effectiveness for individual faculty and for the overall assessment of academic programs are very similar to the *ABET* expectations. Annual assessment reports for the undergraduate and graduate physics programs are entered into an online database (*WEA VE*) and reviewed by the *Office of Assessment*, which reports to the Deputy Provost. This office provides feedback to the department about the effectiveness of its assessment efforts.

The *Dean of Arts & Sciences* and the *Associate Dean of Academics in the College of Engineering* meet with the *EPEAB* during their meetings. (This is common for all annual board meetings.) Deans and Associate Deans in both colleges also review the report of the *EPEAB* and discuss implementation of recommendations with the Physics Department Head. For example, the *Dean of Arts & Sciences* recently established college-wide professional development grants for faculty and staff and travel grants for students. Both colleges revised and expanded the student ambassador program to recruit and retain students and to enhance the participation of students in academic programs.

Table 6-1.a. Faculty Qualifications – Department of Physics, Bachelor of Science in Engineering Physics

Faculty Name	Highest Degree Earned- Field and Year	Rank ¹	Type of Academic Appointment ² T, TT, NTT	FT or PT ³	Years of Experience			Professional Registration/ Certification	Level of Activity ⁴ H, M, or L		
					Govt./Ind. Practice	Teaching	This Institution		Professional Organizations	Professional Development	Consulting/summer work in industry
Matthias Burkardt	Ph.D. Physics 1989	P	T	FT	2	21	23	NA	M	H	L
Michaela Burkardt	Ph.D. Physics 1992	P	NTT	PT	2	16	16	NA	L	M	L
Robert Cooper	Ph.D. Physics 2008	AST	TT	FT	2	3	3	NA	M	H	L
Michael De Antonio	Ph.D. Physics 1993	P	NTT	PT	15	17	16	NA	H	H	H
Michael Engelhardt	Ph.D. Physics 1994	P	T	FT	5	13	14	NA	M	H	L
Edwin Fohtung	Ph.D. Physics 2010	AST	TT	FT	8	5	5	NA	M	H	L
Thomas Hearn	Ph.D. Geophysics 1985	ASC	T	FT	1	17	18	NA	L	H	L
Boris Kiefer	Ph.D. Mineral Physics 2002	P	T	FT	0	15	15	NA	L	H	M
Heinz Nakotte	Ph.D. Physics 1994	P	T	FT	24	19	21	NA	M	H	L
Vassilios Papavassiliou	Ph.D. 1988	ASC	T	FT	5	22	23	NA	L	H	L
Stephen Pate	Ph.D. Physics 1987	P	T	FT	0	23	23	NA	L	H	L

Marc Schlegel	Ph.D. Physics 2006	AST	TT	FT				NA	L	H	L
Jacob Urquidi	Ph.D. Physical Chemistry 2001	ASC	T	FT				NA	L	L	L
Igor Vasiliev	Ph.D. Materials Science 2000	P	T	FT	2	15	16	NA	L	H	L
Lauren Waszek	Ph.D. Earth Sciences 2012	AST	TT	FT	0	2	2	NA	L	H	L
Stefan Zollner	Ph.D. Physics 1991	P	T	FT	14	13	8	NA	H	H	H
Farzin Abadizaman	MS Physics 2012	O	NTT	PT	0	2	2	NA	L	M	L
Fatma Aslan	MS Physics 2009	O	NTT	PT	0	3	3	NA	L	H	L
Federico Alvarez	MS Industrial Engineering 2013	O	NTT	PT	1	5	1	NA	L	L	L
Galen Helms	BS Engineering Physics 2015	O	NTT	PT	6	1	1	NA	L	L	M
Gregg McPherson	MS Physics 2014	O	NTT	PT	0	2	2	NA	L	M	L
Nalin Fernando	Ph.D. Physics 2017	O	NTT	PT	1	2	2	NA	L	H	L
Timothy N. Nunley	MS Physics 2016	O	NTT	PT	0	1	1	NA	L	M	L
Hasan Sezer	MS Physics 2011	O	NTT	PT	0	1	1	NA	L	M	L
Nuwanjula Samarasingha	MS Physics 2018	O	NTT	PT	0	2	2	NA	M	M	L
Samantha Sword-Fehlberg	BS Physics 2016	O	NTT	PT	1	1	1	NA	M	M	L
Francisco Carreto-Parra	MS Physics 2007	O	NTT	FT	4	10	1	NA	M	M	M

1. Code: P = Professor ASC = Associate Professor AST = Assistant Professor I = Instructor A = Adjunct O = Other

2. Code: T = Tenured TT = Tenure Track NTT = Non Tenure Track

3. Code: FT = Full-time PT = Part-time Appointment at the institution.

4. The level of activity (high, medium or low) should reflect an average over the year prior to the visit plus the two previous years.

Table 6-1.b. Faculty Qualifications – Department of Mechanical & Aerospace Engineering

Faculty Name	Highest Degree Earned- Field and Year	Rank ¹	Type of Academic Appointment ² T, TT, NTT	FT or PT ³	Years of Experience			Professional Registration/ Certification	Level of Activity ⁴ H, M, or L		
					Govt./Ind. Practice	Teaching	This Institution		Professional Organizations	Professional Development	Consulting/summer work in industry
Abdelkefi, Abdessattar	Ph.D. Engineering Mechanics, 2012	AST	TT	FT	0	4	4	None	M	M	L
Chaitanya, Vimal	Ph.D. Materials Sci. & Eng, 1984	P	T	FT	4	33	11	None	H	M	L
Chen, Ruey-Hung	PhD. Aerospace Engineering, 1988	P	T	FT	3	26	3	None	M	L	L
Choo, Vincent	Ph.D. Composite Materials, 1982	ASC	T	FT	0	32	32	None	L	L	L
Conley, Edgar	Ph.D. Engineering Mechanics, 1986	ASC	T	FT	1	32	30	PE (MI)	M	L	L
Drach, Borys	Ph.D. Mechanical Engineering, 2013	AST	TT	FT	0	5	5	None	M	L	L
Garcia, Gabriel	Ph.D. Mechanical Engineering, 1996	ASC	T	FT	0	22	22	None	L	L	L
Gross, Andreas	Dr. (German) Mechanical Engineering, 2002	AST	TT	FT	0	8.5	4.5	None	M	L	L
Kota, Krishna	Ph.D. Mechanical Engineering, 2008	AST	TT	FT	2	5	5	None	M	L	L
Kuravi, Sarada	Ph.D. Mechanical Engineering, 2009	AST	TT	FT	0	5	3	None	M	L	L

Lee, Young Sup	Ph.D. Mechanical Engineering, 2006	ASC	T	FT	0	12	10	None	M	M	M
Park, Hyeongjun	Ph.D. Aerospace Engineering, 2014	AST	TT	FT	0	0	0	None	M	M	L
Park, Young Ho	PhD. Mechanical Engineering, 1994	ASC	T	FT	2	17	17	None	M	M	L
Sevostianov, Igor	Ph.D. Solid Mechanics, 1993	P	T	FT	0	24	16	None	M	L	H
Shashikanth, Banavara	Ph.D. Aerospace Engineering, 1998	ASC	T	FT	2	18	18	None	L	M	
Shu, Fangjun	Ph.D. Mechanical Engineering, 2005	ASC	T	FT	0	7	7	None	L	L	
Liang Sun	Ph.D. Electrical and Computer Engineering, 2012	AST	TT	FT		5	2	None	H	H	

1. Code: P = Professor ASC = Associate Professor AST = Assistant Professor I = Instructor A = Adjunct O = Other

2. Code: T = Tenured TT = Tenure Track NTT = Non Tenure Track

3. Code: FT = Full-time PT = Part-time Appointment at the institution.

4. The level of activity (high, medium or low) should reflect an average over the year prior to the visit plus the two previous years.

Table 6-1.c. Faculty Qualifications – Department of Electrical & Computer Engineering

Faculty Name	Highest Degree Earned	Rank ¹	Type of Appointment ²	Full or Part Time	Years of Experience			Professional Registration	Level of Activity		
					Govt./Ind.	Total Teaching	This Institution		Professional Organizations	Professional Development	Consulting/ Summer industry
Borah, Deva	PhD, 2000	ASC	T	FT	0	19	12	None	Medium	High	None
Boehmer, Charles	MS, 1973	A	NTT	PT	39	12	12	None	None	None	None
Boucheron, Laura	PhD, 2008	AST	TT	FT	2	1	1	None	Low	High	None
Brahma, Sukumar	PhD, 2001	AST	TT	FT	2	9	5	None	High	High	Medium
Cho, Sang-Yeon	PhD, 2003	AST	T	FT	0	5	5	None	Medium	High	None
Cook, Jeanine	PhD, 2002	ASC	TT	FT	7	9	9	None	Medium	High	None
Creusere, Charles	PhD, 1993	P	T	FT	10	11	11	None	High	High	Low
Dawood, Muhammed	PhD, 2001	ASC	T	FT	6	14	7	None	Low	Medium	None
DeLeon, Phillip	PhD, 1995	P	T	FT	0	16	16	None	Low	Medium	Medium
Furth, Paul	PhD, 1996	ASC	T	FT	5	17	17	None	Low	Low	Low
Huang, Hong	PhD, 2002	ASC	T	FT	11	11	9	None	Medium	Medium	Low
Kliewer, Joerg	PhD, 1999	AST	TT	FT	0	13	5	None	High	High	None
Liu, Wenxin	PhD, 2005	AST	TT	FT	3	3	3	None	Low	High	None
Ng, Kwong	PhD, 1985	P	T	FT	0	27	21	None	Low	High	Low
Oklobdzija, Vojin	PhD, 1982	P	T	FT	6	22	1	None	High	High	High
Paz, Robert	PhD, 1991	ASC	T	FT	2	21	21	None	Low	Medium	None

1. Code: P = Professor ASC = Associate Professor AST = Assistant Professor A = Adjunct
2. Code: TT = Tenure Track T = Tenured NTT = Non Tenure Track

Faculty Name	Highest Degree Earned	Rank ¹	Type of Appointment ²	Full or Part Time	Years of Experience			Professional Registration	Level of Activity		
					Govt./Ind.	Total Teaching	This Institution		Professional Organizations	Professional Development	Consulting/ Summer industry
Petersen, Krist	PhD, 1997	ASC	NTT	FT	2	26	26	None	None	None	None
Prasad, Nadipuram	PhD, 1989	ASC	T	FT	15	26	26	None	Low	Medium	None
Ramirez-Angulo, Jaime	PhD, 1982	P	T	FT	0.5	29	22	None	Low	Low	Low
Ranade, Satish	PhD, 1981	P	T	FT	2	31	31	None	High	High	High
Stochaj, Steven	PhD, 1990	P	T	FT	2	26	21	None	Medium	High	None
Voelz, David	PhD, 1987	P	T	FT	14	10	10	None	High	High	Medium

Table 6-1.d. Faculty Qualifications – Department of Chemical & Materials Engineering

Faculty Name	Highest Degree Earned- Field and Year	Rank ¹	Type of Academic Appointment ² T, TT, NTT	FT or PT ³	Years of Experience			Professional Registration/ Certification	Level of Activity ⁴ H, M, or L		
					Govt./Ind. Practice	Teaching	This Institution		Professional Organizations	Professional Development Consulting/summer work in industry	
Paul Andersen	Ph.D. Chemical Engineering 1987	ASC	T	FT		21	19		L	M	L
Catherine Brewer	Ph.D. Chemical Engineering 2012	AST	TT	FT	0	4	4		H	H	L
Reza Foudazi	Ph.D. Chemical Engineering 2010	AST	TT	FT		4	4		H	H	L
Daniel Gulino	Ph.D. Chemical Engineering 1983	A	NTT	PT		29	4		L	L	L
Jessica Houston	Ph.D. Chemical Engineering 2005	ASC	T	FT	2	7	7		H	H	L
Umakana Jena	Ph.D. Agricultural Engineering 2011	AST	TT	FT		1	0		H	H	L
Hongmei Luo	Ph.D. Chemical Engineering 2006	ASC	T	FT	2	7	7		H	H	L
Thomas Manz	Ph.D. Chemical Engineering 2009	AST	TT	FT		5	5	MA bar	H	M	L
Martha Mitchell	Ph.D. Chemical Engineering 1996	P	T	FT		20	20	PE, NAFI CFEI, OSHA Outreach Trainer	H	H	L
Theodore Nelson	Ph.D. Chemical Engineering 1971	A	NTT	PT	53	9	0.5	PE	H	M	H

Ila Pillamarri	Ph.D. Health Physics	A	NTT	PT		2	2		M	L	L
David Rockstraw	Ph.D. Chemical Engineering 1989	P	T	FT	27	21	21	PE	H	M	M
Alicia Salazar	MS. Nuclear Engineering 2014	A	NTT	PT	3	1	1		M	M	L
Neda Sanatkaran	Ph.D. Chemical Engineering 2015	A	NTT	PT	5	2	1		M	M	L
John Schutte	BS Chemical Engineering 1999	A	NTT	PT	12	4	4		M	M	L
Stephen Taylor	Ph.D. Chemical Engineering 2004	A	NTT	PT	0	6	4		L	L	L
Meng Zhou	Ph.D. Chemical Engineering 2016	AST	TT	PT	0	2	2		M	M	L

1. Code: P = Professor ASC = Associate Professor AST = Assistant Professor I = Instructor A = Adjunct O = Other

2. Code: T = Tenured TT = Tenure Track NTT = Non Tenure Track

3. Code: FT = Full-time PT = Part-time Appointment at the institution.

4. The level of activity (high, medium or low) should reflect an average over the year prior to the visit plus the two previous years.

Table 6-2.a. Faculty Workload Summary – Department of Physics

Faculty Member (name)	PT or FT ¹	Classes Taught (Course No./Credit Hrs.) Term and Year ²	Program Activity Distribution ³			% of Time Devoted to the Program ⁵
			Teac hing	Research or Scholarship	Other ⁴	
Matthias Burkardt	FT	Phys 315 (3) Spring 2018 PHYS 455 (3) Spring 2018	25	65	10	12
Michaela Burkardt	PT	PHYS 217 (3) Fall 2017 PHYS 217L (1) Fall 2017 PHYS 280 (1) Fall 2017 PHYS 214 (3) Spring 2018 PHYS 204 (1) Spring 2018	95	0	5	27
Robert Cooper	FT	PHYS 462 (3) Spring 2018	15	79	6	10
Michael De Antonio	PT	PHYS 215G (3) Spring 2018	90	0	10	16
Michael Engelhardt	FT	PHYS 213 (3) Fall 2017 PHYS 495 (3) Fall 2017 PHYS 454 (3) Fall 2017	45	45	10	22
Edwin Fohitung	FT	PHYS 303V (3) Spring 2018	18	70	12	17
Thomas Hearn	FT	PHYS 305V (3) Fall 2017 PHYS 215G (3) Spring 2018 PHYS 215GL (1) Spring 2018	45	45	10	34
Boris Kiefer	FT	PHYS 476 (3) Spring 2018	35	60	5	10
Heinz Nakotte	FT	PHYS 461 (3) Fall 2017 PHYS 216GL (1) Fall 2017 PHYS 216G (3) Spring 2018	40	40	20	37
Stephen Pate	FT	PHYS 215G (3) Fall 2017 PHYS 480 (3) Spring 2018	40	50	10	35

		PHYS 315L (3) Spring 2018				
Marc Schlegel	FT	none	20	75	5	0
Jacob Urquidi	FT	PHYS 395 (3) Fall 2017 PHYS 475 (3) Spring 2018 PHYS 216G (3) Spring 2018	60	30	10	24
Igor Vasiliev	FT	none	42.5	47.5	10	13
Lauren Waszek	FT	PHYS 451 (3) Fall 2017 PHYS 216G (3) Fall 2017 PHYS 216G (1) Spring 2018	45	50	5	22
Stefan Zollner	FT	PHYS 468 (3) Fall 2017 PHYS 213L (1) Fall 2017 PHYS 214L (1) Spring 2018 PHYS 489 (3) Spring 2018	30	15	55	22
Francisco Carreto-Parra	FT	PHYS 215GL (1) Summer 2018 PHYS 216GL (1) Summer 2018	80	0	20	20
Fatma Aslan	PT	PHYS 216G (3) Fall 2017 PHYS 380 (1) Spring 2018	55	45	0	30
Federico Alvarez	PT	PHYS 203 (1) Fall 2017 PHYS 205 (1) Fall 2017 PHYS 206 (1) Fall 2017	100	0	0	50
Galen Helms	PT	PHYS 215GL (1) Fall 2017	100	0	0	25
Greggory McPherson	PT	PHYS 215G (3) Fall 2017	100	0	0	50

FT = Full Time Faculty or PT = Part Time Faculty, at the institution

For the academic year for which the self-study is being prepared (2017/18 academic year).

Program activity distribution should be in percent of effort in the program and should total 100%. Figures are for 2017/18 academic year.

Indicate sabbatical leave, etc., under "Other."

Out of the total time employed at the institution (see text for explanation).

Table 6-2.b. Faculty Workload Summary – Department of Mechanical & Aerospace Engineering

Faculty Member (name)	PT or FT ¹	Classes Taught (Course No./Credit Hrs.) Term and Year ²	Program Activity Distribution ³			% of Time Devoted to the Program ⁵
			Teaching	Research or Scholarship	Other ⁴	
Abdelkefi, Abdessattar	FT	Fall 2017 – ME 333/3cr, ME 509/3cr Spring 2018 – ME 237/3cr, ME 510/3cr	45%	50%	5%	100%
Armstrong, Terry	PT	Fall 2017 – ME 228/3cr, ME 445/3cr Spring 2018 – AE 424/3cr, ME 228/3cr, ME 445/3cr	100%			100%
Chaitanya, Vimal	FT	Fall 2017 – Research Buyout Spring 2018 – ME 236/3cr with one course buyout	50%	20%	30%	100%
Chen, Ruey-Hung	FT	Fall 2017 – AE 419/3 cr	25%	25%	50% DH	100%
Choo, Vincent	FT	Fall 2017 – ME 3345/3cr, ME 237/3cr Spring 2018 – ME 345/3cr, ME 240/3cr	50%	30%	20%	100%
Conley, Edgar	FT	Fall 2017 – ME 326/3 cr, ME 425/3cr, ME 449/1cr Spring 2018 – Sick Leave (SL)	50%	30%	20%	100%
Drach, Borys	FT	Fall 2017 – ME 236/3cr, ME 518/3cr Spring 2018 – ME 236/3cr, ME 580/3cr	50%	45%	5%	100%
Garcia, Gabriel	FT	Fall 2017 – ME 261/3cr Spring 2018 – ME 261/3cr, ME 460/3cr	50%	20%	30%	100%
Gross, Andreas	FT	Fall 2017 – AE 451/3cr, AE 510/3cr Spring 2018 – ME 533/3cr	45%	50%	5%	100%
Kota, Krishna	FT	Fall 2017 – ME 240/3cr, ME 341/3cr Spring 2018 – ME 341/3cr, ME 540/3cr	50%	45%	5%	100%
Kuravi, Sarada	FT	Fall 2017 – ME 340/3cr, ME 481/3cr Spring 2018 – ME 340/3cr, ME 481/3cr	50%	45%	5%	100%
Lee, Young S.	FT	Fall 2017 – AE 364/3cr, ME 328/3cr Spring 2018 – AE 363/3cr, AE 405/3cr	45%	40%	15%	100%
Park, Hyeongjun	FT	Spring 2017 – new faculty	45%	50%	5%	100%

Park, Young-Ho	FT	Fall 2017 – ME 426/3cr, ME 427/3cr Spring 2018 – ME 426/3cr, ME 427/3cr	50%	40%	10%	100%
Sevostianov, Igor	FT	Fall 2017 – ME 510/3cr, ME 570/3cr Spring 2018 – ME 331/3cr, ME 502/3cr	45%	45%	10%	100%
Shashikanth, Banavara	FT	Fall 2017 – ME 240/3cr, ME 328/3cr Spring 2018 – ME 240/3cr, ME 328/3cr	45%	45%	10%	100%
Shu, Fangjun	FT	Fall 2017 – AE 339/3cr, AE 447/3cr Spring 2018 – AE 439/3cr, AE 447/3cr	50%	35%	15%	100%
Sun, Liang	FT	Fall 2017 – ME 210/3cr Spring 2018 – ME 210/3cr, ME 487/3cr	50%	40%	10%	100%

FT = Full Time Faculty or PT = Part Time Faculty, at the institution

For the academic year for which the self-study is being prepared (2011/12 academic year).

Program activity distribution should be in percent of effort in the program and should total 100%. Figures are for 2011 calendar year.

Indicate sabbatical leave, etc., under "Other."

Out of the total time employed at the institution (see text for explanation).

Table 6-2.c. Faculty Workload Summary – Department of Electrical & Computer Engineering

Faculty Member	PT or FT	Classes Taught (credit) 2011-2012	Program Activity Distribution			% of Time Devoted to the Program
			Teaching	Research or Scholarship	Other	
Borah, Deva	FT	Fall 2016: EE 210 (4), 571 (3), GSS ¹	50%	30%	20%	70%
		Spring 2018: EE 497 (3), 581 (3), 583 (3), GSS ¹				
Boehmer, Charles	PT (25%)	Fall 2011: EE 461 (3)	100%	0%	0%	100%
		Spring 2012: EE 460 (3)				
Boucheron, Laura	FT	Fall 2011: EE 545 (3), GSS ¹	35%	60%	5%	50%
		Spring 2012: EE 314 (4), GSS ¹				
Brahma, Sukumar	FT	Fall 2011: EE 391 (4), 431 (3), 542 (3), GSS ¹	40%	50%	10%	50%
		Spring 2012: EE 534 (3), GSS ¹				
Cho, Sang-Yeon	FT	Fall 2011: EE 425 (3), 525 (3), GSS ¹	35%	60%	5%	35%
		Spring 2012: EE 380 (4), GSS ¹				
Cook, Jeanine	FT	Fall 2011: EE 419 (3), GSS ¹	25%	50%	25%	50%
		Spring 2012: EE 563 (3), GSS ¹				
Creusere, Charles	FT	Fall 2011: EE 312 (3), 418 (3), GSS ¹	25%	50%	25%	40%
		Spring 2012: EE 210 (4), 446 (3), 596 (3), GSS ¹				
Dawood, Muhammed	FT	Fall 2011: EE 351 (4), GSS ¹	30%	60%	10%	50%
		Spring 2012: EE 351 (4), 454 (3), 541 (3), GSS ¹				
DeLeon, Phillip	FT	Fall 2011: EE 395 (3), 419 (3), GSS ¹	25%	40%	35%	45%
		Spring 2012: EE 565 (3), GSS ¹				
Furth, Paul	FT	Fall 2011: EE 418 (3), 486 (3), 524 (3), GSS ¹	55%	35%	10%	65%
		Spring 2012: EE 201 (3), 419 (3), 526 (3), GSS ¹				
Huang, Hong	FT	Fall 2011: EE 260 (4), 469 (3), GSS ¹	35%	55%	10%	40%
		Spring 2012: EE 161 (4), GSS ¹				

1 GSS = Graduate Student Supervision: variable credit for EE 590 (Selected Topics), EE 598 (Master's Technical Report), EE 599 (Master's Thesis), EE 600 (Doctoral Research), 700 (Doctoral Dissertation).

Faculty Member	PT or FT	Classes Taught (credit) 2011-2012	Program Activity Distribution			% of Time Devoted to the Program
			Teaching	Research or Scholarship	Other	
Kliewer, Joerg	FT	Fall 2011: EE 555 (3), GSS ¹	30%	60%	10%	30%
		Spring 2012: EE 312 (3), GSS ¹				
Liu, Wenxin	FT	Fall 2011: EE 109 (3), 531 (3), GSS ¹	35%	60%	5%	40%
		Spring 2012: EE 391 (4), GSS ¹				
Ng, Kwong	FT	Fall 2011: EE 310 (3), 515 (3), GSS ¹	50%	40%	10%	50%
		Spring 2012: EE 310 (3), GSS ¹				
Oklobdzija, Vojin	FT	Fall 2011: GSS ¹ (department head)	0%	25%	75%	75%
		Spring 2012: EE 418 (3), GSS ¹				
Paz, Robert	FT	Fall 2011: EE 314 (4), 475 (3), 551 (3), GSS ¹	30%	55%	15%	45%
		Spring 2012: EE 260 (4), 476 (3), GSS ¹				
Petersen, Krist	FT	Fall 2011: EE 161 (4)	50%	0%	50%	100%
		Spring 2012: EE 162 (4), 363 (4)				
Prasad, Nadipuram	FT	Fall 2011: EE 201 (3), GSS ¹	45%	45%	10%	45%
		Spring 2012: GSS ¹ (sabbatical)				
Ramirez-Angulo, Jaime	FT	Fall 2011: EE 380 (4), 482 (3), GSS ¹	30%	60%	10%	30%
		Spring 2012: EE 485 (3), 523 (3), 519 (3), GSS ¹				
Ranade, Satish	FT	Fall 2011: EE 280 (4), 418/419 (3), 544 (3), GSS ¹	45%	35%	20%	65%
		Spring 2012: EE 280 (4), 418/419 (3), 493 (3) 543 (3), GSS ¹				
Stochaj, Steven	FT	Fall 2011: EE 109 (3), 162 (4), 418 (3), GSS ¹	30%	40%	30%	80%
		Spring 2012: EE 418/419 (3), 460 (3), GSS ¹				
Voelz, David	FT	Fall 2011: EE 478 (4), 528 (4), GSS ¹	30%	60%	10%	40%
		Spring 2012: EE 577 (3), GSS ¹				

1 GSS = Graduate Student Supervision: variable credit for EE 598 (Master's Technical Report), EE 599 (Master's Thesis), EE 600 (Doctoral Research), 700 (Doctoral Dissertation)

Table 6-2.c. Faculty Workload Summary – Department of Chemical & Materials Engineering

Faculty Member (name)	PT or FT ¹	Classes Taught (Course No./Credit Hrs.) Term and Year ²	Program Activity Distribution ³			% of Time Devoted to the Program ⁵
			Teaching	Research or Scholarship	Other ⁴	
Paul Andersen	FT	17FA: 452(3), 470(3); 18SP: sabbatical	25	20	55	
Catherine Brewer	FT	17FA: 306(4); 18SP: 301(3), 491(1.5), 495(2)	43.8	51.3	5	
Reza Foudazi	FT	17FA: 361(3); 18SP: 305(3), 506(3)	37.5	57.5	5	
Daniel Gulino	PT	17FA: 323L(1), 423L(1); 18SP: 324L(1), 424L(1)	100			
Jessica Houston	FT	17FA: 412(3); 18SP sabbatical	12.5	32.5	55	
Umakana Jena	FT	17FA: 201(3); 18SP: 441(3)	25	70	5	
Hongmei Luo	FT	17FA: 302(2), 467/567(3)	20.8	74.2	5	
Thomas Manz	FT	17FA: 516(3); 18SP: 307(3), 461/561(3)	37.5	57.5	5	
Juanita Miller	PT	18SP: 449(3)	100			
Martha Mitchell	FT	17FA: sabbatical; 18SP: 102(2), 392(3), 594(2), 690(1)	33.3	11.7	55	
Nelson, Theodore	PT	17FA: 501(3)	100			
Ila Pillamarri	PT	18SP: 471(3)	100			
David Rockstraw	FT	17FA: 101(2), 391(1)	12.5	17.5	70	
Salazar, Alicia	PT	17FA: 491(3)	100			
Sanatkar, Neda	PT	18SP: 361(3)	12.5	82.5		
John Schutte	PT	17FA: 302L(1), 452L(1); 18SP: 352L(1), 455(3), 455L(1)	25	75		
Stephen Taylor	PT	17FA: 395V(3); 18SP: 395V(3), 491(1.5), 495(2)	100			

Zhou, Meng	FT	none	0	50	50	
------------	----	------	---	----	----	--

FT = Full Time Faculty or PT = Part Time Faculty, at the institution

For the academic year for which the self-study is being prepared (2011/12 academic year).

Program activity distribution should be in percent of effort in the program and should total 100%. Figures are for 2011 calendar year.

Indicate sabbatical leave, etc., under "Other."

Out of the total time employed at the institution (see text for explanation).