



EPC PROPOSAL FORM

Originating Academic Unit: PHYSICS

Date Proposal Submitted: May 16, 2020

INSTRUCTIONS: Upon completing the form, submit a hard copy with all appropriate signatures to the Office of the Provost. In addition, email a copy to EPC via the Faculty Governance Manager (facgov@plu.edu).

DEADLINES: Type 1 proposals, being non-substantive, are generally considered on a rolling basis. Type 2 proposals - December 1. Type 3 proposals - October 1.

For specifics on the processing of each type of proposal, see '2. Flowchart of Usual Procedure for Curriculum Revision' and '5. Checklist for Developing Proposals' in the EPC Manual, found in the [Faculty Handbook](#) (Section III, Part VI).

PROPOSAL SUMMARY

Provide a summary of the proposal.

- 1) Introduce a new minor, **Engineering & Industry Minor (28 credits)**, in the Division of Natural Sciences, comprising of the following components:
 - The *Introduction to Engineering* course (currently, CSCI 131, to be renamed to ENGR 131) – **2 CR**
 - Calculus-based Introductory Physics plus laboratory (PHYS 153, 163, 154, 164) – **10 CR**
 - 8 additional semester hours chosen from the following four Engineering courses: *Engineering Statics* (currently PHYS 240), *Electrical Circuits* (currently CSCI 331), *Engineering Thermodynamics* (currently PHYS 333), and *Engineering Materials Science* (PHYS 334) (the designations of all these courses would change to ENGR) – **8 CR**
 - 8 additional semester hours chosen from:
 - Internship: credits would vary depending on internship type and schedule. Internship Catalog designation (e.g., PHYS 495) is already in place, a similar ENGR 495 designation is to be introduced – **0-8 CR**
 - Coursework in business, economics, ethics, and history, which would introduce students to various aspects of industry: BUSA 201 *Introduction to Business in the Global Environment*, BUSA 310 *Information Systems and Data Base Management*, BUSA 358 *Entrepreneurship*; ECON 101 *Principles of Microeconomics*, ECON 111 *Principles of Microeconomics: Global and Environmental*, ECON 313 *Environmental Economics*, ECON 321 *Labor Economics*, ECON 325 *Industrial Organization and Public Policy*; PHIL 125 *Ethics and the Good Life*, PHIL 223 *Biomedical Ethics*, PHIL 225 *Business Ethics*, PHIL 226 *Environmental Ethics*, PHIL/HIST 248 *Innovation, Ethics, Society*, PHIL 327 *Environmental Philosophy*, HIST 346 *History of Innovation and Technology*, HIST 254 *Hanford and the Atomic Age*, HIST 370 *Environmental History of the U.S.* – **0-8 CR**
- 2) Drop MATH 253 Multivariable Calculus as a Prerequisite for PHYS 333 → ENGR 333.

TYPE OF PROPOSAL

Check all the appropriate boxes.

TYPE 1: NON-SUBSTANTIVE CHANGES [complete shaded sections and provide signatures]

Check boxes in this section. Also complete Proposal Summary (above), Catalog/Curriculum Changes section (ahead), and provide chair/dean signatures on final page.

- Change course title
- Delete course with no GenEd element, which is not part of by any other major/minor/concentration
- Prerequisite change within the academic unit only
- Catalog correction (editorial)

TYPE 2: SUBSTANTIVE CHANGES *[complete all sections, including signatures]*

Submit completed form, including signatures. Be sure to check all boxes that apply.

- | | |
|---|--|
| <input type="checkbox"/> Change catalog description** | <input type="checkbox"/> Change a course's credit hours |
| <input type="checkbox"/> Add permanent GenEd course** | <input type="checkbox"/> Add GenEd Element to existing course** |
| <input type="checkbox"/> Add permanent non-GenEd course** | <input type="checkbox"/> Delete GenEd course |
| <input type="checkbox"/> Change major requirement** | <input type="checkbox"/> Change minor requirement** |
| <input type="checkbox"/> Revise curriculum** | <input type="checkbox"/> Change concentration requirement** |
| <input type="checkbox"/> Change grading type (e.g. P/F, letter grade) | <input type="checkbox"/> Change prerequisite involving another unit's course |
| <input type="checkbox"/> Other: _____ | |

TYPE 3: CHANGES REQUIRING FACULTY ASSEMBLY APPROVAL *[complete all sections, including signatures]*

Note: These proposals require the approval of the Board of Regents in addition to the Faculty Assembly.

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> New Degree** | <input type="checkbox"/> New Major** | <input checked="" type="checkbox"/> New Minor** | <input type="checkbox"/> New Concentration** |
| <input type="checkbox"/> Eliminate Degree | <input type="checkbox"/> Eliminate Major | <input type="checkbox"/> Eliminate Minor | <input type="checkbox"/> Eliminate Concentration |
| <input type="checkbox"/> Add Certificate (non-Continuing Education)** | | <input type="checkbox"/> Other: _____ | |

** These changes/proposals require completion of the [EPC Curriculum Change Template](#). The noted Type 3 proposals also require attachment of an [Institutional Impact Evaluation Form](#).

** A course syllabus must be submitted with these course proposals.

STATEMENT OF RATIONALE

Provide a statement of rationale and/or other clarifications. Include information on student learning and outcomes and any General Education Program rationale.

Engineering courses offered by PLU (CSCI 131 Introduction to Engineering, PHYS 240 Engineering Statics, CSCI 331 Electrical Circuits, PHYS 333 Engineering Thermodynamics, and PHYS 334 Engineering Materials Science) serve the students of our 3-2 Dual-Degree Engineering Program and distinguish our program from similar 3-2 programs at many liberal-arts institutions, which have fewer engineering course offerings. The courses also are an essential element of the BS in Applied Physics degree, which in the past had been titled BS in Engineering Physics.

A recent study of career trends performed by the Department of Physics has shown that 85% of our graduates pursue graduate studies or find employment in an engineering-related field. In addition, the Office of Admission has noticed an increased demand for engineering options from prospective students considering PLU for their undergraduate studies. In the words of Melody Ferguson, Associate Dean of Admission,

“The Office of Admission would like to support the proposal by our colleagues in Physics for an Engineering & Industry minor. Engineering is the most requested major that doesn't show up directly on our list of majors/programs, doesn't appear in our brochures, and isn't something prospective students can find on college search engines. If we actually get a chance to speak to students about pursuing this major, we are able to articulate how 3/2 Engineering and Applied Physics can still be a good fit, but students of this generation do a lot of their own research and are not always willing to engage in that conversation. We know that a minor instead of a major

will mean some students still choose a school with an undergraduate degree in Engineering, but we feel this minor, specifically with its proposed connection to industry and alignment with prerequisites for Master's in Engineering programs, would show them a path to their future goal at PLU that we don't currently have. Anecdotally, the admission counselors also sense that Engineering is more requested by male-identified students and would help in our male-identified recruitment strategies, an area of emphasis identified in the SEMAC Strategic Plan. It would also give an opportunity for transfer students to use their last two years at PLU to prepare for a future in engineering, an option we don't currently have for them. Overall, we feel that this change would positively impact our ability to recruit and yield both first-year and transfer students.”

While our 3-2 students (80% of whom choose the BA in Physics for their PLU degree) and Applied Physics students are already well-served by the above engineering courses, we would like to expand the availability of those courses to BS-in-Physics majors, Chemistry, Computer Science, and Math majors, and those Biology, Computer Science, Business majors, or other students who have taken the calculus-based introductory physics sequence.

The Engineering and Industry Minor is naturally aligned with the Applied Physics Major, and as such BS in Applied Physics students will NOT be eligible for the minor, which is made explicit by the catalog language. The BS in Physics students by contrast will be eligible for the minor if they wish to take the ENGR courses and/or the courses in Business, Economics, History, or Philosophy, as there is very minimal overlap (just Engineering Thermodynamics) between these courses and the requirements for BS in Physics.

We feel that the engineering options at PLU will be most clear to current and prospective students if the above engineering courses are grouped under the common umbrella of Engineering & Industry Minor and a common designation “ENGR” associated with the minor. This would restore the historical names of these courses, as they were created by the Department of Physics and Engineering in the 1970s as part of the Engineering Physics program (currently, the Applied Physics program). With the creation of the Electrical Engineering program in the early 90s, the courses migrated to the Department of Electrical and Computer Engineering. When the program was closed and the mid-90s and the department restructured, the courses were moved again: *Introduction to Engineering* and *Electrical Circuits* to what was then the Department of Computer Science and Computer Engineering and *Engineering Statics*, *Engineering Thermodynamics* and *Engineering Materials Science* to the Department of Physics.

The Engineering & Industry Minor will also introduce for the first time an internship and industry-awareness option in our curriculum, through both coursework and experience in the field. Project-based learning is a different kind of learning than in-class learning and adds a different kind of value to a student’s degree. Internships/apprenticeships are therefore extremely valuable training for future engineers, and students with such experience are more attractive job and graduate school candidates. In addition, working in an industrial/professional setting builds professional and practical skills and a network of professional colleagues. Finally, engineers educated in a liberal-arts setting (to which the coursework in business, economics, history, and ethics will further contribute) bring value to their companies beyond technical skills.

An Advisory Board comprised of engineering and science professionals affiliated with PLU will advise students in the Engineering Internship process for students who choose that option. This volunteer group will serve as advisors to PLU students and the program through providing council on searching and interviewing for engineering internships and job shadowing opportunities. The Board will also evaluate the quality of internships found by students, and advise the program leaders and its students on skills needed to apply for internships.

Learning Outcomes:

1. Students will gain professional experience in engineering or industry.
2. Students will learn basic skills important to the profession, including problem solving, engineering design, engineering ethics, and computer programming.
3. Students will build a network of professional colleagues.
4. Students will learn about business, economic, ethical, and historical aspects of industry as they relate to engineering through direct experience (internship) or through relevant coursework.
5. Students will reflect personally and with PLU faculty and students on their engineering and industry experience.

In conclusion, we believe that both the coursework and the internship will better prepare students in the minor for employment in industry or for graduate studies in engineering-related fields, will therefore attract new students, and thus will be an asset to the university.

CATALOG/CURRICULUM CHANGES

Current Catalog Language:

Computer Science (CSCI) - Undergraduate Courses

CSCI 131 : Introduction to Engineering - NS

An introduction to the engineering profession and development of basic skills important to the profession, including problem solving, engineering design, graphics, use of computers, computer programming, engineering economics, and ethics in engineering. Prerequisite: completion of college-preparatory mathematics. (2)

CSCI 331 : Electrical Circuits

Introduction to the fundamental techniques and concepts of analysis and design of DC and AC circuits including Kirchhoff's Laws, circuit theorems, OP Amps, first and second order transient and steady state circuits, and frequency response. Computer simulation and laboratory work are essential parts of the course. Prerequisites: MATH 151; PHYS 154 or consent of instructor. (4)

Physics (PHYS) - Undergraduate Courses

PHYS 240 : Engineering Statics

Engineering statics using vector algebra; equilibrium of rigid bodies; equivalent force and movement systems; centroids and center of gravity; trusses and frames; methods of virtual work; shear and bending moment diagrams; moments of inertia. Prerequisite: PHYS 153 with a C- or higher. (4)

PHYS 333 : Engineering Thermodynamics

Classical, macroscopic thermodynamics with applications to physics, engineering, and chemistry. Thermodynamic state variables, cycles, and potentials; flow and non-flow systems; pure substances, mixtures, and solutions; phase transitions; introduction to statistical thermodynamics. Prerequisites: PHYS 153 with a C- or higher and MATH 253 with a C- or higher. (4)

PHYS 334 : Engineering Materials Science

Fundamentals of engineering materials including mechanical, chemical, thermal, and electrical properties associated with metals, polymers, composites, and alloys. Focus on how useful material properties can be engineered through control of microstructure. Prerequisites: PHYS 154 with a C- or higher and CHEM 115 with a C- or higher. (4)

Proposed Catalog Language: (note changes in **Bold** and ~~Strikeout~~)

The curriculum of the Engineering & Industry Minor consists of engineering courses, courses in business, economics, and ethics with a special emphasis on industry, and/or an internship. Students choosing the minor will learn the basics of engineering design and team problem solving, will gain familiarity with industry, and will obtain valuable skills ensuring their success in the workplace or in graduate studies.

An Advisory Board comprised of engineering and science professionals associated with PLU will advise students in the Engineering Internship process for students who choose that option, will evaluate the quality of internships, and will consult with the program leaders on curriculum.

The Engineering & Industry Minor is ideal for all students who would benefit from in-depth exposure to engineering and industry. Typically, students in Natural Sciences, Business, Economics, or any students who have completed the introductory calculus-based physics sequence (PHYS 153/163, PHYS 154/164) would be a good fit for the minor. BS in Applied Physics students are NOT ALLOWED to add this minor, as it essentially is the minor aligned with the Applied Physics major.

Engineering & Industry Minor

(28) semester hours

- ENGR 131 (2 hrs)
- Calculus-based Introductory Physics plus laboratory (PHYS 153, 163, 154, 164) – 10 CR
- Plus: 8 additional semester hours chosen from the following Engineering courses:
 - ENGR 240, ENGR 333, ENGR 334, and ENGR 355
- Plus: 8 additional semester hours chosen from:
 - ENGR 495 (Internship): Credits would vary depending on internship type and schedule (0-8 hrs)
 - Courses in business, economics, ethics, and history, which would introduce students to various aspects of industry (0-8 hrs):
BUS A 201, BUS A 310, BUS A 358
ECON 101, ECON 111, ECON 313, ECON 321, ECON 325
HIST 254, HIST 346, HIST 370
PHIL 125, PHIL 223, PHIL 225, PHIL 226, PHIL/HIST 248, PHIL 327

All courses counted toward the minor must be completed with grades of C– or higher.

Course Offerings by Semester

- Fall Semester (even years): PHYS 153+163, PHYS 154+164, ENGR 131, ENGR 240, ENGR 333
- Spring Semester (odd years): PHYS 153+163, PHYS 154+164, ENGR 355
- Fall Semester (odd years): PHYS 153+163, PHYS 154+164, ENGR 131, ENGR 240
- Spring Semester (even years): PHYS 153+163, PHYS 154+164, ENGR 334

Engineering (ENGR) - Undergraduate Courses

ENGR 131 ~~CSCI 131~~ : Introduction to Engineering - NS

An introduction to the engineering profession and development of basic skills important to the profession, including problem solving, engineering design, graphics, use of computers, computer programming, engineering economics, and ethics in engineering. Prerequisite: completion of college-preparatory mathematics. (2)

ENGR 240 ~~PHYS 240~~ : Engineering Statics

Engineering statics using vector algebra; equilibrium of rigid bodies; equivalent force and movement systems; centroids and center of gravity; trusses and frames; methods of virtual work; shear and bending moment diagrams; moments of inertia. Prerequisite: PHYS 153 with a C- or higher. (4)

ENGR 333 PHYS 333 : Engineering Thermodynamics

Classical, macroscopic thermodynamics with applications to physics, engineering, and chemistry. Thermodynamic state variables, cycles, and potentials; flow and non-flow systems; pure substances, mixtures, and solutions; phase transitions; introduction to statistical thermodynamics. Prerequisites: PHYS 153 with a C- or higher and MATH 253 with a C- or higher. (4)

ENGR 334 PHYS 334 : Engineering Materials Science

Fundamentals of engineering materials including mechanical, chemical, thermal, and electrical properties associated with metals, polymers, composites, and alloys. Focus on how useful material properties can be engineered through control of microstructure. Prerequisites: PHYS 154 with a C- or higher and CHEM 115 with a C- or higher. (4)

ENGR 355 CSCI 331 : Electrical Circuits

Introduction to the fundamental techniques and concepts of analysis and design of DC and AC circuits including Kirchhoff's Laws, circuit theorems, OP Amps, first and second order transient and steady state circuits, and frequency response. Computer simulation and laboratory work are essential parts of the course. Prerequisites: MATH 151; PHYS 154 or consent of instructor. (4)

ENGR 495 : Internship

To permit undergraduate students to relate theory and practice in a work situation. The title will be listed on the student term-based record as Intern: followed by the specific title designated by the instructor in consultation with the student and the Advisory Board for the Engineering internship course and the Engineering & Industry Minor. (1 to 12)

Additional information for courses:

Is this a course that because of variable content could be repeated for credit?	<input type="checkbox"/> Yes,	<input checked="" type="checkbox"/> ?	Times [If yes, the parameters must be clear in course description]	<input type="checkbox"/> No	[Default is 'no.' Note that does not exclude a student's option to repeat a course for a better grade to replace the initial one.]
Grade Type:	<input type="checkbox"/> Standard Letter	<input type="checkbox"/> Pass/Fail			
Anticipated Enrollment:	<input type="text"/>				
Course Syllabus Attached**:	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

**Required for new courses, and other proposals as indicated above.

Does the proposal include the addition to a course of one or more General Education Program elements (GenEd)?

Yes (Check the appropriate boxes below)

If more than one course is proposed, make sure the proposal makes clear which GenEd elements, if any, are proposed for each course.

No

- | | |
|---|--|
| <input type="checkbox"/> Alternative Perspectives A | <input type="checkbox"/> Physical Activity PE |
| <input type="checkbox"/> Art, Music, Theatre AR | <input type="checkbox"/> Philosophy PH |
| <input type="checkbox"/> Cross Cultural Perspective C | <input type="checkbox"/> Religion: Christian Traditions RC |
| <input type="checkbox"/> International Honors (100-level) H1 | <input type="checkbox"/> Religion: Global Religious Traditions RG |
| <input type="checkbox"/> International Honors (200-level) H2 | <input type="checkbox"/> Science and Scientific Method SM |
| <input type="checkbox"/> International Honors (300-level) H3 | <input type="checkbox"/> Investigating Human Behavior, Culture, and Institutions SO |
| <input type="checkbox"/> Literature LT | <input type="checkbox"/> Senior Seminar/Project SR |
| <input type="checkbox"/> Inquiry Seminar (FYEP) F | <input type="checkbox"/> Writing Seminar (FYEP) FW |
| <input type="checkbox"/> Mathematical Reasoning MR | |
| <input type="checkbox"/> Natural Sciences, Mathematics, or | |

NOTE: Submissions will be forwarded to the Core Curriculum Committee for its review and recommendation. Diversity courses have specific learning objectives that must be included in the syllabus.

STAFFING & BUDGETARY IMPLICATIONS

Has this proposal been formally approved by at least 2/3 of the full-time teaching faculty in your academic unit?

Yes

No (Indicate why the proposal is being forwarded to EPC)

Does this proposal impact any other academic unit?

Yes (List below and indicate if 2/3 of the full-time faculty in that area support the proposal)

- CSCI
- BUSA
- ECON
- PHIL
- INOV

No

Does this proposal require the commitment of new or substantially different support services (e.g., Library acquisitions, Information and Technology Services, Wang Center)?

Yes (Explain and indicate if support services have been consulted)

Alumni and Student Connection may need to assist students in finding Internships, although the majority of the work will be done by the Department of Physics in consultation with the Advisory Board for the Engineering & Industry Minor and the Engineering internship Course.

No

Explain how the proposed change(s) will be staffed. Revised 2-Year Course Cycle must be attached.

The minor includes only existing courses (now relabeled to ENGR), currently taught in the Departments of Computer Science and Physics. Upon acceptance of this proposal all of these courses will be staffed from among the existing faculty in the Department of Physics. The Chair of Physics and the Director of the 3-2 Dual-Degree Engineering Program will supervise and assess the minor, with the help of the Advisory Board of volunteers, comprised of engineering and science professionals associated with PLU. The Board will also advise students in the Engineering Internship process, will evaluate the quality of internships, and will consult the program on curriculum.

Are special budgetary arrangements and funding required? If “no”, explain how the proposed changes will be integrated without added personnel or budgetary requirements.

Yes (Explain what types of support will be used to meet the budgetary requirements of the proposed change(s). Include the source(s) of funding, percentage of costs covered, and time frame covered.)

A modest increase to the Services and Purchases (S&P) budget of the Department of Physics is proposed – see the *Institutional Impact Evaluation Form*. The funding will come from increased tuition revenue due to students’ joining the minor. Detailed amounts and time frame are provided in the Institutional Impact Evaluation Form.

No

NOTE: Budgetary considerations will be reviewed/approved by Dean and Provost.

Bogacil Gumanz 5/17/2020
Department Chair/Program Chair/Associate Dean (Date)

Armin J. Gumanz, Ph.D. 5/18/2020
Dean (Date)

Provost (Date)

- Forwarded with Endorsement
- Forwarded with Reservations



Carol Bautista <bautisca@plu.edu>

EPC--PHYS Engineering&Industry New Minor Type 3

Joanna Gregson <gregsojg@plu.edu>

Fri, Oct 9, 2020 at 10:19 AM

To: Carol Bautista <bautisca@plu.edu>

Forwarded with endorsement!

Joanna

[Quoted text hidden]

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Joanna Gregson, Ph.D.
Provost and Senior Vice President for Academic Affairs
Professor of Sociology
Pacific Lutheran University
Tacoma, WA 98447

Institutional Impact Evaluation Form

1. **Name of Proposed Program:** _____ Engineering and Industry Minor _____

2. **Executive Summary:** In 1-2 paragraphs, describe the proposed program, including a clear statement of how the program meets the mission of the university.

PLU's mission "to educate students for lives of thoughtful inquiry, service, leadership and care – for other people, for their communities, and for the Earth", in the age of new global challenges and technological developments, requires combining rigorous education in the applied sciences with the holistic approach that liberal-arts programs have to offer. The *Engineering & Industry Minor* aims to attract students interested in engineering, or more broadly, in any kind of career in industry, and to provide them with an educational experience that concentrates on the NSCI engineering courses (currently named PHYS 240, 333, and 334, CSCI 131, and 331—designations proposed to change to ENGR), in combination with an Internship/Industry experience and/or courses in business, economics, history, and ethics. The minor therefore intends to integrate the professional study of technical topics with the liberal arts, and with civic or professional engagement through the internship/industry component. This is consistent with trends in professional fields, as many liberal-arts institutions have started engineering programs in recent years – e.g., Swarthmore College, a liberal-arts college of high national profile, and Whitworth University and Seattle Pacific University, which are local examples.

Some of the minor's learning goals and features that align with PLU's mission are

- vocational exploration, exposure to industry (through the Internship/Industry component and/or coursework);
- leadership experience;
- service and care, for other people, their communities and the Earth (by exposure to private industry and/or public service companies and/or through course work in history and ethics)
- integration of the liberal arts, professional studies, and civic or professional engagement (through the Internship/Industry component and;
- interdisciplinary in nature, involving classes in physics, electrical engineering, mathematics, and possibly business, economics, history, and ethics.

Based on information from Admission & Enrollment Services, PLU often loses prospective students interested in engineering, for whom our 3-2 engineering program is not appealing due to the remote locations of our partner institutions. We are told that many prospective students, notably student-athletes, who strongly considered PLU ultimately chose different universities – ones that have engineering programs. The proposed minor will offer a local engineering option to such students, and thus intends to **attract new students** to PLU.

3. **Proposed Program Start Date:** _____ Fall 2021 _____

4. **Program Offerings:**

- a. Describe the type of program (new degree, new major, new minor, new concentration).

New minor

- b. Identify the delivery format for the program (face-to-face, online, blended, or competency-based) and rationale for this format.

Face-to-face

- c. Describe the curriculum and program requirements by providing a clear description of the courses required to complete the program and any program-specific policies (e.g., credit hours in residency, GPA requirements). Include course offerings, number of credits, prerequisites, and any general education elements. Clearly distinguish between existing courses and any new courses that will need to be created or deleted.

The **Engineering & Industry Minor (28 credits)** in the Division of Natural Sciences, will consist of the following components:

- The *Introduction to Engineering* course (currently, CSCI 131, to be renamed to ENGR 131) – **2 CR**
- Calculus-based Introductory Physics sequence plus laboratory (PHYS 153, 163, 154, 164) – **10 CR**
- 8 additional semester hours chosen from the following four engineering courses: *Engineering Statics* (currently PHYS 240), *Electrical Circuits* (currently CSCI 331), *Engineering Thermodynamics* (currently PHYS 333), and *Engineering Materials Science* (currently PHYS 334) (the designations of all these courses would change to ENGR) – **8 CR**
- 8 additional semester hours chosen from:
 - Internship: credits would vary depending on internship type and schedule. A catalog designation for “Internship: PHYS 495” already exists and a similar ENGR 495 designation is to be introduced – **0-8 CR**
 - Coursework in business, economics, ethics, and history, which would introduce students to various aspects of industry: BUSA 201 *Introduction to Business in the Global Environment*, BUSA 310 *Information Systems and Data Base Management*, BUSA 358 *Entrepreneurship*; ECON 101 *Principles of Microeconomics*, ECON 111 *Principles of Microeconomics: Global and Environmental*, ECON 313 *Environmental Economics*, ECON 321 *Labor Economics*, ECON 325 *Industrial Organization and Public Policy*; PHIL 125 *Ethics and the Good Life*, PHIL 223 *Biomedical Ethics*, PHIL 225 *Business Ethics*, PHIL 226 *Environmental Ethics*, PHIL/HIST 248 *Innovation, Ethics, Society*, PHIL 327 *Environmental Philosophy*; HIST 346 *History of Innovation and Technology*, HIST 254 *Hanford and the Atomic Age*, HIST 370 *Environmental History of the U.S.* – **0-8 CR**

- d. Provide a two-year course cycle for delivering the curriculum.
- **Fall Semester (even years):** PHYS 153+163, PHYS 154+164, ENGR 131, ENGR 240, ENGR 333 (currently named PHYS 333 *Engineering Thermodynamics*)
 - **Spring Semester (odd years):** PHYS 153+163, PHYS 154+164, ENGR 355 (currently named CSCI 331 *Electrical Circuits*)
 - **Fall Semester (odd years):** PHYS 153+163, PHYS 154+164, ENGR 131, ENGR 240 (currently named PHYS 240 *Engineering Statics*)
 - **Spring Semester (even years):** PHYS 153+163, PHYS 154+164, ENGR 334 (currently named PHYS 334 *Engineering Materials Science*)
- e. Provide completion pathways (including two and four-year advising plans for undergraduate programs).

Typical Engineering & Industry Minor Schedule:

Starting in a fall semester of an **even-numbered year**:

- **First Year:** ENGR 131: *Intro to Engineering*, MATH 151, 152, PHYS 153+163 (or MATH 152, PHYS 153+163, and PHYS 154+164, if prior calculus)
- **Sophomore Year:** PHYS 154+164, ENGR 240, ENGR 334**, BUSA/ECON/PHIL/HIST
- **Junior Year:** ENGR 333[°], ENGR 355*, BUSA/ECON/PHIL/HIST
- **Senior Year:** ENGR 495: *Internship*

Starting in a fall semester of an **odd-numbered year**:

- **First Year:** ENGR 131: *Intro to Engineering*, MATH 151, 152, PHYS 153+163 (or MATH 152, PHYS 153+163, and PHYS 154+164, if prior calculus)
- **Sophomore Year:** PHYS 154+164, ENGR 240, ENGR 355*, BUSA/ECON/PHIL/HIST
- **Junior Year:** ENGR 334**, BUSA/ECON/PHIL/HIST
- **Senior Year:** ENGR 333[°], ENGR 495: *Internship/*

[°] Offered in **fall of even** calendar years only

* Offered in **spring of odd** calendar years only

** Offered in **spring of even** calendar years only

- f. Identify the learning outcomes for the program. For undergraduate programs, also describe the connection to the Integrative Learning Objectives.

Learning Outcomes:

1. Students will gain professional experience in engineering or industry.
2. Students will learn basic skills important to the profession, including problem solving, engineering design, engineering ethics, and computer programming.
3. Students will build a network of professional colleagues.

4. Students will learn about business, economic, ethical, and historical aspects of industry as they relate to engineering through direct experience (internship) or through relevant coursework.
 5. Students will reflect personally and with PLU faculty and students on their engineering and industry experience.
- g. Provide a plan for assessing program learning outcomes.
1. Collect and record the number of students who are successful in securing internships.
 2. Assess course learning outcomes according to the current assessment plans for the existing courses.
 3. Give a "Networking survey" at the conclusion of the program to find out if students are increasing their professional networks.
 4. Record the number of courses in which students are getting engineering-related industry perspective. Learning outcomes in those courses will be assessed according to existing assessment plans
 5. Assess the *Engineering Internship* course with an input from the Advisory Board.
 6. Complete an Exit Survey with students upon completion of the minor.
 7. Collect data about employment or increased graduate school attendance post-graduation.
- h. Identify program entrance requirements, including application processes, if appropriate.

None.

- 5. External Authorization:** Will the proposal require authorization from NWCCU, the state of Washington, or an external accreditation body?

No.

6. Rationale:

- a. Provide evidence of demand for the proposed program, which may include a market analysis or review of trends at other universities. Include reference to relevant competitors' programs and characteristics of the proposed program that will make it attractive to students in light of this competition.

With the increased emphasis on STEM education in the K-12 system, the popularity of engineering studies has increased nationwide. In the Pacific Northwest (ID, OR, and WA), the number of Engineering graduates (in all engineering fields) has grown by 25.71% in the last 5 years. While in Oregon the impressive state-wide increase of 36.05% is matched closely by the 35.03% increase rate of the number of engineering degrees granted at Oregon State University (OSU), a big part of the 17.95% increase in

Washington has been due to mid- and small-size institutions. Washington universities similar in size to PLU have seen a remarkable 37.25% increase in engineering degrees, while the number of engineering graduates has increased by 20.35% at WSU and only by 4.78% at UW—the largest state university in Washington. The 6 fastest growing areas of engineering in the PNW in the last 5 years have been Agricultural/Biological Engineering and Bioengineering (53.33%)¹, Mechanical Engineering (40.24%), Electrical, Electronics and Communications Engineering (31.65%), Aerospace, Aeronautical and Astronautical Engineering (31.58%), Biomedical/Medical Engineering (23.47%), and General Engineering (19.63%). (See the table below. The source of these data, the document Engineering Completions PNW 2014-2018 – AAuman.xlsx, obtained by Kevin Berg, Associate Dean of Institutional Research and Records, is attached to this form.)

Number of Engineering Degrees Granted	2014	2015	2016	2017	2018	% Growth
PNW	3481	3602	3858	4280	4376	25.71%
WA	1749	1899	2001	2158	2063	17.95%
UW	774	774	783	820	811	4.78%
WSU	511	582	598	636	615	20.35%
Small/Med WA	464	543	620	702	637	37.28%
OR	1176	1164	1254	1418	1600	36.05%
OSU	708	704	775	877	956	35.03%
Engineering by Specialty:						
Agri/Bioengineering	15	18	20	19	23	53.33%
Mechanical Engineering	999	1124	1182	1337	1401	40.24%
El & Communic Engineering	695	761	828	903	915	31.65%
Aerospace Engineering	57	58	60	72	75	31.58%
BioMed Engineering	98	92	121	133	121	23.47%
General Engineering	107	103	100	124	128	19.63%
Materials Engineering	93	81	86	106	107	15.05%

Unsurprisingly, the above trend in college education has caused increased demands for engineering programs at PLU. According to Melody Ferguson, Associate Dean of Admission, *Engineering* is the most frequently-inquired about field of study. While PLU has maintained a robust 3-2 engineering program, an increased number of students have sought a *local* engineering option. As a result, PLU has lost prospective students to competitors. In fact, 4 out of our top 5 local competitors - University of Washington, Central Washington University, Whitworth University, and Seattle Pacific University -

¹ The numbers here are too small to extract reliable statistics.

offer some level of engineering program on their campuses. According to the Office of Admission & Enrollment Services, students who strongly consider PLU, or even find PLU as the best fit for them, often choose other universities because of the lack of any local engineering options. PLU's 3-2 Dual-Degree Engineering Program is of high quality, but spending 2 years of a 5-year track at remote universities (our affiliates Columbia University in New York, or Washington University in St. Louis) is simply not an option for students who would like to complete their undergraduate education locally.

We would like to mention a few numbers in support of the last assertions. From 2015 to 2019, the number of **applications** indicating “**Intended Engineering**” has been 146, 144, 153, 188, 191, respectively. (This is only matched by a similar trend for “Intend Computer Science”: 121, 163, 161, 199, 186 in the same years.). Similarly, the number of **admitted** students who indicated that they “Intend Engineering” has grown as 101, 112, 116, 149, and 149 from 2015 to 2019. At the same time, the lack of a local engineering option at PLU (few applicants realize that our BS in Applied Physics is a *de facto* option), causes PLU to have only “a 12% yield rate on these students and our overall average tends to be closer to 22-25%”, according to Melody Ferguson, Associate Dean of Admission. The source of some of these data, the document Final –First Year Breakout Report – Fall 2019 – As of September 20.pdf is attached to this form. Melody Ferguson writes in support of these observations and this proposal:

“The Office of Admission would like to support the proposal by our colleagues in Physics for an Engineering & Industry minor. Engineering is the most requested major that doesn't show up directly on our list of majors/programs, doesn't appear in our brochures, and isn't something prospective students can find on college search engines. If we actually get a chance to speak to students about pursuing this major, we are able to articulate how 3/2 Engineering and Applied Physics can still be a good fit, but students of this generation do a lot of their own research and are not always willing to engage in that conversation. We know that a minor instead of a major will mean some students still choose a school with an undergraduate degree in Engineering, but we feel this minor, specifically with its proposed connection to industry and alignment with prerequisites for Master's in Engineering programs, would show them a path to their future goal at PLU that we don't currently have. Anecdotally, the admission counselors also sense that Engineering is more requested by male-identified students and would help in our male-identified recruitment strategies, an area of emphasis identified in the SEMAC Strategic Plan. It would also give an opportunity for transfer students to use their last two years at PLU to prepare for a future in engineering, an option we don't currently have for them. Overall, we feel that this change would positively impact our ability to recruit and yield both first-year and transfer students.”

Melody Ferguson
Associate Dean of Admission

As the above quote cites, an Engineering option is particularly important for attracting male students. GMAC identifies male enrollment as one target for PLU's recruitment and admissions, and all too often PLU loses prospective student athletes recruited by the university teams to our Division III competitors such as George Fox

University and Whitworth University. The following quotes from Brant McAdams, Head Football Coach, and Adam Frye, Track and Field Coach, attest to this problem:

“... I am extremely excited to hear about the possibility for adding an Engineering and Industry Minor to our academic offerings at PLU. The recruiting landscape for the best student-athletes in the PNW is becoming very competitive. Many prospective students enter the college search already knowing what they want to study and if they do not see it offered at PLU, we lose out on the opportunity to take the next steps in the process. Adding this Engineering and Industry option will get us on the short list for prospects who have clearly identified what they want to study in college!”

Brant McAdams
Head Football Coach

“The lack of an on-campus Engineering option at PLU is a persistent and significant challenge in our recruitment of student-athletes. Many students I contact express an interest in Engineering and a substantial number write off PLU when they learn we don't offer a four-year Engineering degree. Others who visit and apply often end up choosing to attend peer schools in the Northwest with four-year options. The addition of an Engineering and Industry minor would help us attract prospective students interested in Engineering and keep more students at PLU for four years rather than three. This would be of significant benefit to PLU, our athletics teams and our student-athletes.

[...] I believe improving four-year engineering opportunities (and marketing of those options) would be huge for recruitment and retention of student-athletes. We've had some great athletes (and students) leave PLU after three years and it would be a positive for our teams, PLU's revenue and hopefully for the student-athletes if we could keep them for four years and set them up for graduate school (or to go directly into their field). I had three of my college teammates (at Luther College in Decorah, Iowa) who did four-year degrees and then went on to masters/PhD in Engineering. It worked well for them and it's a route I try to promote to recruits, but it can be a hard sell.”

Adam Frye
Head Cross Country and Track & Field Coach

Finally, liberal arts education is changing nationally, and is starting to include fields of study, such as engineering, that were not traditionally a part of the arts and sciences curriculum. There are numerous examples of that, but for instance the *Engineering with a Liberal Arts Education* program at Swarthmore College demonstrates how a traditional and well-respected liberal-arts college has made engineering an integral part of its liberal arts curriculum. Whitworth University and Seattle Pacific University are local examples of PLU-sized institutions which have taken a similar route.

Taking into account the above trends and evaluating the strengths of the 3-2 Dual-Degree Engineering Program at PLU, we have concluded that what distinguishes PLU's 3-2 program is the availability of 5 engineering courses developed in the past as part of

PLU's Engineering Physics program, now named the BS in Applied Physics. Data from the last 10 years assembled by NSCI Administrative Assistant Elizabeth Aleman show that in addition to the 35% of our graduates who obtain a 3-2 engineering degree, additional 27% of the physics graduates end up pursuing either engineering graduate programs or engineering-related industry careers. This is a total of 62% of the Physics graduates. We think that this is related to the increased interest in the BS in Applied Physics major over the more traditional BS in Physics major – many of our students prefer to take the more applied engineering courses of the former, in order to better prepare for engineering graduate school or a career in industry.

Grouping the engineering courses in an *Engineering & Industry Minor* therefore makes it explicit to prospective students what we already offer. The minor also proposes to introduce a novel industry component, which will provide a combination of traditional and experiential learning through industry-related courses and/or an engineering internship. It is also our hope that the Engineering & Industry Minor will provide a local Engineering option to interested students, and will help Admission increase their yield on “Intend Engineering” applications, including by better informing these students about our 3-2 Dual Degree Engineering and BS in Applied Physics programs.

- b. Identify the target audience for the program.

BA and BS in Biology, BA and BS in Business, BA and BS in Chemistry, BA and BS in Computer Science, BA and BS in Economics, BA and BS in Geosciences, BA and BS in Mathematics, BA and BS in Physics. New students, who Intend Engineering, and are more likely to choose PLU's 3-2 Engineering program if we have at least some *local* engineering option. Finally, the Engineering & Industry Minor may provide an alternative pathway for Intended 3-2 students who change their plans, and do not transfer to Columbia or Wash U, but choose to pursue another major at PLU. The E&I Minor will facilitate such students' application to engineering graduate programs and/or employment prospects whatever their major may be.

- c. Explain why this is the right time for the university to add this program.

Please see the discussion of the increasing trends in the number of applications from Intend-Engineering students, the increased interest in Applied Physics and engineering careers among the physics students, and the comments on the increased emphasis on Engineering as part of the Liberal Arts curriculum in Section 6.a.

- d. Explain how this program might compete with other programs currently offered at PLU.

It would not compete with any other program. The Engineering & Industry Minor is in a sense the minor aligned with the BS in Applied Physics major, and we envision that it would draw additional students, who otherwise would major in a non-engineering-related field, or choose a competing school over PLU.

- e. Identify which academic units might be affected by this program, and how.

The students who would have a realistic chance of completing this minor would be the ones who have taken the calculus sequence (MATH 151, 152) and the calculus-based introductory physics sequence (PHYS 153, 163, 154, 164) anyway; therefore, we do not expect it to affect significantly the introductory course enrollments Mathematics or Physics Departments. There may be a small increase in enrollments in intro courses in math and physics due to attracting new students to the university. Some of the ENGR courses which are currently housed in CSCI may also see increased enrollments. Some small increase in enrollment (~1-2 students per courses per year) may be seen in BUSA, ECON, HIST, INOV, and PHIL courses.

- f. Will approval of this program mean the termination of another program? If so, what is the timeline for the proposed elimination?

No.

7. Marketing strategies:

- a. Provide a marketing and advertising plan for the initial roll-out of the program, including a timeline.

We will work out a plan with the *Offices of Admission and Marketing and Communications*, which will go along with their annual update of admission recruitment strategies. The marketing and advertising of the Engineering and Industry Minor will thus become a part of the 2020 regular cycle of Admissions.

- b. Identify longer-term plans for marketing and advertising.

Connecting with STEM education in local high schools, the Science and Math Institute (SAMI) and the School of Industrial Design, Engineering and Art (IDEA) in the Tacoma Public School system, and with the Washington Mathematics, Engineering, and Science Achievement (MESA) program.

- 8. **External funding sources:** Describe any plans for the development of funding sources for this program that are external to the university, including projected amounts of funding for each.

No external funding source will be required for this program. It is comprised of courses that already exist and are currently being taught, and an Internship component, which we will manage IN-LOAD with the help of our VOLUNTEER Advisory Board.

- a. Fundraising:

N/A.

- b. Grants:

N/A.

- c. Other:

N/A.

9. Faculty, Staff and Administration:

- a. Describe the qualifications needed by faculty who will teach in the program.

Current PHYS faculty + current BUSA, ECON, HIST, and PHIL faculty will deliver the courses required by the Minor.

- b. Identify the number and type (contingent, tenure-track) of faculty members necessary to deliver the program.

About 0.7-0.8 FTE, currently in the Departments of Physics and Computer Science, is necessary to deliver the ENGR courses at their current frequencies (*Introduction to Engineering* and *Engineering Statics* – once a year, *Engineering Thermodynamics*, *Engineering Materials Science*, and *Electrical Circuits* – every other year). All these courses will be delivered IN-LOAD by tenure-track and contingent faculty at the Department of Physics, which will seek a new tenure-track hire in Professor Bill Greenwood's tenure line after his retirement at the end of this academic year.

- c. Will any current faculty serve in the proposed program? If so, how will this new commitment be accommodated in their teaching load?

Yes, the Physics faculty will be involved in the program (some of the proposed ENGR courses will be PHYS courses that are currently taught by the Department of Physics, with a new ENGR designation). If we are given a full faculty line (a replacement for Bill Greenwood's tenure-track line), the physics department will be able to also cover the two ENGR courses that will be transferred from the Department of Computer Science. There will be no increase in faculty teaching load.

- d. Identify the number and type (contingent, tenure-track) of *new* faculty necessary to deliver the program.

With a full faculty line replacing Dr. Bill Greenwood (currently at 0.5 FTE) after his retirement at the end of the 2019-2020 academic year, we will be able to absorb the 0.375 FTE corresponding to transferring CSCI 131 and 331 to ENGR 131 and 355, and cover all the courses associated with the program in-load.

- e. If new faculty are required, provide a recruitment plan and timeline, including comments addressing the challenges of filling positions with small hiring pools or where market premia might be required

We will need to recruit a new faculty at the 1.0 FTE level to replace Dr. Bill Greenwood after his retirement at the end of AY 2019-2020. Ideally, this will be a tenure-track position, and we will conduct the search from the usual hiring pools of Physics faculty.

- f. Describe plans for providing administrative support for the program. Identify any new administrative positions or organizational rearrangements in staff needed to accommodate the new program.

No additional administrative staff or course releases will be required. The administrative support of the program will be incorporated in the duties of the Chair of Physics, the 3-2 Dual-Degree Engineering Director, and the existing capacity within the Office of Alumni and Student Connections, assisted by the other members of the Department of Physics and the members of the Advisory Board of the Engineering and Industry Minor (consisting of volunteers).

10. Facility and Technology Needs – Includes but not limited to classroom, office, studio, laboratory, storage, technology, and computer labs.

- a. Describe any new construction or facility renovations necessary to launch or maintain the program and the associated expenses.

None

- b. Describe any furniture and/or equipment necessary to launch or maintain the program.

None

- c. Explain any special security considerations associated with the program.

None

- d. Identify possible health and safety concerns associated with the program.

None

11. Library Resources:

- a. Describe library resources needed to support the program, including print books, electronic materials, and other library resources.

No additional library resources.

- b. Does the new program require access to library resources not already available? Are these mandated by any program accreditation?

No.

- c. If program is fully online or blended, describe how library resources will be delivered to students. Include expenses for postage, photocopying, etc.

N/A.

12. Student Services—Are there any changes in existing student services needed to accommodate the program? Will adding the program result in changes in service provision to the rest of the student body? Where might additional resources be necessary, and what are the projected expenses for those resources?

- a. Financial aid

None.

- b. Registration

None.

- c. Center for Student Success (advising, tutoring)

None.

d. Other

Alumni and Student Connections may need to help students with career placement (internships) in coordination with the program's Advisory Board, consisting of volunteers.

13. Budget. Use information from the questions above to complete the table. Please see footnotes for additional information.

Year	Year Zero	Academic Year 1	Academic Year 2	Academic Year 3	Academic Year 4
# Students in Program	0	3 – 5	6 – 10	9 – 15	9 – 15
# Faculty FTE to Deliver Program	0	0.8	0.8	0.8	0.8
# New Faculty FTE to Deliver Program	0	0	0	0	0
Average Faculty Salary in unit ^v	0	\$77,000	\$77,000	\$77,000	\$77,000
# Administrators or Staff ^v	0	0	0	0	0
# New Administrators or Staff ^{vi}	0	0	0	0	0
Average Administrator or Staff Salary ^{vi}	0	0	0	0	0
Services & Purchases ^{viii}	0	\$5,000	\$5,000	\$5,000	\$5,000
Facility and Technology ^{ix}	\$10,000	0	0	0	0
Library Resources ^v	0	0	0	0	0
Student Services ^{vi}	0	0	0	0	0
Net	\$10,000	\$66,600	\$66,600	\$66,600	\$66,600

- i. Identify the projected number of students *declared* in the new program for each of the first four years of the program.
- ii. Identify projected faculty FTE for each of the first four years of the program.
- iii. Identify the number of additional (new) faculty FTE (whether new of contingent) necessary to add in each of the first four years of the program.
- iv. Identify average faculty salary in the proposed program in consultation with the Provost’s Office.
- v. Indicate the projected staff/administrator FTE for each of the first four years of the program.
- vi. Identify the number of additional (new) staff/administrator FTE necessary to add in each of the first four years of the program.
- vii. Indicate the average staff/administrator salary.
- viii. Indicate the annual services and purchases budget required for each of the first four years of the program, including any projected expenditures required for start-up expenses. *Itemize these expenses in an attached narrative.*
- ix. Estimate facilities and technology expenses for each of the first four years of the program.

- x. Estimate library expenses for each of the first four years of the program.
- xi. Estimate student services expenses

14. Risk management

Describe the major risk considerations of the plan and the steps that could be taken to mitigate or minimize the risk and still implement a successful plan. For example, if applicable, the plan may encounter problems associated with items such as negotiating a lease contract, obtaining city or government approvals, obtaining accreditation approval, etc.

The Engineering and Industry Minor is based on courses that are already taught on a regular basis at PLU. We are only adding a 1-credit *Engineering and Industry Professional Development* course², which we may stop offering if there are no students.

15. Accountability and Exit Strategy:

- a. Outline the steps that will be taken to review whether the program is meeting its enrollment and revenue targets, including the timeline for such review. For new undergraduate programs, provide a 5-year timeline; for new graduate programs, provide a 3-year timeline.

Conduct an annual review based on the Budget table in Section 13. The review will include monitoring the continual growth of the Minor by looking at the number of minors annually. These data will be included and discussed as a part of the Department of Physics annual report.

- b. Provide an exit strategy, including a general timeline for deciding whether to terminate or continue the program and a plan for teaching out the program.

If the Minor falls short of the benchmarks specified in the Budget table in Section 13, we will stop offering the *Engineering Internship* course on a regular basis, and will phase out the program for maximum of 3 years.

- c. Identify who will be responsible for providing accountability and oversight for the program meeting its enrollment and revenue targets.

At first, the program will be administered by the Chair of Physics and the 3-2 Dual-Degree Engineering Director with the help of the other members of the Department of Physics.

16. Communications Checklist. The persons/offices listed below should be consulted as the proposal is prepared.

² Another possible name would be *Post-Experience Reflection* course.

	Signature	Date	Level of Support: <ul style="list-style-type: none"> • Support • Undecided • Do not support
Chair	<i>Reginald E. Givens</i>	5/17/20	SUPPORT
Dean	<i>Ann J. Herman, Ph.D.</i>	5/18/2020	SUPPORT
Associate Provost for Undergraduate or Graduate Studies, as appropriate			
Provost			
Accreditation Liaison Officer			
Director of the Library			
Registrar			
Student Financial Services			
Director of Admission			
Executive Director Center for Student Success			
Vice President for Administrative Services			

May 2019



Carol Bautista <bautisca@plu.edu>

EPC Proposal: Engineering & Industry Minor--Need Your "Signature"

8 messages

Ann Auman <aumanaj@plu.edu>

Fri, Sep 25, 2020 at 1:52 PM

To: Jan Lewis <lewisjp@plu.edu>, Joanna Gregson <gregsojg@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Kelly Poth <kpoth@plu.edu>, Mike Frechette <frechemt@plu.edu>, Melody Ferguson <fergusma@plu.edu>, Kristin Plaehn <plaehnhk@plu.edu>, Teri Phillips <phillitp@plu.edu>
Cc: Faculty Governance <facgov@plu.edu>

Colleagues,

This is the first of 2-3 EPC proposals I will be sharing with you coming out of the Natural Sciences Division. This is for a minor in Engineering & Industry to be offered by the Physics Department.

In lieu of you all actually signing the same piece of paper in the era of COVID-19, Svend Ronning of EPC and Carol Bautista have indicated that you can instead **send a message to facgov@plu.edu indicating whether you support, are undecided, or do not support this proposal by the 10/1 deadline.**

Because I am not physically walking around with a piece of paper to get your signatures, I would appreciate it if you could please cc or bcc me or send me an e-mail when you send your message to facgove@plu.edu. That way, I will know that you have completed this task.

Many thanks!

Best,
Ann

--

Ann J. Auman, Ph.D.
Dean of Natural Sciences
Professor of Biology
Pacific Lutheran University
Tacoma, WA 98447
Office Phone: 253-535-8485
Pronouns: she, her, hers

4 attachments



epc-proposal-form-updated-may-2019-ENGR_200516 - Signed.pdf
365K



institutional-impact-evaluation-form-rev-may-2019_200516 - Signed.pdf
513K



Final -- First Year Breakout Report -- Fall 2019 -- As of September 20 2.pdf
403K



Engineering Completions PNW 2014-2018 - AAuman.xlsx
1418K

Kristin Plaehn <plaehnhk@plu.edu>

Sun, Sep 27, 2020 at 7:43 PM

To: Ann Auman <aumanaj@plu.edu>

Cc: Jan Lewis <lewisjp@plu.edu>, Joanna Gregson <gregsojg@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Kelly Poth <kpoth@plu.edu>, Mike Frechette <frechemt@plu.edu>,

Melody Ferguson <fergusma@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

Approved. I think it will be popular . kp

[Quoted text hidden]

--

Kris Plaehn,

Executive Director, Center for Student Success and Director for Retention - PLU

"There's no such thing as ruining your life. Life's a pretty resilient thing, it turns out." Sophie Kinsella

Schedule an appointment: <https://plu.libcal.com/appointments/kris>

This e-mail message, including any attachment(s), is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and protected from disclosure under applicable law. If the reader of this message is not the intended recipient or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution copying or action taken in reliance with this e-mail is strictly prohibited. If you have received this in error, please contact the sender immediately and delete the material from any computer.

Joanna Gregson <gregsojg@plu.edu>

Mon, Sep 28, 2020 at 10:40 AM

To: Kristin Plaehn <plaehnhk@plu.edu>

Cc: Ann Auman <aumanaj@plu.edu>, Jan Lewis <lewisjp@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Kelly Poth <kpoth@plu.edu>, Mike Frechette <frechemt@plu.edu>, Melody Ferguson <fergusma@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

Replying all with my support, since the intent of this form was for folks to see others' support/questions.

Best,

Joanna

[Quoted text hidden]

--

Joanna Gregson, Ph.D.

Provost and Senior Vice President for Academic Affairs

Professor of Sociology

[Quoted text hidden]

Melody Ferguson <fergusma@plu.edu>

Mon, Sep 28, 2020 at 1:06 PM

To: Joanna Gregson <gregsojg@plu.edu>

Cc: Kristin Plaehn <plaehnhk@plu.edu>, Ann Auman <aumanaj@plu.edu>, Jan Lewis <lewisjp@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Kelly Poth <kpoth@plu.edu>, Mike Frechette <frechemt@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

Also replying all with my support. Thanks Ann to you and your faculty for your work on this proposal.

Melody

[Quoted text hidden]

--

Melody Ferguson

Associate Dean of Admission

Pacific Lutheran University

[Schedule a virtual meeting with me!](#)

Instagram: @plu.melody

253.535.7707 call/text | 253-536-5136 fax

mferguson@plu.edu | www.plu.edu

Kelly Gaspar Poth <kpoth@plu.edu>

Mon, Sep 28, 2020 at 1:33 PM

To: Melody Ferguson <fergusma@plu.edu>
Cc: Joanna Gregson <gregsojg@plu.edu>, Kristin Plaehn <plaehnhk@plu.edu>, Ann Auman <aumanaj@plu.edu>, Jan Lewis <lewisjp@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Mike Frechette <frechemt@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

I supported this directly to FacGov earlier but for the good of the group, I support this.

Best,
Kelly

--
Kelly Gaspar Poth | Registrar
Office of the Registrar
Pacific Lutheran University
kpoth@plu.edu
253.535.7139 phone

Comparison is the thief of joy. ~Theodore Roosevelt

[Quoted text hidden]

Mike Frechette <frechemt@plu.edu> Mon, Sep 28, 2020 at 1:34 PM
To: Kelly Gaspar Poth <kpoth@plu.edu>
Cc: Melody Ferguson <fergusma@plu.edu>, Joanna Gregson <gregsojg@plu.edu>, Kristin Plaehn <plaehnhk@plu.edu>, Ann Auman <aumanaj@plu.edu>, Jan Lewis <lewisjp@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

Ditto - I support! Exciting.

Mike
[Quoted text hidden]

--
Mike Frechette
Dean of Enrollment Management & Student Financial Services
Pacific Lutheran University
Hauge Administration Building
[12180 Park Avenue South
Tacoma, WA 98447](https://www.plu.edu/12180-Park-Avenue-South-Tacoma-WA-98447)

Phone: 253.535.7161
Fax: 253.535.8406

Pronouns: he, him, his

K. McConnell <mconnke@plu.edu> Mon, Sep 28, 2020 at 1:36 PM
To: Mike Frechette <frechemt@plu.edu>
Cc: Kelly Gaspar Poth <kpoth@plu.edu>, Melody Ferguson <fergusma@plu.edu>, Joanna Gregson <gregsojg@plu.edu>, Kristin Plaehn <plaehnhk@plu.edu>, Ann Auman <aumanaj@plu.edu>, Jan Lewis <lewisjp@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

I am also submitting my "signature" on the Accreditation Liaison Officer line. Thanks -

[Quoted text hidden]
--
Karen E. McConnell, Ph.D., CHES
Dean, School of Education and Kinesiology

Accreditation Liaison Officer, NWCCU
Professor of Kinesiology
Pacific Lutheran University
Tacoma, WA 98447-0003

*NCHEC Certified Health Education Specialist
ACE Group Fitness Instructor
ACE Senior Exercise Specialist*

Teri Phillips <phillitp@plu.edu>

Mon, Sep 28, 2020 at 1:56 PM

To: "K. McConnell" <mconnke@plu.edu>

Cc: Mike Frechette <frechemt@plu.edu>, Kelly Gaspar Poth <kpoth@plu.edu>, Melody Ferguson <fergusma@plu.edu>, Joanna Gregson <gregsojg@plu.edu>, Kristin Plaehn <plaehnh@plu.edu>, Ann Auman <aumanaj@plu.edu>, Jan Lewis <lewisjp@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Faculty Governance <facgov@plu.edu>

I am also submitting my signature to the proposal. ~Teri

[Quoted text hidden]

--

Teri Phillips, MBA
Chief Operating Officer
Pacific Lutheran University
Tacoma, WA 98447
253.535.7187

Pronouns: she, her, hers



Carol Bautista <bautisca@plu.edu>

EPC Proposals

1 message

Francesca Lane Rasmus <lanerafr@plu.edu>

Mon, Sep 28, 2020 at 10:06 AM

To: Carol Bautista <facgov@plu.edu>

Cc: Ann Auman <aumanaj@plu.edu>

The library supports the following EPC proposals:

Engineering and Industry Minor
Interdisciplinary Studies
Natural Sciences

Fran Lane Rasmus

Francesca Lane Rasmus
Director of the Library
Associate Professor
Mortvedt Library
Pacific Lutheran University
Tacoma, WA 98447
253.535.7141
lanerafr@plu.edu

PIU Library



Carol Bautista <bautisca@plu.edu>

Engineering & Industry Minor

1 message

Kelly Gaspar Poth <kpoth@plu.edu>

Fri, Sep 25, 2020 at 2:10 PM

To: Faculty Governance <facgov@plu.edu>

Greetings Faculty Governance,
Please accept this email in lieu of my signature on the Institution Impact Evaluation form for the Engineering & Industry minor.
Thank you,
Kelly

--

Kelly Gaspar Poth | Registrar
Office of the Registrar
Pacific Lutheran University
kpoth@plu.edu
253.535.7139 phone

Comparison is the thief of joy. ~Theodore Roosevelt



Carol Bautista <bautisca@plu.edu>

EPC Proposal: Engineering & Industry Minor--Need Your "Signature"

Jan Lewis <lewisjp@plu.edu>

Wed, Sep 30, 2020 at 11:11 AM

To: Ann Auman <aumanaj@plu.edu>

Cc: Joanna Gregson <gregsojg@plu.edu>, "K. McConnell" <mconnke@plu.edu>, Francesca Lane Rasmus <lanerafr@plu.edu>, Kelly Poth <kpoth@plu.edu>, Mike Frechette <frechemt@plu.edu>, Melody Ferguson <fergusma@plu.edu>, Kristin Plaehn <plaehnhk@plu.edu>, Teri Phillips <phillitp@plu.edu>, Faculty Governance <facgov@plu.edu>

Hi, Ann,
Adding my signature of approval.
Thanks for pulling this all together,
jan

On Fri, Sep 25, 2020 at 1:52 PM Ann Auman <aumanaj@plu.edu> wrote:

[Quoted text hidden]

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Dr. Jan Lewis
Associate Provost for Undergraduate Programs
Professor of Education
Pacific Lutheran University
Tacoma, WA 98447
253-535-7283

FIRST YEAR TOTAL

APPLICATIONS

Date	2019	2018	2017	2016	2015
22-Oct	529	380	381	366	309
29-Oct	693	517	508	457	395
5-Nov	1024	806	731	658	593
12-Nov	1228	1026	879	854	804
19-Nov	1730	1530	1324	1558	1664
26-Nov	1830	1593	1403	1700	1778
3-Dec	2324	2100	1947	2016	2048
10-Dec	2429	2247	2065	2166	2146
21-Dec	2683	2493	2292	2409	2334
7-Jan	2951	2698	2594	2697	2589
14-Jan	3140	2908	2783	2906	2756
22-Jan	3541	3255	3097	3225	3068
28-Jan	3583	3314	3164	3282	3132
5-Feb	3688	3373	3264	3394	3240
25-Feb	3812	3499	3393	3508	3376
4-Mar	3839	3537	3435	3564	3432
11-Mar	3867	3564	3472	3587	3468
18-Mar	3886	3585	3491	3628	3490
25-Mar	3908	3612	3517	3646	3510
1-Apr	3923	3625	3538	3662	3526
8-Apr	3940	3646	3552	3681	3542
15-Apr	3954	3661	3560	3694	3549
22-Apr	3963	3670	3567	3710	3562
29-Apr	3971	3685	3572	3719	3572
6-May	3977	3697	3585	3724	3582
13-May	3989	3703	3593	3728	3593
20-May	3994	3709	3599	3735	3599
28-May	3998	3715	3603	3738	3601
4-Jun	4003	3720	3605	3740	3605
24-Jun	4010	3732	3616	3755	3612
1-Jul	4014	3734	3616	3758	3617
15-Jul	4018	3737	3620	3764	3618
29-Jul	4019	3738	3624	3766	3619
5-Aug	4019	3739	3627	3768	3620
12-Aug	4019	3740	3628	3769	3621
19-Aug	4019	3740	3628	3769	3621
1-Sep	4019	3740	3629	3769	3622
20-Sep	4019	3740	3629	3769	3622

ADMITS

2019	2018	2017	2016	2015
20	52	66	53	64
124	102	100	104	127
186	168	215	201	169
326	283	319	380	280
569	405	494	476	426
734	590	704	684	669
960	786	774	876	743
1119	990	1060	1069	879
1563	1517	1434	1483	1213
1644	1609	1601	1688	1480
1834	1799	1801	1839	1613
2055	1954	1910	2058	1825
2213	2052	2095	2243	1947
2411	2227	2211	2385	2149
2613	2510	2431	2623	2379
2765	2649	2481	2674	2438
2846	2726	2535	2709	2498
2895	2754	2567	2753	2546
2971	2800	2596	2772	2586
2966	2817	2622	2794	2602
3041	2849	2640	2813	2630
3069	2877	2657	2838	2643
3107	2892	2674	2854	2658
3114	2922	2688	2862	2680
3121	2931	2701	2867	2688
3134	2940	2707	2873	2698
3143	2948	2711	2879	2709
3145	2959	2712	2882	2713
3148	2963	2718	2883	2716
3156	2973	2726	2890	2725
3158	2976	2726	2890	2727
3160	2979	2727	2891	2729
3163	2982	2732	2895	2732
3166	2982	2732	2895	2733
3166	2983	2733	2896	2733
3166	2984	2735	2896	2735
3165	2984	2736	2896	2737
3165	2984	2736	2896	2737

DEPOSITS

2019	2018	2017	2016	2015
5	2	11	4	2
5	3	12	4	3
7	13	15	4	8
10	18	20	8	8
17	23	24	14	9
20	29	25	18	11
25	37	28	22	15
28	44	34	24	19
36	55	49	38	29
53	73	71	62	46
67	84	87	77	55
88	97	103	85	61
101	112	112	97	69
125	124	126	111	87
161	170	178	158	129
190	201	212	174	149
216	213	237	203	174
242	247	257	240	203
269	276	285	280	240
290	312	315	325	286
332	361	364	374	332
399	434	434	429	402
468	496	490	510	479
558	591	586	644	583
623	646	638	708	651
627	650	639	713	659
629	657	637	711	660
628	657	638	714	665
627	660	638	717	663
631	665	647	715	671
630	664	644	713	664
631	666	640	712	662
628	668	640	712	663
625	670	637	707	661
624	670	635	702	659
620	665	634	703	656
613	653	630	684	656
597	649	619	678	643

REGISTERED

488	627	609	682	631
565	645	620	689	643
594	654	624	689	644
596	655	626	688	645
603	656	626	689	644
606	657	624	690	641
605	652	624	681	646
597	649	619	678	643

MALE

APPLICATIONS

Date	2019	2018	2017	2016	2015
22-Oct	166	123	101	97	103
29-Oct	220	169	142	123	132
5-Nov	343	273	219	189	210
12-Nov	409	364	260	247	272
19-Nov	567	544	394	466	532
26-Nov	607	568	422	511	562
3-Dec	775	735	591	625	659
10-Dec	813	788	638	678	696
7-Jan	1035	965	858	885	888
22-Jan	1275	1205	1075	1128	1095
28-Jan	1297	1233	1104	1154	1132
5-Feb	1359	1260	1150	1203	1187
25-Feb	1422	1328	1213	1252	1252
4-Mar	1437	1349	1233	1289	1283
11-Mar	1451	1361	1253	1302	1302
18-Mar	1459	1371	1263	1325	1312
25-Mar	1476	1384	1277	1332	1323
1-Apr	1485	1389	1286	1338	1333
8-Apr	1493	1397	1295	1347	1341
15-Apr	1499	1406	1300	1353	1346
22-Apr	1504	1409	1304	1359	1353
29-Apr	1506	1418	1306	1365	1361
6-May	1513	1425	1314	1368	1365
13-May	1519	1426	1319	1369	1370
20-May	1522	1428	1323	1374	1371
28-May	1524	1433	1325	1376	1373
3-Jun	1525	1434	1327	1376	1373
24-Jun	1527	1441	1333	1387	1375
1-Jul	1530	1443	1333	1390	1380
15-Jul	1532	1443	1336	1394	1381
29-Jul	1535	1443	1338	1395	1381
5-Aug	1535	1443	1341	1395	1381
12-Aug	1535	1444	1342	1396	1381
19-Aug	1536	1444	1342	1396	1381
1-Sep	1536	1444	1343	1396	1381
20-Sep	1536	1444	1343	1396	1381

ADMITS

2019	2018	2017	2016	2015
6	13	23	19	20
27	29	30	30	34
49	54	52	51	50
90	95	86	89	95
156	138	139	126	139
217	199	203	194	214
291	268	221	256	243
334	338	312	324	293
503	541	474	515	461
650	674	602	649	602
714	712	681	724	654
796	788	722	783	745
871	900	809	885	848
932	968	829	913	881
970	1011	858	926	904
997	1023	871	943	929
1029	1048	887	952	945
1045	1054	898	965	954
1066	1064	906	976	969
1081	1079	914	992	974
1104	1085	922	998	981
1107	1098	929	1002	995
1113	1101	936	1005	998
1118	1104	940	1009	1003
1122	1107	943	1012	1010
1126	1111	944	1015	1012
1127	1112	947	1015	1013
1133	1118	951	1018	1017
1134	1119	951	1018	1019
1136	1120	951	1019	1020
1137	1120	956	1021	1022
1138	1120	956	1021	1023
1138	1121	957	1021	1023
1139	1121	957	1021	1024
1139	1121	958	1021	1024
1139	1121	958	1021	1024

DEPOSITS

2019	2018	2017	2016	2015
2	1	3	2	1
2	2	3	2	2
2	6	4	2	5
3	7	4	3	5
3	9	5	4	5
3	12	5	6	5
4	14	5	6	6
5	18	8	6	8
11	27	17	11	14
26	33	26	19	16
30	42	29	22	18
39	46	33	26	22
51	58	52	46	40
62	66	59	53	49
72	74	62	61	56
78	82	70	79	61
88	94	78	94	75
92	111	91	108	91
109	126	116	128	108
133	151	148	148	126
162	165	165	174	158
190	205	201	225	211
221	217	220	250	241
223	219	219	256	244
224	223	218	256	246
224	224	217	257	249
224	225	218	257	249
224	224	224	258	254
224	223	222	258	253
225	226	220	256	254
226	227	222	257	257
224	228	222	254	255
223	229	221	251	255
221	226	222	252	253
219	221	222	243	254
213	221	216	241	248

REGISTERED

169	210	209	241	238
201	214	215	244	245
212	218	218	245	246
213	218	218	246	247
216	219	219	245	247
216	222	218	246	247
216	221	219	241	249
213	221	216	241	248

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
1	1st GEN																										
2	APPLICATIONS						ADMITS					DEPOSITS															
3	Date	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015											
4	22-Oct	174	109	124	94	83	10	4	15	12	17	3	0	3	1	1											
5	29-Oct	224	151	161	121	110	33	13	22	25	26	3	0	4	1	1											
6	5-Nov	335	244	225	177	165	46	31	51	40	36	4	1	3	1	1											
7	12-Nov	411	334	271	235	232	81	62	75	65	58	4	3	6	1	1											
8	19-Nov	646	513	414	606	494	144	93	118	93	86	7	6	7	2	1											
9	26-Nov	694	537	451	662	543	191	128	170	139	141	9	6	7	3	1											
10	3-Dec	821	823	736	775	628	285	191	194	195	157	8	9	3	2	2											
11	10-Dec	934	878	794	843	662	368	257	273	255	193	11	10	10	3	3											
12	7-Jan	1263	1085	1029	1054	839	576	522	512	556	390	23	17	21	19	7											
13	22-Jan	1610	1387	1267	1296	1053	778	676	633	700	499	38	27	29	24	10											
14	28-Jan	1633	1422	1307	1330	1078	851	719	709	791	543	42	31	33	29	11											
15	5-Feb	1692	1452	1360	1387	1125	947	801	462	857	629	52	37	35	33	15											
16	25-Feb	1756	1514	1426	1449	1188	1043	938	862	954	725	63	52	57	56	27											
17	4-Mar	1778	1531	1446	1474	1215	1117	998	893	977	749	78	70	70	61	32											
18	11-Mar	1796	1546	1464	1486	1228	1159	1030	920	999	767	89	76	81	72	37											
19	18-Mar	1806	1554	1477	1509	1236	1182	1039	930	1023	786	99	94	86	82	46											
20	25-Mar	1821	1571	1489	1521	1248	1234	1069	943	1029	805	110	107	91	101	57											
21	1-Apr	1827	1576	1498	1526	1256	1248	1080	956	1039	814	118	117	103	122	74											
22	8-Apr	1834	1582	1502	1537	1266	1273	1095	967	1046	823	130	131	118	138	91											
23	15-Apr	1843	1589	1508	1544	1269	1284	1106	973	1058	827	157	155	156	154	112											
24	22-Apr	1848	1593	1510	1551	1271	1307	1118	979	1062	834	190	183	183	191	137											
25	29-Apr	1851	1601	1512	1556	1277	1311	1133	988	1066	846	225	229	225	239	176											
26	6-May	1855	1606	1516	1558	1284	1314	1138	992	1070	848	265	257	250	273	209											
27	13-May	1861	1610	1518	1560	1292	1318	1141	996	1071	852	267	260	249	274	209											
28	20-May	1865	1614	1522	1566	1294	1324	1144	998	1073	856	268	264	250	276	209											
29	28-May	1868	1620	1524	1566	1294	1326	1152	998	1073	857	268	265	250	278	212											
30	3-Jun	1869	1622	1524	1567	1295	1328	1155	1002	1074	857	266	267	248	281	210											
31	24-Jun	1869	1624	1526	1571	1296	1331	1159	1004	1077	859	271	271	256	284	213											
32	1-Jul	1873	1635	1526	1573	1297	1333	1161	1004	1077	860	271	271	256	283	211	REGISTERED										
33	15-Jul	1873	1626	1528	1575	1301	1333	1162	1004	1078	865	270	273	254	283	214	195	256	238	268	200						
34	29-Jul	1876	1626	1529	1576	1302	1333	1161	1006	1078	865	269	272	256	284	214	235	263	245	273	210						
35	5-Aug	1876	1627	1530	1577	1302	1334	1161	1006	1078	865	269	272	254	282	213	250	268	248	274	209						
36	12-Aug	1876	1627	1530	1578	1303	1334	1161	1006	1079	865	266	272	251	279	213	252	268	247	272	209						
37	19-Aug	1873	1626	1530	1578	1303	1331	1161	1007	1079	866	261	270	250	280	211	255	268	243	276	209						
38	1-Sep	1871	1626	1531	1578	1303	1331	1161	1008	1079	867	255	265	248	275	210	253	264	243	275	209						
39	20-Sep	1870	1626	1531	1578	1303	1330	1161	1008	1079	867	250	263	238	272	206	250	263	238	272	206						

LUTHERAN

Date	APPLICATIONS					ADMITS					DEPOSITS				
	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015
22-Oct	64	52	60	68	60	3	9	14	13	11	1	1	2	1	0
29-Oct	78	69	79	83	70	12	19	23	27	26	1	1	3	1	0
5-Nov	118	93	112	119	104	17	28	38	47	34	1	4	5	1	2
12-Nov	133	110	133	148	137	36	46	55	72	58	1	5	8	2	2
19-Nov	167	166	188	212	221	61	62	82	101	92	2	5	8	3	3
26-Nov	178	172	193	234	237	85	77	119	141	132	3	7	9	3	4
3-Dec	201	205	229	279	282	106	98	124	173	151	4	9	9	6	4
10-Dec	209	218	237	292	294	127	122	164	206	173	4	9	11	6	5
7-Jan	243	253	280	350	351	174	175	2016	257	267	7	16	18	12	14
22-Jan	273	277	311	387	396	200	204	240	295	309	9	18	23	19	19
28-Jan	276	281	313	392	401	215	211	257	314	324	12	18	23	22	20
5-Feb	279	285	320	402	408	231	220	263	327	343	15	20	25	24	24
25-Feb	286	293	326	412	415	239	232	270	348	361	19	28	29	35	34
4-Mar	286	294	328	413	419	248	239	276	352	365	22	34	31	37	39
11-Mar	288	296	329	412	423	253	247	281	354	370	25	35	35	39	48
18-Mar	288	296	329	412	424	253	249	282	357	376	29	40	35	47	54
25-Mar	289	297	330	413	428	255	253	283	359	377	34	41	42	52	63
1-Apr	289	297	330	416	430	255	254	284	360	380	37	46	45	59	70
8-Apr	291	301	332	416	433	256	255	284	361	382	45	51	50	65	81
15-Apr	292	301	332	418	433	257	257	284	363	382	54	62	61	76	93
22-Apr	293	301	333	419	433	261	259	284	364	383	62	66	66	84	106
29-Apr	294	301	335	420	434	262	260	284	367	384	69	77	79	106	112
6-May	294	302	336	420	434	262	261	286	367	384	77	78	82	113	121
13-May	294	302	338	420	435	262	261	286	368	384	77	78	82	113	123
20-May	294	302	338	420	435	262	262	287	369	385	77	78	80	112	123
28-May	294	303	339	420	435	261	262	287	370	385	76	78	80	112	122
3-Jun	295	303	339	420	435	261	262	288	371	386	77	78	80	111	121
24-Jun	295	303	341	423	436	262	263	289	372	386	77	78	80	111	121
1-Jul	295	303	341	423	436	262	263	289	372	386	77	78	80	110	119
15-Jul	295	303	341	423	436	263	263	289	372	386	78	78	80	111	118
29-Jul	295	303	342	423	436	263	263	290	372	386	78	78	80	111	118
5-Aug	295	303	342	424	436	263	263	290	372	386	78	78	80	111	117
12-Aug	295	303	342	424	436	263	263	290	373	386	77	78	80	109	117
19-Aug	295	303	342	424	436	263	263	290	373	386	77	77	80	110	117
1-Sep	295	303	342	424	436	263	263	290	373	386	77	76	80	107	116
20-Sep	295	303	342	424	436	263	263	290	373	386	75	75	80	107	116

REGISTERED				
65	75	79	107	113
72	77	79	109	116
75	77	80	109	116
75	77	80	110	116
76	77	80	108	116
71	77	80	108	116
77	76	80	107	116
75	75	80	107	116



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	STUDENTS OF COLOR																							
2	APPLICATIONS						ADMITS					DEPOSITS												
3	Date	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015								
4	22-Oct	178	112	118	77	86	4	11	13	7	12	1	0	3	0	1								
5	29-Oct	217	163	160	99	122	39	25	22	18	26	1	0	3	0	1								
6	5-Nov	309	260	235	170	181	65	41	59	40	36	2	1	2	0	1								
7	12-Nov	405	356	279	229	238	107	66	84	66	67	3	1	4	0	1								
8	19-Nov	612	555	455	600	716	180	102	137	100	108	4	2	5	2	1								
9	26-Nov	651	590	495	653	759	242	152	211	147	163	0	4	5	2	1								
10	3-Dec	983	932	813	784	862	335	222	18	201	180	7	7	7	2	2								
11	10-Dec	1066	1009	871	850	903	425	300	341	256	226	7	8	7	2	2								
12	7-Jan	1351	1245	1121	1083	1088	665	624	623	585	496	14	18	19	12	6								
13	22-Jan	1627	1560	1382	1337	1310	898	795	757	750	627	23	26	29	16	7								
14	28-Jan	1683	1600	1423	1361	1333	991	841	828	830	679	26	31	30	19	9								
15	5-Feb	1768	1625	1482	1419	1385	1093	937	892	886	763	37	34	34	24	13								
16	25-Feb	1873	1696	1533	1478	1446	1189	1089	998	992	865	51	50	46	33	25								
17	4-Mar	1894	1716	1549	1504	1475	1265	1153	1028	1018	894	67	62	62	41	28								
18	11-Mar	1917	1728	1563	1514	1490	1319	1194	1044	1035	919	78	68	71	53	32								
19	18-Mar	1926	1742	1574	1536	1498	1344	1204	1056	1058	936	88	83	79	63	39								
20	25-Mar	1935	1760	1590	1546	1507	1392	1232	1073	1062	965	98	94	89	79	46								
21	1-Apr	1939	1767	1597	1552	1517	1400	1244	1085	1073	970	102	110	100	89	63								
22	8-Apr	1948	1775	1604	1562	1529	1424	1264	1094	1081	980	114	131	114	115	76								
23	15-Apr	1954	1783	1608	1564	1532	1434	1281	1097	1091	986	147	162	146	129	104								
24	22-Apr	1958	1787	1612	1573	1536	1455	1291	1108	1093	993	184	195	169	159	124								
25	29-Apr	1960	1797	1613	1576	1539	1457	1305	1114	1095	1003	220	248	208	216	163								
26	6-May	1967	1805	1618	1579	1546	1464	1311	1121	1097	1006	268	280	238	246	198								
27	13-May	1976	1809	1622	1581	1551	1472	1317	1125	1099	1009	274	284	238	245	202								
28	20-May	1978	1812	1623	1587	1553	1477	1324	1126	1100	1011	275	285	239	245	203								
29	28-May	1979	1816	1625	1587	1554	1477	1328	1127	1101	1014	276	286	241	246	206								
30	3-Jun	1980	1816	1626	1587	1558	1478	1332	1128	1101	1016	275	287	239	248	206								
31	24-Jun	1981	1822	1628	1596	1559	1480	1334	1132	1105	1020	280	294	246	249	210	REGISTERED							
32	1-Jul	1982	1822	1628	1598	1561	1480	1335	1132	1105	1021	280	294	246	246	207	210	274	233	235	195			
33	15-Jul	1983	1824	1630	1600	1561	1481	1336	1132	1105	1022	280	295	245	245	207	246	285	237	239	200			
34	29-Jul	1984	1825	1633	1602	1561	1481	1339	1133	1107	1024	279	297	244	245	209	256	288	237	239	201			
35	5-Aug	1984	1825	1635	1602	1561	1482	1339	1133	1107	1025	278	298	242	246	209	258	289	238	241	202			
36	12-Aug	1985	1825	1635	1603	1562	1483	1339	1133	1107	1025	277	298	240	246	208	262	289	236	243	202			
37	19-Aug	1985	1825	1635	1603	1562	1483	1339	1134	1107	1025	274	299	238	246	207	265	293	234	244	201			
38	1-Sep	1985	1825	1636	1603	1562	1483	1339	1135	1107	1026	273	292	237	238	207	266	291	234	238	202			
39	20-Sep	1985	1825	1636	1603	1562	1483	1339	1135	1107	1026	263	291	233	238	200	263	291	233	238	200			

MILITARY AFFILIATED

APPLICATIONS

ADMITS

DEPOSITS

Date	2019	2018	2017	2016	2015
22-Oct	41	21	33	33	17
29-Oct	45	30	44	34	22
5-Nov	49	38	54	47	26
12-Nov	58	48	63	64	37
19-Nov	68	78	91	85	58
26-Nov	74	83	96	94	58
3-Dec	81	107	120	105	67
10-Dec	100	111	123	110	70
7-Jan	126	131	145	138	89
22-Jan	147	167	166	167	102
28-Jan	156	169	169	168	106
5-Feb	176	173	175	173	111
25-Feb	199	181	181	178	117
4-Mar	201	184	182	181	121
11-Mar	203	188	187	182	122
18-Mar	203	189	189	186	123
25-Mar	203	189	190	187	125
1-Apr	204	190	191	188	129
8-Apr	204	192	192	191	131
15-Apr	208	192	192	192	131
22-Apr	208	192	192	194	131
29-Apr	209	192	193	194	131
6-May	209	193	194	195	132
13-May	211	193	195	196	133
20-May	211	193	195	196	133
29-May	212	193	196	196	133
3-Jun	213	193	196	196	133
24-Jun	214	194	197	197	135
1-Jul	214	194	197	197	135
15-Jul	214	194	197	198	135
29-Jul	214	194	198	199	136
5-Aug	214	194	199	199	136
12-Aug	214	194	199	199	137
19-Aug	214	194	199	199	137
1-Sep	214	194	199	199	138
20-Sep	215	194	199	199	138

2019	2018	2017	2016	2015
2	3	6	7	4
12	10	9	12	6
16	12	21	17	8
21	16	29	19	13
27	20	36	24	21
33	25	47	32	32
43	30	52	43	35
57	43	67	51	39
82	70	99	75	55
100	94	110	97	71
107	101	116	106	74
116	111	120	113	78
124	126	129	126	86
131	137	132	134	86
135	141	137	135	88
138	142	138	139	90
144	145	140	140	93
145	147	141	144	97
147	148	144	144	98
148	149	146	144	99
151	152	149	147	99
152	153	150	147	102
153	156	152	147	102
155	156	152	147	103
156	156	152	147	105
156	156	153	147	105
156	156	154	148	105
157	156	155	149	105
157	156	155	149	105
159	156	155	150	105
159	156	158	151	105
159	156	156	151	105
159	156	156	151	105
159	156	156	151	107
159	156	156	151	107

2019	2018	2017	2016	2015
0	1	1	1	0
0	2	1	1	0
1	4	1	1	0
1	4	2	2	0
1	4	3	4	0
1	4	4	5	0
3	4	4	5	0
3	5	4	5	1
7	8	8	9	2
7	11	14	9	2
7	15	15	9	4
13	15	15	10	5
14	18	25	14	7
16	20	28	15	8
17	21	30	16	9
18	24	34	16	9
21	27	35	17	10
24	27	38	23	12
26	31	41	27	14
29	37	48	29	16
34	39	52	33	21
39	45	59	46	22
43	49	62	48	27
43	49	62	49	26
43	49	61	49	26
44	49	61	48	26
43	49	62	48	27
44	50	65	48	27
44	48	64	48	24
46	48	64	48	23
46	49	64	47	24
46	49	63	47	24
45	49	62	45	24
45	48	62	45	24
45	48	62	44	25
44	48	62	43	25

REGISTERED

33	46	61	46	23
40	47	61	46	23
42	48	61	45	23
43	48	61	45	24
43	48	61	45	24
44	48	62	45	24
44	48	62	44	25
44	48	62	43**	25*

* If one combines the count of Admission's List with those from Neshell's List there were 32 Registered First Year Military Affiliated Students in Fall 2015

** If one combines the count of Admission's List with those from Neshell's List there were 48 Registered First Year Military Affiliated Students in Fall 2016.

Major Code	Major Description -- APPS>	2019	2018	2017	2016	2015
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Division of Humanities

ICLS	Intend Classics		1	3	1	7
ICTD	Intend Chinese Studies	3	2	4	4	3
IEGL	Intend English	70	51	65	66	61
IFRE	Intend French	4	2	3	6	8
IGRM	Intend German	6	3	2	5	1
IHON	Intend Honors					
ILAN	Intend Language	7	8	2	4	7
INOR	Intend Nordic Studies	1	1	3	1	
IPHI	Intend Philosophy	13	7	9	5	13
IREL	Intend Religion	6	7	10	6	20
ISPA	Intend Hispanic Studies	8	19	14	9	15
ISTD	Intend Scandinavian Studies		1	1	3	3
Total		118	102	116	110	138

Division of Natural Sciences

IBIO	Intend Biology	293	282	288	268	256
ICEN	Intend Computer Engineering				30	55
ICHE	Intend Chemistry	71	94	83	88	73
ICSI	Intend Computer Science	186	199	161	163	121
IENG	Intend 3-2 Engineering	191	188	153	144	146
IGSC	Intend Geoscience	10	14	13	6	13
IMAT	Intend Mathematics	48	51	63	52	44
IPYS	Intend Physics	31	33	30	31	22
ISCI	Intend Science, General		1	2	1	
Total		830	862	793	783	730

Division of Social Sciences

IANT	Intend Anthropology	28	32	26	23	31
IECO	Intend Economics	38	29	34	34	30
IHIS	Intend History	42	43	25	36	31
IPOL	Intend Political Science	63	74	80	66	75
IPSY	Intend Psychology	245	199	210	199	208
ISOC	Intend Sociology	55	39	40	61	48
ISWK	Intend Social Work	59	44	45	29	39
Total		530	460	460	448	462

School of Arts & Communication

IART	Intend Art & Design	74	52	81	61	69
ICOM	Intend Communication	113	92	106	98	117
IMUS	Intend Music	127	132	142	136	135
ITHE	Intend Theatre	72	56	37	52	42
Total		386	332	366	347	363

School of Business

IBUS	Intend Business	510	459	460	487	495
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School of Education and Kinesiology

IEDU	Intend Education	212	191	201	201	186
IPED	Intend Kinesiology	206	200	205	224	230
Total		418	391	406	425	416

School of Nursing

INUR	Intend Nursing	578	539	503	508	453
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Interdisciplinary Programs

IEVT	Intend Environmental Studies	62	63	66	56	60
IGST	Intend Global Studies	36	34	34	29	36
ILST	Intend Pre-Law	77	66	65	72	78
IPPH	Intend Pre-Health Sciences	291	339	294	325	313
IWGS	Intend Women's & Gender Studies	14	4	7	11	5
Total		480	506	466	493	492

blank	Unknown	169	89	59	169	74
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Total		4019	3740	3629	3770	3623
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Major Code	Major Description -- ADMITS>	2019	2018	2017	2016	2015
Division of Humanities						
ICLS	Intend Classics			2	1	4
ICTD	Intend Chinese Studies	2	1	4	2	3
IEGL	Intend English	61	41	50	60	50
IFRE	Intend French	4	1	1	3	7
IGRM	Intend German	4	2	2	4	1
IHON	Intend Honors					
ILAN	Intend Language	4	6	1	4	5
INOR	Intend Nordic Studies	1		2	1	
IPHI	Intend Philosophy	10	4	6	3	8
IREL	Intend Religion	5	6	5	4	11
ISPA	Intend Hispanic Studies	5	15	10	9	8
ISTD	Intend Scandinavian Studies		1	1	3	2
Total		96	77	84	94	99
Division of Natural Sciences						
IBIO	Intend Biology	249	233	240	215	217
ICEN	Intend Computer Engineering				14	37
ICHE	Intend Chemistry	63	83	66	69	61
ICSI	Intend Computer Science	141	153	117	124	84
IENG	Intend 3-2 Engineering	149	149	116	112	101
IGSC	Intend Geoscience	8	10	11	5	12
IMAT	Intend Mathematics	42	44	55	48	40
IPYS	Intend Physics	23	30	23	23	19
ISCI	Intend Science, General			1		
Total		675	702	629	610	571
Division of Social Sciences						
IANT	Intend Anthropology	21	28	19	17	26
IECO	Intend Economics	26	24	25	28	26
IHIS	Intend History	36	32	19	27	22
IPOL	Intend Political Science	49	65	65	55	60
IPSY	Intend Psychology	195	149	146	148	145
ISOC	Intend Sociology	47	26	31	42	38
ISWK	Intend Social Work	40	27	33	21	22
Total		414	351	338	338	339
School of Arts & Communication						
IART	Intend Art & Design	57	37	54	40	46
ICOM	Intend Communication	92	72	81	80	88
IMUS	Intend Music	106	106	111	105	106
ITHE	Intend Theatre	58	48	29	38	26
Total		313	263	275	263	266
School of Business						
IBUS	Intend Business	386	353	320	358	371
School of Education and Kinesiology						
IEDU	Intend Education	164	140	146	159	146
IPED	Intend Kinesiology	158	161	142	178	186
Total		322	301	288	337	332
School of Nursing						
INUR	Intend Nursing	478	431	400	395	333
Interdisciplinary Programs						
IEVT	Intend Environmental Studies	56	50	49	44	46
IGST	Intend Global Studies	29	28	29	25	32
ILST	Intend Pre-Law	46	42	35	44	45
IPPH	Intend Pre-Health Sciences	221	264	212	247	229
IWGS	Intend Women's & Gender Studies	13	3	5	9	4
Total		365	387	330	369	356
blank	Unknown	116	66	37	103	21
Total		3165	2931	2701	2867	2688

Major Code	Major Description -- DEPOSITED/ENROLLED>	2019	2018	2017	2016	2015
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Division of Humanities

ICLS	Intend Classics			1	1	2
ICTD	Intend Chinese Studies			1	1	1
IEGL	Intend English	12	11	15	13	13
IFRE	Intend French		1			3
IGRM	Intend German	2	1		1	
IHON	Intend Honors					
ILAN	Intend Language					
INOR	Intend Nordic Studies					
IPHI	Intend Philosophy	2		3		4
IREL	Intend Religion	2		1	2	2
ISPA	Intend Hispanic Studies		2	1	2	3
ISTD	Intend Scandinavian Studies			1		1
Total		18	15	23	20	29

Division of Natural Sciences

IBIO	Intend Biology	55	67	74	62	74
ICEN	Intend Computer Engineering					12
ICHE	Intend Chemistry	20	19	20	20	26
ICSI	Intend Computer Science	19	33	27	37	20
IENG	Intend 3-2 Engineering	18	25	14	16	18
IGSC	Intend Geoscience	1	1	4	1	4
IMAT	Intend Mathematics	9	11	18	19	11
IPYS	Intend Physics	6	8	2	2	6
ISCI	Intend Science, General					
Total		128	164	159	157	171

Division of Social Sciences

IANT	Intend Anthropology	2	4	4	3	7
IECO	Intend Economics	3	9	3	4	3
IHIS	Intend History	10	13		7	5
IPOL	Intend Political Science	16	18	23	24	18
IPSY	Intend Psychology	27	35	31	29	30
ISOC	Intend Sociology	14	6	8	5	11
ISWK	Intend Social Work	9	2	7	5	4
Total		81	87	76	77	78

School of Arts & Communication

IART	Intend Art & Design	14	6	13	7	8
ICOM	Intend Communication	15	9	23	11	16
IMUS	Intend Music	42	43	39	32	43
ITHE	Intend Theatre	22	18	10	9	6
Total		93	76	85	59	73

School of Business

IBUS	Intend Business	66	64	74	74	73
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School of Education and Kinesiology

IEDU	Intend Education	26	29	36	34	36
IPED	Intend Kinesiology	43	45	37	46	52
Total		69	74	73	80	88

School of Nursing

INUR	Intend Nursing	106	132	99	124	94
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Interdisciplinary Programs

IEVT	Intend Environmental Studies	4	13	6	15	12
IGST	Intend Global Studies	6	9	8	4	10
ILST	Intend Pre-Law		2	1	1	1
IPPH	Intend Pre-Health Sciences	3	5	8	5	7
IWGS	Intend Women's & Gender Studies	1		1		1
Total		14	29	24	25	31

blank	Unknown	22	8	6	62	6
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Total		597	649	619	678	643
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County -- APPS>	Side of WA	2019	2018	2017	2016	2015	% of Total for 2019
Adams	East	2	2		1	1	0.08%
Asotin	East	3	1	1	1	2	0.12%
Benton	East	27	31	28	23	20	1.07%
Chelan	East	11	15	11	11	14	0.43%
Clallam	West	26	21	28	24	31	1.03%
Clark	West	53	75	56	75	82	2.09%
Columbia	East	1	1				0.04%
Cowlitz	West	20	18	11	9	18	0.79%
Douglas	East	1	7	1	7	6	0.04%
Ferry	East	1			1		0.04%
Franklin	East	12	10	3	5	6	0.47%
Garfield	East				1		0.00%
Grant	East	2	4	3	9	7	0.08%
Gray's Harbor	West	16	17	14	18	6	0.63%
Island	West	16	20	12	27	16	0.63%
Jefferson	West	4	9	9	7	6	0.16%
King	West	827	743	678	738	669	32.66%
Kitsap	West	98	87	69	63	98	3.87%
Kittitas	East		1	3	3	9	0.00%
Klickitat	East	4	1		3		0.16%
Lewis	West	15	18	13	18	16	0.59%
Lincoln	East	1	1	3		1	#DIV/0!
Mason	West	15	18	13	8	10	0.59%
Okanogan	East	2	4	4	6	7	0.08%
Pacific	West	6	3	7	3		0.24%
Pend Oreille	East		2	1	1		0.00%
Pierce	West	900	849	845	846	820	35.55%
San Juan	West	4	2	4	2	3	0.16%
Skagit	West	27	18	21	23	37	1.07%
Skamania	East	2		1	1	2	0.08%
Snohomish	West	143	107	134	153	147	5.65%
Spokane	East	72	68	64	78	89	2.84%
Stevens	East	4	1	6	7	2	0.16%
Thurston	West	124	130	132	110	133	4.90%
Wahkiakum	West	2	1				0.08%
Walla Walla	East	27	12	9	8	8	1.07%
Whatcom	West	26	43	36	31	34	1.03%
Whitman	East	1	5	3	2	3	0.04%
Yakima	East	37	32	24	37	50	1.46%
Total		2532	2377	2247	2360	2353	100.00%

East Side	East	210	198	165	205	227	8.29%
West Side	West	2322	2179	2082	2155	2126	91.71%
Total		2532	2377	2247	2360	2353	100.00%

County -- ADMITS>	Side of WA	2019	2018	2017	2016	2015	% of Total for 2018
Adams	East	2	1			1	0.05%
Asotin	East	2	1	1	1	2	0.05%
Benton	East	26	27	21	17	16	1.43%
Chelan	East	9	10	8	7	12	0.53%
Clallam	West	19	15	19	19	26	0.80%
Clark	West	47	65	43	63	68	3.45%
Columbia	East	1					0.00%
Cowlitz	West	13	14	8	6	15	0.74%
Douglas	East	1	6		5	5	0.32%
Ferry	East	1			1		0.00%
Franklin	East	11	8	2	3	3	0.42%
Garfield	East				1		0.00%
Grant	East	1	4	3	4	3	0.21%
Gray's Harbor	West	15	14	13	13	4	0.74%
Island	West	9	18	11	23	11	0.95%
Jefferson	West	3	8	8	5	5	0.42%
King	West	632	563	511	545	495	29.85%
Kitsap	West	80	82	52	51	72	4.35%
Kittitas	East		1	2	3	8	0.05%
Klickitat	East	3	1		3		0.05%
Lewis	West	13	16	10	14	14	0.85%
Lincoln	East	1	1				0.05%
Mason	West	11	12	10	4	9	0.64%
Okanogan	East	1	3	2	3	5	0.16%
Pacific	West	6	2	2	2		0.11%
Pend Oreille	East		2	1	1		0.11%
Pierce	West	671	664	626	632	571	35.21%
San Juan	West	4	2	3	1	3	0.11%
Skagit	West	22	13	19	18	30	0.69%
Skamania	East	2			1	2	0.00%
Snohomish	West	123	87	96	120	112	4.61%
Spokane	East	64	61	49	63	73	3.23%
Stevens	East	3		5	7	2	0.00%
Thurston	West	95	110	97	84	111	5.83%
Wahkiakum	West	2					0.00%
Walla Walla	East	26	9	8	7	7	0.48%
Whatcom	West	22	35	31	25	29	1.86%
Whitman	East	1	3	3	2	3	0.16%
Yakima	East	30	28	19	26	30	1.48%
Total		1972	1886	1683	1780	1747	100.00%

East Side	East	185	166	124	155	172	8.80%
West Side	West	1787	1720	1559	1625	1575	91.20%
Total		1972	1886	1683	1780	1747	100.00%

County--DEPOSITED/ENROLLED>	Side of WA	2019	2018	2017	2016	2015	% of Total for 2019
Adams	East	1					0.23%
Asotin	East				1	1	0.00%
Benton	East	6	4	4	2	7	1.38%
Chelan	East		3	1	4	3	0.00%
Clallam	West	5	6	3	8	8	1.15%
Clark	West	10	13	11	10	16	2.30%
Columbia	East	1					0.23%
Cowlitz	West	3	1	1	1	5	0.69%
Douglas	East	1	1				0.23%
Ferry	East						0.00%
Franklin	East		4		3	1	0.00%
Garfield	East						0.00%
Grant	East				1	1	0.00%
Gray's Harbor	West	2	2	4	4	2	0.46%
Island	West	3	7	5	5		0.69%
Jefferson	West		2	2			0.00%
King	West	94	107	117	115	108	21.66%
Kitsap	West	19	21	10	13	20	4.38%
Kittitas	East						0.00%
Klickitat	East	1	1		1		0.23%
Lewis	West	5	3	3	5	8	1.15%
Lincoln	East						0.00%
Mason	West		3	3	3	5	0.00%
Okanogan	East	1				1	0.23%
Pacific	West	1		1	2		0.23%
Pend Oreille	East		1				0.00%
Pierce	West	202	218	208	227	193	46.54%
San Juan	West	1			1		0.23%
Skagit	West	2	2	3	2	5	0.46%
Skamania	East					1	0.00%
Snohomish	West	28	16	24	24	21	6.45%
Spokane	East	15	8	5	14	9	3.46%
Stevens	East	1			2		0.23%
Thurston	West	19	27	34	22	23	4.38%
Wahkiakum	West						0.00%
Walla Walla	East	2	3		1	3	0.46%
Whatcom	West	5	10	8	2	5	1.15%
Whitman	East		1	2		2	0.00%
Yakima	East	6	8	3	4	3	1.38%
Total		434	472	452	477	451	100.00%

East Side	East	35	34	15	33	32	8.06%
West Side	West	399	438	437	444	419	91.94%
Total		434	472	452	477	451	100.00%

STATE -- APPS>	2019	2018	2017	2016	2015	% of Total for 2019
AK	54	69	55	61	44	1.34%
AL	7	1		1	2	0.17%
AR	4	1				0.10%
AZ	59	56	49	40	39	1.47%
CA	330	323	335	380	380	8.21%
CO	74	68	75	90	72	1.84%
CT	7		3	4	3	0.17%
DE		2	1	4	1	0.00%
FL	12	11	11	3	9	0.30%
GA	4	8	1	6	2	0.10%
HI	249	215	194	178	109	6.20%
IA	3	2	7	5	3	0.07%
ID	39	36	40	25	43	0.97%
IL	15	9	9	17	13	0.37%
IN	3	2	1	1		0.07%
KS	1	2	1	3	1	0.02%
KY	2		1	5	1	0.05%
LA	4	3	1		1	0.10%
MA	4	2	10	1	3	0.10%
MD	4	2	5	6	4	0.10%
ME	2		1	2		0.05%
MI	2	1	2	3	6	0.05%
MN	33	37	46	47	57	0.82%
MO		1	4	2	1	0.00%
MS	1	1		1		0.02%
MT	37	31	46	58	63	0.92%
NC	2	3	2	3	1	0.05%
ND	1	1	1	3	3	0.02%
NE	2	1	1	2	4	0.05%
NH	1	3	1		1	0.02%
NJ	4	2	1	3	5	0.10%
NM	8	2	8	6	3	0.20%
NV	70	57	51	43	40	1.74%
NY	13	4	4	3	5	0.32%
OH	6	4	4	3	5	0.15%
OK	4	2	4	1	1	0.10%
Oregon	231	193	227	236	218	5.75%
PA	8	8	4	4	4	0.20%
RI		1	1	1		0.00%
SC	2	1		2		0.05%
SD	1	1	2	9	7	0.02%
TN	7	5	3	7		0.17%
TX	32	40	23	12	12	0.80%
UT	12	12	7	12	5	0.30%
VA	7	4	5	5		0.17%
VT	2		3			0.05%
E. WA	210	198	165	205	227	5.23%
W. WA	2322	2179	2082	2155	2126	57.78%
WI	8	6	6	7	7	0.20%
WV			1			0.00%
WY	1	2	1	2		0.02%
Other/Int'l	115	128	124	103	92	2.86%
Total:	4019	3740	3629	3770	3623	100.00%

STATE--ADMITS>	2019	2018	2017	2016	2015	% of Total for 2018
AK	47	61	44	51	40	2.08%
AL	5	1			2	0.03%
AR	3	1				0.03%
AZ	46	44	38	27	33	1.50%
CA	275	247	224	284	259	8.43%
CO	66	64	66	84	67	2.18%
CT	4		2		2	0.00%
DE		2	1	3		0.07%
FL	7	6	9	2	5	0.20%
GA	2	3	1	2	1	0.10%
HI	192	165	150	136	75	5.63%
IA	3	2	5	5	3	0.07%
ID	34	30	33	20	35	1.02%
IL	13	6	5	14	7	0.20%
IN	2	2	1	1		0.07%
KS	1	2	1	1	1	0.07%
KY	2			2	1	0.00%
LA	3				1	0.00%
MA	2	2	5		3	0.07%
MD	1	2	4	4	2	0.07%
ME	1			2		0.00%
MI	1	1	1	3	6	0.03%
MN	31	35	36	42	49	1.19%
MO		1		2	1	0.03%
MS	1	1	3			0.03%
MT	36	29	40	46	58	0.99%
NC		3	2	2	1	0.10%
ND	1	1	1	3	2	0.03%
NE	1	1	1	1	3	0.03%
NH	1	3				0.10%
NJ	1	1		1	2	0.03%
NM	8	2	6	4	3	0.07%
NV	62	41	35	32	26	1.40%
NY	10	3	2	1	2	0.10%
OH	5	2	4	3	3	0.07%
OK	4		4	1	1	0.00%
Oregon	207	162	188	201	170	5.53%
PA	7	8	4	4	3	0.27%
RI		1		1		0.03%
SC	1	1		2		0.03%
SD	1	1	2	9	6	0.03%
TN	6	3	3	6		0.10%
TX	23	27	17	10	8	0.92%
UT	10	8	4	11	4	0.27%
VA	5	3	4	4		0.10%
VT	2		1			0.00%
E. WA	185	166	124	155	172	5.66%
W. WA	1787	1720	1559	1625	1575	58.68%
WI	6	5	4	6	5	0.17%
WV			1			0.00%
WY		2	1	2		0.07%
Other/Int'l	54	60	65	52	51	2.05%
Total:	3165	2931	2701	2867	2688	100.00%

STATE--DEPOSITED/ENROLLED>	2019	2018	2017	2016	2015	% of Total for 2019
AK	12	18	9	19	14	2.01%
AL						0.00%
AR	1					0.17%
AZ	4	10	4		5	0.67%
CA	17	25	25	31	29	2.85%
CO	12	11	12	17	19	2.01%
CT	1		2		1	0.17%
DE						0.00%
FL		1	1		1	0.00%
GA						0.00%
HI	30	37	18	34	16	5.03%
IA			2			0.00%
ID	5	3	7	2	4	0.84%
IL	3	1		2		0.50%
IN						0.00%
KS		1				0.00%
KY					1	0.00%
LA	1					0.17%
MA		2			1	0.00%
MD			2	2	2	0.00%
ME				1		0.00%
MI			1		1	0.00%
MN	10	6	4	9	7	1.68%
MO			2			0.00%
MS				1		0.00%
MT	9	1	8	12	20	1.51%
NC		1	1		1	0.00%
ND						0.00%
NE					1	0.00%
NH		1				0.00%
NJ						0.00%
NM	1	1	2	2		0.17%
NV	14	11	8	9	4	2.35%
NY						0.00%
OH	1		1	1	1	0.17%
OK			1		1	0.00%
Oregon	33	34	37	46	41	5.53%
PA	1	1		1		0.17%
RI		1				0.00%
SC						0.00%
SD				1	1	0.00%
TN	2					0.34%
TX	2	5	3	2	2	0.34%
UT	2			1	1	0.34%
VA			3	1		0.00%
VT						0.00%
E. WA	35	34	15	33	32	5.86%
W. WA	399	438	437	444	419	66.83%
WI	1	2	1	2	1	0.17%
WV						0.00%
WY						0.00%
Other/Int'l	1	4	13	5	17	0.17%
Total:	597	649	619	678	643	100.00%

ETHNICITY/YEAR	Applications					Admits					Deposited and Enrolled				
	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015	2019	2018	2017	2016	2015
Asian	481	461	457	455	407	437	387	377	357	310	61	68	72	73	61
Black	248	248	217	250	261	148	141	106	147	124	18	31	20	27	17
Hispanic	746	659	535	473	498	521	469	340	302	305	94	108	67	57	54
Mixed	415	372	351	347	307	318	289	265	253	235	77	72	65	69	52
Native Hawaiian/Pacific Islander	80	62	57	49	57	52	39	32	32	30	11	8	8	10	7
Native American/Alaska Native	15	23	21	26	30	7	14	17	13	21	2	4	2	2	9
Non Resident Alien	113	106	111	93	83	47	56	64	54	60	1	4	8	4	16
Unknown	143	116	60	113	85	96	83	45	61	36	15	6	5	7	6
White	1778	1693	1820	1964	1895	1539	1506	1490	1677	1616	318	348	372	429	421
Total	4019	3740	3629	3770	3623	3165	2984	2736	2896	2737	597	649	619	678	643
Students of Color	1985	1825	1638	1600	1560	1483	1339	1137	1104	1025	263	291	234	238	200

Award_Level
CIP Group

**Sum of Total Completions
CIP, State, and Institution**

14.0101 - Engineering, General

ID

Northwest Nazarene University
University of Idaho

OR

George Fox University

WA

Gonzaga University
Seattle Pacific University
Seattle University
Walla Walla University
Whitman College

14.0102 - Pre-Engineering

WA

Whitman College

14.0201 - Aerospace, Aeronautical and Astronautical Engineering

WA

University of Washington-Seattle Campus

14.0301 - Agricultural/Biological Engineering and Bioengineering

ID

Brigham Young University-Idaho
University of Idaho

OR

Oregon State University

WA

Washington State University

14.0501 - Biomedical/Medical Engineering

OR

George Fox University
Oregon State University

WA

University of Washington-Seattle Campus
Walla Walla University
Washington State University

14.0601 - Ceramic Sciences and Engineering

WA

University of Washington-Seattle Campus

14.0701 - Chemical Engineering

ID

University of Idaho

OR

Oregon State University

WA

University of Washington-Seattle Campus
Washington State University

14.0702 - Chemical and Biomolecular Engineering

WA

University of Washington-Seattle Campus

14.0801 - Civil Engineering, General

ID

Boise State University
Brigham Young University-Idaho
Idaho State University
University of Idaho

OR

George Fox University
Oregon Institute of Technology
Oregon State University
Portland State University
University of Portland

WA

Gonzaga University
Saint Martin's University
Seattle University
University of Washington-Seattle Campus
Washington State University

14.0805 - Water Resources Engineering

ID

University of Idaho

14.0901 - Computer Engineering, General

ID

Brigham Young University-Idaho
University of Idaho

OR

Portland State University
University of Portland

WA

DigiPen Institute of Technology
Pacific Lutheran University
Seattle Pacific University
University of Washington-Bothell Campus
University of Washington-Seattle Campus
Washington State University

14.0903 - Computer Software Engineering

WA

DeVry University-Washington
DigiPen Institute of Technology
Washington State University

14.1001 - Electrical, Electronics and Communications Engineering

ID

Boise State University
Brigham Young University-Idaho
Idaho State University
University of Idaho

OR

Oregon Institute of Technology
Oregon State University
Portland State University
University of Portland

WA

Eastern Washington University
Gonzaga University
Seattle Pacific University
Seattle University
University of Washington-Bothell Campus
University of Washington-Seattle Campus
University of Washington-Tacoma Campus
Washington State University
Western Washington University

14.1099 - Electrical, Electronics and Communications Engineering, Other**OR**

Oregon Institute of Technology

14.1201 - Engineering Physics**ID**

Northwest Nazarene University

OR

Linfield College-McMinnville Campus
Oregon State University

WA

Central Washington University
Whitworth University

14.1301 - Engineering Science**WA**

Pacific Lutheran University
Seattle Pacific University

14.1401 - Environmental/Environmental Health Engineering**OR**

Oregon State University
Portland State University

WA

University of Washington-Seattle Campus

14.1801 - Materials Engineering**ID**

Boise State University
University of Idaho

WA

University of Washington-Seattle Campus
Washington State University

14.1901 - Mechanical Engineering

ID

Boise State University
Brigham Young University-Idaho
Idaho State University
University of Idaho

OR

Oregon Institute of Technology
Oregon State University
Portland State University
University of Portland

WA

Eastern Washington University
Gonzaga University
Saint Martin's University
Seattle University
University of Washington-Bothell Campus
University of Washington-Seattle Campus
Washington State University

14.2001 - Metallurgical Engineering

WA

University of Washington-Seattle Campus

14.2101 - Mining and Mineral Engineering

WA

University of Washington-Seattle Campus

14.2301 - Nuclear Engineering

ID

Idaho State University

OR

Oregon State University

14.3201 - Polymer/Plastics Engineering

WA

Western Washington University

14.3301 - Construction Engineering

OR

Oregon State University

WA

Washington State University

14.3401 - Forest Engineering

OR

Oregon State University

WA

University of Washington-Seattle Campus

14.3501 - Industrial Engineering

OR

Oregon State University

WA

University of Washington-Seattle Campus

14.3601 - Manufacturing Engineering

OR

Oregon State University

WA

Washington State University

Western Washington University

14.3701 - Operations Research

WA

University of Washington-Seattle Campus

14.4201 - Mechatronics, Robotics, and Automation Engineering

WA

University of Washington-Seattle Campus

14.4501 - Biological/Biosystems Engineering

ID

University of Idaho

14.9999 - Engineering, Other

ID

The College of Idaho

OR

Oregon Institute of Technology

Oregon State University

WA

University of Washington-Seattle Campus

15.0201 - Civil Engineering Technology/Technician

15.0303 - Electrical, Electronic and Communications Engineering Technology/Technician

15.0304 - Laser and Optical Technology/Technician

15.0399 - Electrical and Electronic Engineering Technologies/Technicians, Other

15.0401 - Biomedical Technology/Technician

15.0403 - Electromechanical Technology/Electromechanical Engineering Technology

15.0404 - Instrumentation Technology/Technician

15.0405 - Robotics Technology/Technician

15.0503 - Energy Management and Systems Technology/Technician

15.0607 - Plastics Engineering Technology/Technician

15.0612 - Industrial Technology/Technician

15.0613 - Manufacturing Technology/Technician

15.0614 - Welding Engineering Technology/Technician

15.0699 - Industrial Production Technologies/Technicians, Other

15.0701 - Occupational Safety and Health Technology/Technician

15.0803 - Automotive Engineering Technology/Technician

15.0805 - Mechanical Engineering/Mechanical Technology/Technician

15.1001 - Construction Engineering Technology/Technician

15.1102 - Surveying Technology/Surveying

15.1201 - Computer Engineering Technology/Technician

15.1202 - Computer Technology/Computer Systems Technology

15.1204 - Computer Software Technology/Technician
15.1299 - Computer Engineering Technologies/Technicians, Other
15.1302 - CAD/CADD Drafting and/or Design Technology/Technician
15.1303 - Architectural Drafting and Architectural CAD/CADD
15.1304 - Civil Drafting and Civil Engineering CAD/CADD
15.1306 - Mechanical Drafting and Mechanical Drafting CAD/CADD
15.1401 - Nuclear Engineering Technology/Technician
15.1501 - Engineering/Industrial Management
15.9999 - Engineering Technologies/Technicians, Other
Grand Total

Year	UNITID	INSTNM	STABBR	CIPCODE	CIP Group
2018	208822	George Fox University	OR	14.0101	6 Digit
2018	208822	George Fox University	OR	14.0501	6 Digit
2018	208822	George Fox University	OR	14.0801	6 Digit

CIP Description
Engineering, General
Biomedical/Medical Engineering
Civil Engineering, General

CIP Code & Description

14.0101 - Engineering, General

14.0501 - Biomedical/Medical Engineering
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14.0801 - Civil Engineering, General

AWLEVEL	Award_Level	CTOTALT
5	Bachelors	58
5	Bachelors	0
5	Bachelors	16

ENGINEERING. Instructional programs that prepare individuals to apply mathematical and scientific principles to the solution of practical problems.

Engineering, General. Instructional content for this group of programs is defined in codes 14.0101 - 14.0102.

Engineering, General. A program that generally prepares individuals to apply mathematical and scientific principles to solve a wide variety of practical problems in industry, social organization, public works, and commerce. Includes instruction in undifferentiated and individualized programs in engineering.

Pre-Engineering. A program that prepares individuals for admission or transfer to a baccalaureate-level program in any of the fields of engineering.

Aerospace, Aeronautical and Astronautical Engineering. Instructional content is defined in code 14.0201.

Aerospace, Aeronautical and Astronautical Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of aircraft, missiles, space vehicles, and their systems; applied research on flight and orbital characteristics; and the development of systems and procedures for the launching, guidance, and control of air and space vehicles.

Agricultural/Biological Engineering and Bioengineering. Instructional content is defined in code 14.0301.

Agricultural/Biological Engineering and Bioengineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems, equipment and facilities for production, processing, storage, handling, distribution and use of food, feed, and fiber. Includes applications to aquaculture, forestry, human and natural resources.

Architectural Engineering. Instructional content is defined in code 14.0401.

Architectural Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of materials, systems, and methods used to construct and equip buildings intended for human habitation or other purposes.

Biomedical/Medical Engineering. Instructional content is defined in code 14.0501.

Biomedical/Medical Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of biomedical and health systems and products such as integrated biomedical systems, instrumentation, medical information systems, artificial organs and

Ceramic Sciences and Engineering. Instructional content is defined in code 14.0601.

Ceramic Sciences and Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of inorganic non-metallic materials, such as porcelains, cements, industrial ceramics, ceramic superconductors, abrasive, and related materials and systems.

Chemical Engineering. Instructional content for this group of programs is defined in codes 14.0701 - 14.0799.

Chemical Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems employing chemical processes, such as chemical reactors, kinetic systems, electrochemical systems, energy conservation processes, heat and mass transfer systems, and separation processes; and the applied analysis of chemical problems such as corrosion, particle

Chemical and Biomolecular Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems at the interface of chemical engineering and biology, with an emphasis at the molecular level, such as biopharmaceutical processes, protein engineering, metabolic engineering, gene therapy, biomaterials, cell and tissue engineering, and drug delivery. Includes instruction in chemical engineering, thermodynamics, organic chemistry, biochemistry, momentum and heat transfer, cellular and molecular biotechnology, process design, and chemical reactor

Chemical Engineering, Other. Any instructional program in chemical engineering not listed above.

Civil Engineering. Instructional content for this group of programs is defined in codes 14.0801 - 14.0899.

Civil Engineering, General. A program that generally prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of structural, load-bearing, material moving, transportation, water resource, and material control systems; and environmental safety measures.

Geotechnical Engineering. A program that prepares individuals to apply geotechnical engineering methods, which deal with the analysis, design and construction of earth and earth supported structures, to the application of environmental problems, such as waste containment, waste disposal, construction of land fills, soil permeation, soil analysis, and soil improvement. Includes instruction in soil mechanics, soil dynamics, soil behavior, waste management and containment systems, geosynthetics, geochemistry, earth structures, geoenvironmental engineering, geotechnical engineering, earthquake engineering, and foundation engineering

Structural Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of materials and systems used in building load-bearing structures for various purposes and in different environments, including buildings, roads, rail lines, bridges, dams, conduits, offshore platforms and work stations, and other structural shells; and the analysis of structural

Transportation and Highway Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of total systems for the physical movement of people, materials and information, including general network design and planning, facilities planning, site evaluation, transportation management systems, needs projections and analysis, and analysis of

Water Resources Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for collecting, storing, moving, conserving and controlling surface- and groundwater, including water quality control, water cycle management, management of human and industrial water requirements, water delivery, and flood control.

Civil Engineering, Other. Any instructional program in civil engineering not listed above.

Computer Engineering, General. Instructional content for this group of programs is defined in codes 14.0901 -

Computer Engineering, General. A program that generally prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of computer hardware and software systems and related equipment and facilities; and the analysis of specific problems of computer applications to

Computer Hardware Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development, and evaluation of computer hardware and related peripheral equipment.

Includes instruction in computer circuit and chip design, circuitry, computer systems design, computer equipment design, computer layout planning, testing procedures, and related computer theory and software

Computer Software Engineering. A program that prepares individuals to apply scientific and mathematical principles to the design, analysis, verification, validation, implementation, and maintenance of computer software systems using a variety of computer languages. Includes instruction in discrete mathematics, probability and statistics, computer science, managerial science, and applications to complex computer systems.

Computer Engineering, Other. Any instructional program in computer engineering not listed above.

Electrical, Electronics and Communications Engineering. Instructional content for this group of programs is defined in codes 14.1001 - 14.1099.

Electrical, Electronics and Communications Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of electrical and electronic systems and their components, including electrical power generation systems; and the analysis of problems such as superconductor, wave propagation, energy storage and retrieval, and reception and

Laser and Optical Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of optical systems, lasers and related electronic devices. Includes instruction in wave theory and mechanics, electromagnetic applications, linear and non-linear optics, photon detecting, laser beam properties, directed energy, harmonic generation, optical

Telecommunications Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development, and maintenance of telecommunications technology, networks, and systems. Includes instruction in telecommunications, computer networking, communications networks and systems, signals, circuits, fiber optics, and wireless systems and technology.

Electrical, Electronics and Communications Engineering, Other. Any instructional program in electrical, electronics and communications engineering not listed above.

Engineering Mechanics. Instructional content is defined in code 14.1101.

Engineering Mechanics. A program with a general focus on the application of the mathematical and scientific principles of classical mechanics to the analysis and evaluation of the behavior of structures, forces and materials in engineering problems. Includes instruction in statics, kinetics, dynamics, kinematics, celestial mechanics,

Engineering Physics. Instructional content is defined in code 14.1201.

Engineering Physics. A program focusing on the use of physics principles in the analysis and evaluation of engineering problems and other scientific applications. Includes instruction in high- and low-temperature phenomena, computational physics, superconductivity, applied thermodynamics, molecular and particle physics

Engineering Science. Instructional content is defined in code 14.1301.

Engineering Science. A program with a general focus on the general application of various combinations of mathematical and scientific principles to the analysis and evaluation of engineering problems, including applied research in human behavior, statistics, biology, chemistry, the earth and planetary sciences, atmospheric and Environmental/Environmental Health Engineering. Instructional content is defined in code 14.1401.

Environmental/Environmental Health Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for controlling contained living environments and for monitoring and controlling factors in the external natural environment, including pollution control, waste and hazardous material disposal, health and safety protection, conservation, life support, and requirements for protection of special materials and related work environments.

Materials Engineering. Instructional content is defined in code 14.1801.

Materials Engineering. A program that prepares individuals to apply mathematical and materials science principles to the design, development and operational evaluation of materials and related processes used in manufacturing in a wide variety of settings; the synthesis of new industrial materials, including marrying and bonding composites; analysis of materials requirements and specifications; and related problems of system Mechanical Engineering. Instructional content is defined in code 14.1901.

Mechanical Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of physical systems used in manufacturing and end-product systems used for specific uses, including machine tools, jigs and other manufacturing equipment; stationary power units and appliances; engines; self-propelled vehicles; housings and containers; hydraulic and electric systems for controlling movement; and the integration of computers and remote control with operating

Metallurgical Engineering. Instructional content is defined in code 14.2001.

Metallurgical Engineering. A program that prepares individuals to apply mathematical and metallurgical principles to the design, development and operational evaluation of metal components of structural, load-bearing, power, transmission, and moving systems; and the analysis of engineering problems such as stress, creep, failure, alloy behavior, environmental fluctuations, stability, electromagnetic and thermodynamic

Mining and Mineral Engineering. Instructional content is defined in code 14.2101.

Mining and Mineral Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of mineral extraction, processing and refining systems, including open pit and shaft mines, prospecting and site analysis equipment and instruments, environmental and safety systems, mine equipment and facilities, mineral processing and refining methods and

Naval Architecture and Marine Engineering. Instructional content is defined in code 14.2201.

Naval Architecture and Marine Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of self-propelled, stationary, or towed vessels operating on or under the water, including inland, coastal and ocean environments; and the analysis of related engineering problems such as corrosion, power transfer, pressure, hull efficiency, stress factors, safety and life support, environmental hazards and factors, and specific use requirements.

Nuclear Engineering. Instructional content is defined in code 14.2301.

Nuclear Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for controlling and manipulating nuclear energy, including nuclear power plant design, fission reactor design, fusion reactor design, reactor control and safety systems design, power transfer systems, containment vessels and structures design; and the analysis of related engineering problems such as fission and fusion processes, human and environmental factors, construction, and Ocean Engineering. Instructional content is defined in code 14.2401.

Ocean Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems to monitor, control, manipulate and operate within coastal or ocean environments, such as underwater platforms, flood control systems, dikes, hydroelectric power systems, tide and current control and warning systems, and communications equipment; the planning and design of total systems for working and functioning in water or underwater environments; and the analysis of related engineering problems such as the action of water properties and behavior on physical systems and Petroleum Engineering. Instructional content is defined in code 14.2501.

Petroleum Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems for locating, extracting, processing and refining crude petroleum and natural gas, including prospecting instruments and equipment, mining and drilling systems, processing and refining systems and facilities, storage facilities, transportation systems, and related

Systems Engineering. Instructional content is defined in code 14.2701.

Systems Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of total systems solutions to a wide variety of engineering problems, including the integration of human, physical, energy, communications, management, and information requirements as needed, and the application of requisite analytical methods to specific situations.

Textile Sciences and Engineering. Instructional content is defined in code 14.2801. These CIP codes are not valid

Textile Sciences and Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems to test and manufacture fibers and fiber products, both synthetic and natural; to develop new and improved fibers, textiles and their uses; and to the analysis of related engineering problems such as structural factors, molecular synthesis, chemical manufacturing, weaves, strength and stress, useful life, dyes, and applications to composite systems.

Materials Science.

Materials Science. A program that focuses on the general application of mathematical and scientific principles to the analysis and evaluation of the characteristics and behavior of solids, including internal structure, chemical properties, transport and energy flow properties, thermodynamics of solids, stress and failure factors, chemical transformation states and processes, compound materials, and research on industrial applications of specific

Polymer/Plastics Engineering. Instructional content is defined in code 14.3201.

Polymer/Plastics Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of synthesized macromolecular compounds and their application to specific engineering uses, including the development of industrial materials with tailored properties, the design of lightweight structural components, the use of liquid or solid polymers, and the analysis

Construction Engineering. Instructional content is defined in code 14.3301.

Construction Engineering. A program that prepares individuals to apply scientific, mathematical, and management principles to the planning, design, and building of facilities and structures. Includes instruction in civil engineering, structural principles, site analysis, computer-assisted design, geology, evaluation and testing, materials, contracting, project management, graphic communications, and applicable laws and regulations.

Forest Engineering. Instructional content is defined in code 14.3401.

Forest Engineering. A program that prepares individuals to apply scientific, mathematical, and forestry principles to the design of mechanical devices and processes for efficient forest management, timber production and related forest logistics systems. Includes instruction in forest products processing, forest management, forest harvesting, timber structure design, production analysis, road and bridge construction, vehicle adaptation and Industrial Engineering. Instructional content is defined in code 14.3501.

Industrial Engineering. A program that prepares individuals to apply scientific and mathematical principles to the design, improvement, and installation of integrated systems of people, material, information, and energy. Includes instruction in applied mathematics, physical sciences, the social sciences, engineering analysis, systems design, computer applications, and forecasting and evaluation methodology.

Manufacturing Engineering. Instructional content is defined in code 14.3601.

Manufacturing Engineering. A program that prepares individuals to apply scientific and mathematical principles to the design, development, and implementation of manufacturing systems. Includes instruction in materials science and engineering, manufacturing processes, process engineering, assembly and product engineering, manufacturing systems design, and manufacturing competitiveness.

Operations Research. Instructional content is defined in code 14.3701.

Operations Research. A program that focuses on the development and application of complex mathematical or simulation models to solve problems involving operational systems, where the system concerned is subject to human intervention. Includes instruction in advanced multivariate analysis, application of judgment and statistical tests, optimization theory and techniques, resource allocation theory, mathematical modeling, control

Surveying Engineering. Instructional content is defined in code 14.3801.

Surveying Engineering. A program that prepares individuals to apply scientific and mathematical principles to the determination of the location, elevations, and alignment of natural and manmade topographic features. Includes instruction in property line location, surveying, surface measurement, aerial and terrestrial photogrammetry, remote sensing, satellite imagery, global positioning systems, computer applications, and

Geological/Geophysical Engineering. Instructional content is defined in code 14.3901.

Geological/Geophysical Engineering. A program that prepares individuals to apply mathematical and geological principles to the analysis and evaluation of engineering problems, including the geological evaluation of construction sites, the analysis of geological forces acting on structures and systems, the analysis of potential natural resource recovery sites, and applied research on geological phenomena.

Paper Science and Engineering. Instructional content is defined in code 14.4001.

Paper Science and Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development, and manufacturing of pulp and paper products. Includes instruction in pulp and paper science, pulping and bleaching processes, paper structure and processes, pulp and paper

Electromechanical Engineering. Instructional content is defined in code 14.4101.

Electromechanical Engineering. A program that prepares individuals to apply scientific and mathematical principles to the problems associated with combining electrical and mechanical components with special emphasis on manufacturing and automated processes. Includes instruction in applied mechanics, instrumentation and monitoring, machine design, automated control techniques, fluid and thermal dynamics, Mechatronics, Robotics, and Automation Engineering. Instructional content is defined in code 14.4201.

Mechatronics, Robotics, and Automation Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of computer controlled electro-mechanical systems and products with embedded electronics, sensors, and actuators; and which includes, but is not limited to, automata, robots and automation systems. Includes instruction in mechanical engineering, electronic and electrical engineering, computer and software engineering, and control

Biochemical Engineering. Instructional content is defined in code 14.4301.

Biochemical Engineering. A program that prepares individuals to apply mathematical and scientific principles to the study of biochemical processes in living organisms, properties of biological materials, and processes using biochemical agents such as cells, enzymes, and antibodies. Includes instruction in biology, chemistry, physics, biochemistry, thermodynamics, fluid dynamics, bioprocesses, and chemical engineering.

Engineering Chemistry. Instructional content is defined in code 14.4401.

Engineering Chemistry. A program that focuses on the general application of chemical principles to the analysis and evaluation of engineering problems, such as development of electronic materials, solid-state science and technology, polymers, ceramics, and biomaterials. Includes instruction in physical chemistry, organic chemistry, materials science, chemical processes and systems, chemical reaction engineering, biochemical engineering, engineering mathematics, classical and modern physics, and computer science.

Biological/Biosystems Engineering. Instructional content is defined in code 14.4501.

Biological/Biosystems Engineering. A program that prepares individuals to apply mathematical and scientific principles to the design, development and management of biological systems; and includes applications to biology, biochemistry, ecology, and microbiology. Includes instruction in organic chemistry; microbiology; biochemistry; chemical, biological, biochemical, and process engineering; thermodynamics; process control; kinetics and reactor design; electric circuits; biosystem modeling; and bioelectronics and instrumentation.

Engineering, Other. Instructional content is defined in code 14.9999.

Engineering, Other. Any instructional program in engineering not listed above.

ENGINEERING TECHNOLOGIES/TECHNICIANS. Instructional programs that prepare individuals to apply basic engineering principles and technical skills in support of engineering and related projects or to prepare for Engineering Technology, General. A program that generally prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. Includes instruction in various engineering support functions for research, production, and operations, and applications to specific Engineering Technology, General. Instructional content is defined in code 15.0000.

Architectural Engineering Technologies/Technicians. Instructional content is defined in code 15.0101.

Architectural Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of architects, engineers and planners engaged in designing and developing buildings, urban complexes, and related systems. Includes instruction in design testing procedures, building site analysis, model building and computer graphics, engineering drawing, structural systems testing, analysis of prototype mechanical and interior systems, test equipment operation and maintenance, and report Civil Engineering Technologies/Technicians. Instructional content is defined in code 15.0201.

Civil Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of civil engineers engaged in designing and executing public works projects such as highways, dams, bridges, tunnels and other facilities. Includes instruction in site analysis, structural testing procedures, field and laboratory testing procedures, plan and specification preparation, test Electrical Engineering Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.0303 - 15.0399.

Electrical, Electronic and Communications Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of electrical, electronics and communication engineers. Includes instruction in electrical circuitry, prototype development and testing, systems analysis and testing, systems maintenance, instrument calibration, and report preparation.

Laser and Optical Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using lasers and other optical for commercial or research purposes. Includes instruction in laser and optical principles, testing and maintenance procedures, safety precautions, specific applications to various tasks, and report

Telecommunications Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to help design and implement telecommunications systems. Includes instruction in communications protocol, data networking, digital compression algorithms, digital signal processing, Internet access, object-oriented and relational databases, and programming languages.

Integrated Circuit Design. A program that prepares individuals to apply basic engineering principles and technical skills to design circuits in microelectronics. Includes instruction in circuit design, circuit layout, circuit analysis, computer-aided drafting, and semi-conductor technologies.

Electrical and Electronic Engineering Technologies/Technicians, Other. Any instructional program in electrical and electronic engineering-related technologies not listed above.

Electromechanical Instrumentation and Maintenance Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.0401 - 15.0499.

Biomedical Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing biological or medical systems and products. Includes instruction in instrument calibration, design and installation testing, system safety and maintenance procedures, procurement and installation procedures, and report preparation.

Electromechanical Technology/Electromechanical Engineering Technology. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing and testing automated, servomechanical, and other electromechanical systems. Includes instruction in prototype testing, manufacturing and operational testing, systems analysis and maintenance procedures, and report

Instrumentation Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing control and measurement systems and procedures. Includes instruction in instrumentation design and maintenance, calibration, design and production testing and scheduling, automated equipment functions, applications to specific industrial tasks, and

Robotics Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using robots. Includes instruction in the principles of robotics, design and operational testing, system maintenance and repair procedures, robot computer systems and control language, specific system types and applications to specific

Automation Engineer Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, installing, calibrating, modifying and maintaining automated systems. Includes instruction in computer systems; electronics and instrumentation; programmable logic controllers (PLCs); electric, hydraulic and pneumatic control systems; actuator and sensor systems; process control; robotics; applications to specific industrial tasks; and report

Electromechanical and Instrumentation and Maintenance Technologies/Technicians, Other. Any instructional program in electromechanical instrumentation and maintenance technologies not listed above.

Environmental Control Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.0501 - 15.0599.

Heating, Air Conditioning and Refrigeration Technology/Technician (ACH/ACR/ACHR/HRAC/HVAC/AC Technology). A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using air conditioning, refrigeration, ventilation, and heating systems. Includes instruction in principles of heating and cooling technology, design and operational testing, inspection and maintenance procedures, installation and operation procedures, and report

Energy Management and Systems Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing energy-efficient systems or monitoring energy use. Includes instruction in principles of energy conservation, instrumentation calibration, monitoring systems and test procedures, energy loss inspection procedures, energy

Solar Energy Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing solar-powered energy systems. Includes instruction in solar energy principles, energy storage and transfer technologies, testing and inspection procedures, system maintenance procedures, and report preparation.

Water Quality and Wastewater Treatment Management and Recycling Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using water storage, waterpower, and wastewater treatment systems. Includes instruction in water storage, power and/or treatment systems and equipment; testing and inspection

Environmental Engineering Technology/Environmental Technology. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using indoor and outdoor environmental pollution control systems. Includes instruction in environmental safety principles, testing and sampling procedures, laboratory techniques, instrumentation calibration, safety and protection procedures, equipment maintenance, and report preparation.

Hazardous Materials Management and Waste Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in identifying and disposing of hazardous materials. Includes instruction in environmental safety principles, biohazard identification, testing and sampling procedures, laboratory techniques, instrumentation calibration, hazardous waste disposal procedures and systems, safety and protection procedures, equipment maintenance, **Environmental Control Technologies/Technicians, Other.** Any instructional program in environmental control technologies not listed above.

Industrial Production Technologies/Technicians. Instructional content for this group of programs is defined in **Plastics Engineering Technology/Technician.** A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using industrial polymers. Includes instruction in the principles of macromolecular chemistry, polymerization and plastic manufacturing processes and equipment, design and operational testing procedures, equipment maintenance and repair procedures, safety procedures, applications to specific products, and report

Metallurgical Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and metallurgists engaged in developing and using industrial metals and manufacturing processes. Includes instruction in principles of metallurgy, related manufacturing systems, laboratory techniques, testing and inspection procedures, instrument calibration, system and equipment

Industrial Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of industrial engineers and managers. Includes instruction in optimization theory, human factors, organizational behavior, industrial processes, industrial planning procedures, computer

Manufacturing Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. Includes instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning,

Welding Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to the design and engineering of welding and joining systems and the implementation of welding processes. Includes instruction in materials science; computer-aided design; welding design; welding processes; welding metallurgy; automation and robotics; and codes, inspections, testing, and

Chemical Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in the production and utilization of chemicals on an industrial scale. Includes instruction in organic chemistry, inorganic chemistry, analytical chemistry, biochemistry, thermodynamics, fluid mechanics, industrial processes, instrumental analysis,

Semiconductor Manufacturing Technology. A program that prepares individuals to apply basic engineering principles and technical skills to operate and monitor equipment for the fabrication of semiconductors or microchips from silicon wafers, and to troubleshoot, maintain, and repair the specialized equipment used in this process. Includes instruction in AC and DC circuits, digital fundamentals, solid state devices, manufacturing processes, vacuum principles and technology, industrial electronics, quality assurance, and semiconductor Industrial Production Technologies/Technicians, Other. Any instructional program in industrial production technologies not listed above.

Quality Control and Safety Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.0701 - 15.0799.

Occupational Safety and Health Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in maintaining job-related health and safety standards. Includes instruction in safety engineering principles, inspection and monitoring procedures, testing and sampling procedures, laboratory techniques, applications to specific work

Quality Control Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in maintaining consistent manufacturing and construction standards. Includes instruction in quality control systems management principles, technical standards applicable to specific engineering and manufacturing projects, testing procedures, inspection procedures, related instrumentation and equipment operation and maintenance, and report

Industrial Safety Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to assist engineers and other professionals in implementing and enforcing industrial safety standards. Includes instruction in industrial processes, industrial hygiene, toxicology, ergonomics, system and process safety, safety performance measurement, human factors, human behavior, and

Hazardous Materials Information Systems Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to assist engineers and other professionals in implementing, monitoring, and enforcing hazardous materials management and removal. Includes instruction in environmental science, environmental health, human behavior, economics, management science, information systems and Quality Control and Safety Technologies/Technicians, Other. Any instructional program in quality control and safety technologies not listed above.

Mechanical Engineering Related Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.0801 - 15.0899.

Aeronautical/Aerospace Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing aircraft, spacecraft and their systems. Includes instruction in aircraft/spacecraft systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report

Automotive Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing self-propelled ground vehicles and their systems. Includes instruction in vehicular systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report

Mechanical Engineering/Mechanical Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in the design and development phases of a wide variety of projects involving mechanical systems. Includes instruction in principles of mechanics, applications to specific engineering systems, design testing procedures, prototype and operational testing and inspection procedures, manufacturing system-testing procedures, test equipment operation and maintenance, Mechanical Engineering Related Technologies/Technicians, Other. Any instructional program in mechanical engineering-related technologies not listed above.

Mining and Petroleum Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.0901 - 15.0999.

Mining Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in the development and operation of mines and related mineral processing facilities. Includes instruction in principles of mineral extraction and related geology, mineral field mapping and site analysis, testing and sampling methods, instrument calibration, assay analysis, test equipment operation and maintenance, mine environment and safety monitoring

Petroleum Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in the development and operation of oil and natural gas extraction and processing facilities. Includes instruction in principles of petroleum extraction and related geology, petroleum field mapping and site analysis, testing and sampling methods, instrument calibration, laboratory analysis, test equipment operation and maintenance, environment and safety monitoring

Mining and Petroleum Technologies/Technicians, Other. Any instructional program in mining and petroleum engineering technologies not listed above.

Construction Engineering Technologies. Instructional content is defined in code 15.1001.

Construction Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers, engineering contractors and other professionals engaged in the construction of buildings and related structures. Includes instruction in basic structural engineering principles and construction techniques, building site inspection, site supervision, construction personnel supervision, plan and specification interpretation, supply logistics and procurement, applicable building codes,

Engineering-Related Technologies. Instructional content for this group of programs is defined in codes 15.1102 -

Surveying Technology/Surveying. A program that prepares individuals to apply mathematical and scientific principles to the delineation, determination, planning and positioning of land tracts, land and water boundaries, land contours and features; and the preparation of related maps, charts and reports. Includes instruction in applied geodesy, computer graphics, photointerpretation, plane and geodetic surveying, mensuration, traversing, survey equipment operation and maintenance, instrument calibration, and basic cartography.

Hydraulics and Fluid Power Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using fluid power and transportation systems. Includes instruction in fluid mechanics and hydraulics principles, fluid power systems, pipeline and pumping systems, design and operational testing, inspection and

Engineering-Related Technologies, Other. Any programs in engineering-related technologies and technicians not

Computer Engineering Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.1201 - 15.1299.

Computer Engineering Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills in support of computer engineers engaged in designing and developing computer systems and installations. Includes instruction in computer electronics and programming, prototype development and testing, systems installation and testing, solid state and microminiature circuitry, peripheral

Computer Technology/Computer Systems Technology. A program that prepares individuals to apply basic engineering principles and technical skills in support of professionals who use computer systems. Includes instruction in basic computer design and architecture, programming, problems of specific computer applications, component and system maintenance and inspection procedures, hardware and software problem diagnosis and

Computer Hardware Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to support engineers in designing computer hardware and peripheral systems. Includes instruction in computer systems design, computer architecture, computer electronics, processors, peripherals, testing equipment, and computer manufacturing processes.

Computer Software Technology/Technician. A program that prepares individuals to apply basic engineering principles and technical skills to support engineers in developing, implementing, and evaluating computer software and program applications. Includes instruction in computer programming, programming languages, databases, user interfaces, networking and warehousing, encryption and security, software testing and Computer Engineering Technologies/Technicians, Other. Any instructional program in computer engineering technologies not listed above.

Drafting/Design Engineering Technologies/Technicians. Instructional content for this group of programs is defined in codes 15.1301 - 15.1399.

Drafting and Design Technology/Technician, General. A program that prepares individuals to generally apply technical skills to create working drawings and computer simulations for a variety of applications. Includes instruction in specification interpretation, dimensioning techniques, drafting calculations, material estimation, technical communications, computer applications, and interpersonal communications.

CAD/CADD Drafting and/or Design Technology/Technician. A program that prepares individuals to apply technical skills and advanced computer software and hardware to the creation of graphic representations and simulations in support of engineering projects. Includes instruction in engineering graphics, two-dimensional and three-dimensional engineering design, solids modeling, engineering animation, computer-aided drafting Architectural Drafting and Architectural CAD/CADD. A program that prepares individuals to apply technical knowledge and skills to develop working drawings and electronic simulations for architectural and related construction projects. Includes instruction in basic construction and structural design, architectural rendering, architectural-aided drafting (CAD), layout and designs, architectural blueprint interpretation, building materials, Civil Drafting and Civil Engineering CAD/CADD. A program that prepares individuals to apply technical knowledge and skills to develop working drawing and electronic simulations in support of civil engineers, geological engineers, and related professionals. Includes instruction in basic civil engineering principles, geological and seismographic mapping, machine drafting, computer-aided drafting (CAD), pipe drafting, survey interpretation, Electrical/Electronics Drafting and Electrical/Electronics CAD/CADD. A program that prepares individuals to apply technical knowledge and skills to develop working schematics and representations in support of electrical/electronic engineers, computer engineers, and related professionals. Includes instruction in basic electronics, electrical systems and computer layouts; electrode-mechanical drafting; manufacturing circuitry; Mechanical Drafting and Mechanical Drafting CAD/CADD. A program that prepares individuals to apply technical knowledge and skills to develop working drawings and electronic simulations in support of mechanical and industrial engineers, and related professionals. Includes instruction in manufacturing materials and processes, mechanical drafting, electrode-mechanical drafting, basic metallurgy, geometric dimensioning and tolerancing, Drafting/Design Engineering Technologies/Technicians, Other. Any instructional program in drafting/design engineering technologies not listed above.

Nuclear Engineering Technologies/Technicians. Instructional content is defined in code 15.1401.

Nuclear Engineering Technology/Technician. A program that prepares individuals to apply basic engineering, knowledge and technical skills in support of engineer and other professionals operating nuclear facilities and engaged in nuclear applications and safety procedures. Includes instruction in physics, nuclear science, nuclear systems, nuclear plant and systems design, radiological safety, radiological applications, and applicable law and Engineering-Related Fields. Instructional content for this group of programs is defined in codes 15.1501 - Engineering/Industrial Management. A program that focuses on the application of engineering principles to the planning and operational management of industrial and manufacturing operations, and prepares individuals to plan and manage such operations. Includes instruction in accounting, engineering economy, financial management, industrial and human resources management, industrial psychology, management information systems, mathematical modeling and optimization, quality control, operations research, safety and health issues,

Engineering Design. An instructional program that prepares individuals to apply mathematical and scientific principles to engineering problems involving marrying or coordinating multiple dissimilar systems to carry out single functions or achieve common purposes, organizing system components for maximum flexibility and utility, planning engineering projects involving multiple tasks and design solutions, planning design testing and evaluation procedures, resolving specification and requirement conflicts, and choosing among competing theoretical solutions. Note: this program was re-instated after being deleted from CIP 2000; previously, it was Packaging Science. A program that focuses on the application of scientific, technological, design, and business principles to the development of packages and packaging materials, including raw material production, conversion of raw materials into usable forms, design, distribution, and post-use recycling and reuse. Includes instruction in principles of packaging, materials sciences, distribution and transportation, engineering and Engineering-Related Fields, Other. Any instructional program in engineering-related fields not listed above. Nanotechnology. Instructional content is defined in code 15.1601.

Nanotechnology. A program that prepares individuals to apply mathematical, scientific, and engineering principles and technical skills to manipulate matter at the atomic and molecular level (in the range of 1-100 nanometers) and to design, fabricate, and integrate nanoscale structures, devices, and systems. Includes instruction in materials science, thermodynamics, nanomaterials, nanoelectronics, and nano/micro device Engineering Technologies/Technicians, Other. Instructional content is defined in code 15.9999.

Engineering Technologies/Technicians, Other. Any instructional program in engineering technologies and engineering-related fields not listed above.

Award_Level
CIP Group

Bachelors
6 Digit

Sum of Total Completions CIP, State, and Institution	IPEDS Year					Grand Total
	2014	2015	2016	2017	2018	
14.0101 - Engineering, General	107	103	100	124	128	562
ID	4	8	8	6	15	41
Northwest Nazarene University	4	8	8	6	15	41
University of Idaho	0	0	0			0
OR	43	32	25	32	58	190
George Fox University	43	32	25	32	58	190
WA	60	63	67	86	55	331
Gonzaga University	3	5	7	21	11	47
Seattle Pacific University	11	11	12	15	12	61
Seattle University	0	0	0			0
Walla Walla University	43	44	42	47	31	207
Whitman College	3	3	6	3	1	16
14.0102 - Pre-Engineering			1	0	6	7
WA			1	0	6	7
Whitman College			1	0	6	7
14.0201 - Aerospace, Aeronautical and Astronautical Engineering	57	58	60	72	75	322
WA	57	58	60	72	75	322
University of Washington-Seattle Campus	57	58	60	72	75	322
14.0301 - Agricultural/Biological Engineering and Bioengineering	15	18	20	19	23	95
ID		0	0	0	2	2
Brigham Young University-Idaho					2	2
University of Idaho		0	0	0	0	0
OR	15	18	20	19	21	93
Oregon State University	15	18	20	19	21	93
WA	0	0	0	0	0	0
Washington State University	0	0	0	0	0	0
14.0501 - Biomedical/Medical Engineering	98	92	121	133	121	565
OR	23	26	37	47	36	169
George Fox University					0	0
Oregon State University	23	26	37	47	36	169
WA	75	66	84	86	85	396
University of Washington-Seattle Campus	53	45	53	61	63	275
Walla Walla University	2	1	2	6	5	16
Washington State University	20	20	29	19	17	105
14.0601 - Ceramic Sciences and Engineering	1	0	0	0	0	1
WA	1	0	0	0	0	1
University of Washington-Seattle Campus	1	0	0	0	0	1
14.0701 - Chemical Engineering	211	221	231	280	289	1232
ID	29	17	22	30	29	127
University of Idaho	29	17	22	30	29	127
OR	98	88	88	130	146	550
Oregon State University	98	88	88	130	146	550
WA	84	116	121	120	114	555
University of Washington-Seattle Campus	54	64	65	63	63	309
Washington State University	30	52	56	57	51	246
14.0702 - Chemical and Biomolecular Engineering	17	16	10	11	11	65
WA	17	16	10	11	11	65
University of Washington-Seattle Campus	17	16	10	11	11	65
14.0801 - Civil Engineering, General	623	634	650	725	678	3310
ID	95	91	87	132	124	529

Boise State University	40	35	35	63	45	218
Brigham Young University-Idaho	2	17	14	17	20	70
Idaho State University	9	14	13	23	32	91
University of Idaho	44	25	25	29	27	150
OR	208	220	204	244	248	1124
George Fox University			7	12	16	35
Oregon Institute of Technology	17	15	25	25	23	105
Oregon State University	101	102	90	108	100	501
Portland State University	46	60	55	72	73	306
University of Portland	44	43	27	27	36	177
WA	320	323	359	349	306	1657
Gonzaga University	54	43	47	49	34	227
Saint Martin's University	21	14	29	26	14	104
Seattle University	26	20	36	18	24	124
University of Washington-Seattle Campus	97	109	120	127	135	588
Washington State University	122	137	127	129	99	614
14.0805 - Water Resources Engineering		0	0	0	0	0
ID		0	0	0	0	0
University of Idaho		0	0	0	0	0
14.0901 - Computer Engineering, General	133	123	114	105	112	587
ID	24	21	19	24	20	108
Brigham Young University-Idaho	12	16	11	15	9	63
University of Idaho	12	5	8	9	11	45
OR	19	18	15	17	25	94
Portland State University	19	18	15	17	25	94
University of Portland	0					0
WA	90	84	80	64	67	385
DigiPen Institute of Technology	4	4	3	2	1	14
Pacific Lutheran University	3	2	4	3	1	13
Seattle Pacific University	2	1	4	2	2	11
University of Washington-Bothell Campus		0	3	7	10	20
University of Washington-Seattle Campus	64	61	50	33	36	244
Washington State University	17	16	16	17	17	83
14.0903 - Computer Software Engineering	2	4	1	2	6	15
WA	2	4	1	2	6	15
DeVry University-Washington	2	3				5
DigiPen Institute of Technology	0	1	1	2	6	10
Washington State University			0	0	0	0
14.1001 - Electrical, Electronics and Communications Engineering	695	761	828	903	915	4102
ID	83	71	132	148	147	581
Boise State University	28	19	49	46	36	178
Brigham Young University-Idaho	16	17	24	36	33	126
Idaho State University	7	11	20	29	31	98
University of Idaho	32	24	39	37	47	179
OR	193	200	224	227	265	1109
Oregon Institute of Technology	16	17	26	37	39	135
Oregon State University	90	107	115	123	124	559
Portland State University	60	39	52	47	62	260
University of Portland	27	37	31	20	40	155
WA	419	490	472	528	503	2412
Eastern Washington University	42	47	52	33	36	210
Gonzaga University	16	29	21	33	18	117
Seattle Pacific University	9	21	15	16	7	68
Seattle University	30	40	31	39	36	176
University of Washington-Bothell Campus	52	56	64	68	74	314

University of Washington-Seattle Campus	178	190	184	196	174	922
University of Washington-Tacoma Campus				0	0	0
Washington State University	92	107	96	122	135	552
Western Washington University			9	21	23	53
14.1099 - Electrical, Electronics and Communications Engineering, Other		1	4		3	8
OR		1	4		3	8
Oregon Institute of Technology		1	4		3	8
14.1201 - Engineering Physics	5	6	8	6	5	30
ID	2	0	0	0	0	2
Northwest Nazarene University	2	0	0	0	0	2
OR	3	4	7	4	5	23
Linfield College-McMinnville Campus		4	7	4	5	20
Oregon State University	3					3
WA		2	1	2		5
Central Washington University		1	0	2		3
Whitworth University		1	1			2
14.1301 - Engineering Science	0	0	0	0	0	0
WA	0	0	0	0	0	0
Pacific Lutheran University	0	0	0	0	0	0
Seattle Pacific University	0	0				0
14.1401 - Environmental/Environmental Health Engineering	34	27	24	43	37	165
OR	34	27	24	43	37	165
Oregon State University	13	14	19	23	17	86
Portland State University	21	13	5	20	20	79
WA				0	0	0
University of Washington-Seattle Campus				0	0	0
14.1801 - Materials Engineering	93	81	86	106	107	473
ID	20	17	26	23	27	113
Boise State University	17	13	22	15	24	91
University of Idaho	3	4	4	8	3	22
WA	73	64	60	83	80	360
University of Washington-Seattle Campus	57	58	45	55	50	265
Washington State University	16	6	15	28	30	95
14.1901 - Mechanical Engineering	999	1124	1182	1337	1401	6043
ID	262	295	277	324	322	1480
Boise State University	74	96	64	93	86	413
Brigham Young University-Idaho	81	103	117	108	119	528
Idaho State University	22	17	29	37	42	147
University of Idaho	85	79	67	86	75	392
OR	282	293	326	375	449	1725
Oregon Institute of Technology	28	23	45	52	51	199
Oregon State University	141	141	155	177	242	856
Portland State University	65	77	79	107	93	421
University of Portland	48	52	47	39	63	249
WA	455	536	579	638	630	2838
Eastern Washington University	23	47	53	65	71	259
Gonzaga University	60	79	64	104	81	388
Saint Martin's University	19	42	28	27	27	143
Seattle University	39	28	37	34	36	174
University of Washington-Bothell Campus		0	26	26	38	90
University of Washington-Seattle Campus	100	96	112	118	111	537
Washington State University	214	244	259	264	266	1247
14.2001 - Metallurgical Engineering	0	0	0	0	0	0
WA	0	0	0	0	0	0
University of Washington-Seattle Campus	0	0	0	0	0	0

15.0404 - Instrumentation Technology/Technician	2	2	1	1	0	6
15.0405 - Robotics Technology/Technician	0	0	0	0	0	0
15.0503 - Energy Management and Systems Technology/Technician	3	8	9	10	10	40
15.0607 - Plastics Engineering Technology/Technician	33	28	13	1	0	75
15.0612 - Industrial Technology/Technician	31	29	13	16	23	112
15.0613 - Manufacturing Technology/Technician	40	43	24	23	11	141
15.0614 - Welding Engineering Technology/Technician			3	11	16	30
15.0699 - Industrial Production Technologies/Technicians, Other	0	0	0	0		0
15.0701 - Occupational Safety and Health Technology/Technician	37	35	28	41	30	171
15.0803 - Automotive Engineering Technology/Technician	11	13	35	34	39	132
15.0805 - Mechanical Engineering/Mechanical Technology/Technician	48	61	71	61	63	304
15.1001 - Construction Engineering Technology/Technician	0	0	0	0		0
15.1102 - Surveying Technology/Surveying	27	10	20	11	16	84
15.1201 - Computer Engineering Technology/Technician	9	4	3	6	3	25
15.1202 - Computer Technology/Computer Systems Technology		4	14	26	68	112
15.1204 - Computer Software Technology/Technician	35	37	49	44	43	208
15.1299 - Computer Engineering Technologies/Technicians, Other	1	5	3	6	4	19
15.1302 - CAD/CADD Drafting and/or Design Technology/Technician	1	0	1	2	1	5
15.1303 - Architectural Drafting and Architectural CAD/CADD					2	2
15.1304 - Civil Drafting and Civil Engineering CAD/CADD	1	1	1	3	4	10
15.1306 - Mechanical Drafting and Mechanical Drafting CAD/CADD	2	1	4	3	4	14
15.1401 - Nuclear Engineering Technology/Technician		1	0	0	0	1
15.1501 - Engineering/Industrial Management	1	6	0	0	0	7
15.9999 - Engineering Technologies/Technicians, Other	44	43	32	33	42	194
Grand Total	3883	4008	4221	4635	4773	21520

NEW CATALOG LANGUAGE – DEPARTMENT OF PHYSICS

Bachelor of Arts Degree

Major in Physics

44 semester hours

- PHYS 153, 154, 163, 164, 223, 499A, 499B
- **Plus:** 12 additional, upper-division semester hours in physics
 - CHEM 341 or CHEM 342 may be counted as a substitution for 4 upper-division physics hours
- **Required supporting courses:** MATH 151, 152, 253; CSCI 144

Bachelor of Science Degree

Major in Physics

64 semester hours

- PHYS 153, 154, 163, 164, 223, 331, 332, ~~333~~, 336, 354, 356, 401, 499A, 499B
- **ENGR 333**
- Strongly Recommended: ~~CSCI 334~~ **ENGR 355**
- CHEM 341 or PHYS 221 may be substituted for **PHYS ENGR 333**
- CHEM 342 may be substituted for PHYS 401
- **Required supporting courses:**
 - CHEM 115; MATH 151, 152, 253; DATA 133 or CSCI 144

Typical B.S. Physics Major Program Schedule

- **First Year:** PHYS 153, 163; MATH 151, 152
- **Sophomore Year:** PHYS 154, 164, 223, 354; MATH 253
- **Junior Year:** PHYS 331, 336, 356; CHEM 115; DATA 133 or CSCI 144
- **Senior Year:** **ENGR 333**; PHYS 332, ~~333~~, 401, 499A, 499B

Minor

22 semester hours

- PHYS 153; 154; 163; 164; 223
- Plus: 8 additional semester hours in physics (excluding PHYS 110), of which at least 4 hours must be upper division.

Engineering & Industry Minor

The curriculum of the Engineering & Industry Minor consists of engineering courses, courses in business, economics, and ethics with a special emphasis on industry, and/or an internship. Students choosing the minor will learn the basics of engineering design and team problem solving, will gain familiarity with industry, and will obtain valuable skills ensuring their success in the workplace or in graduate studies.

An Advisory Board comprised of engineering and science professionals associated with PLU will advise students in the Engineering Internship process for students who choose that option, will evaluate the quality of internships, and will consult with the program leaders on curriculum.

The Engineering & Industry Minor is ideal for all students who would benefit from in-depth exposure to engineering and industry. Typically, students in Natural Sciences, Business, Economics, or any students who have completed the introductory calculus-based physics sequence (PHYS 153/163, PHYS 154/164) would be a good fit for the minor. BS in Applied Physics students are NOT ALLOWED to add this minor, as it essentially is the minor aligned with the Applied Physics major.

Engineering & Industry Minor (28) semester hours

- ENGR 131 (2 hrs)
- Calculus-based Introductory Physics plus laboratory (PHYS 153, 163, 154, 164) – 10 CR
- Plus: 8 additional semester hours chosen from the following Engineering courses:
 - ENGR 240, ENGR 333, ENGR 334, and ENGR 355
- Plus: 8 additional semester hours chosen from:
 - ENGR 495 (Internship): Credits would vary depending on internship type and schedule (0-8 hrs)
 - Courses in business, economics, ethics, and history, which would introduce students to various aspects of industry (0-8 hrs): BUSA 201, BUSA 310, BUSA 358
ECON 101, ECON 111, ECON 313, ECON 321, ECON 325

**HIST 254, HIST 346, HIST 370
PHIL 125, PHIL 223, PHIL 225, PHIL 226, PHIL/HIST 248, PHIL 327**

All courses counted toward the minor must be completed with grades of C– or higher.

Bachelor of Science Degree - Applied Physics Major

70 semester hours

Also available is a major in applied physics, which includes a substantial selection of courses from engineering to provide a challenging and highly versatile degree. Applied physics can lead to research or advanced study in such areas as robotics—with application in space exploration or joint and limb prosthetics; growth of single-crystal metals, which would be thousands of times stronger than the best steels now available; mechanics of material failure, such as metal fatigue and fracture; turbulence in fluid flow; photovoltaic cell research for solar energy development; or applications of fluid flow and thermodynamics to the study of planetary atmospheres and ocean currents. While many applied physics graduates pursue professional careers in industry immediately after graduation from PLU, the program also provides excellent preparation for graduate study in nearly all fields of engineering.

- PHYS 153, 154, 163, 164, 223, 331, ~~334~~, 354, 356, 499A, 499B
- ~~CSCI~~ ENGR 131, ~~334~~
- **Plus: four courses, one of which must be upper division, selected from:**
 - CSCI 302, ~~334~~
 - **ENGR 240, 333**
 - Strongly Recommended: ~~CSCI-334~~ **ENGR 355**
 - MATH 331, MATH/STAT 242
 - PHYS 221, ~~240~~, 332, ~~333~~, 336, 401
 - CHEM 341 may be substituted for ~~PHYS-333~~ **ENGR 333**
 - CHEM 342 may be substituted for PHYS 401

- **Required supporting courses:**
 - CHEM 115; DATA 133 or CSCI 144; MATH 151, 152, 253

Typical Applied Physics Program Schedule

- **First Year:** PHYS 153, 163; ~~CSCI~~ ENGR 131; MATH 151, 152
- **Sophomore Year:** PHYS 154, 164, 221, 223, 354; MATH 253
- **Junior Year:** ENGR 333; PHYS ~~333~~, 356; CHEM 115; DATA 133 or CSCI 144
- **Senior Year:** PHYS 240, 331, ~~334~~, 499A, 499B; ~~CSCI-334~~ ENGR 240, 334, 355

~~Course Offerings by Semester~~

- ~~Fall Semester (even years): 110+110L, 125+135, 153+163, 154+164, 240, 331, 333, 356, 499A~~
- ~~Spring Semester (odd years): 126+136, 153+163, 154+164, 223, 332, 354, 401, 499B~~
- ~~Fall Semester (odd years): 110+110L, 125+135, 153+163, 154+164, 221, 240, 331, 356, 499A~~
- ~~Spring Semester (even years): 126+136, 153+163, 154+164, 223, 334, 336, 354, 499B~~

ENGINEERING DUAL-DEGREE PROGRAM

PLU Requirements

In order to earn a PLU degree in the Dual-Degree Program, the following requirements must be satisfied:

Completion of the following science and mathematics courses, paired with a Bachelor's of Arts in Physics or Chemistry major, as specified below

44 semester hours

- MATH 151, 152, 253 (12 semester hours)
- MATH 351 or PHYS 354 (4 semester hours)

- PHYS 153, 154, 163, 164, 223 (14 semester hours)
- CHEM 115, 116 (8 semester hours)
- **CSCI ENGR** 131 (2 semester hours)
- DATA 133 or CSCI 144 (4 semester hours)

Completion of the General Education Program element requirements as specified in the catalog, except that the following general requirements are waived for all dual-degree (3-2) students:

- Completion of a minimum of 128 semester hours on the PLU transcript;
- Completion of a minimum of 40 semester hours from courses numbered 300 and above;
- The requirement that at least 20 of the minimum 40 semester hours of upper-division work must be taken at PLU;
- The requirement that the final 32 semester hours of a student's program be completed in residence at PLU; and
- The requirement that the senior seminar/project be completed at PLU. Senior projects from the engineering school (a characteristic of ABET-accredited schools) will satisfy the PLU senior project requirement for Dual-degree students upon approval of the project by the appropriate PLU department chair.

Bachelor of Arts Degree

Major in Physics

12 additional semester hours

Completion of an additional 12 semester hours of electives in science and mathematics from the following courses:

- MATH 331, 356
- PHYS 221, ~~240~~, 331, ~~333, 334~~, 336
- ~~CSCI 334~~
- **ENGR 240, 333, 334, 355**
- CHEM 341 may be substituted for ~~PHYS ENGR~~ 333

The particular courses chosen will depend on the intended subdiscipline and the engineering school's entrance requirements. Students should consult with the program director before choosing their electives.