



FACULTY MEETING MINUTES

December 6, 2017

3:35 PM

Heritage Commons, Samuel Read Hall Building

Meeting called to order at 3:37 PM.

- I. The Speaker announced that in order to ensure time for discussion of the motions on the agenda, Reports were moved to the end of the agenda; questions and answers regarding the Reports would take place if time allowed.

The draft minutes for the November 1, 2017 faculty meeting were approved with one minor correction.

II. Old Business

None

III. New Business

A. Resolutions of Standing Committees

None

- B. **MOTION:** To approve an update to the Excused vs. Unexcused Absences policy, by adding the proposed language. (Submitted and presented by Emma Wright, Chair of the Academic Affairs Committee)

(The proposed language is attached as Appendix A.)

Motion was proposed and seconded. Emma Wright, Chair of the Academic Affairs Committee, spoke to the motion. Several faculty expressed questions and concerns related to the wording of the proposed motion. After some discussion, the motion was withdrawn. The Academic Affairs Committee will revise the wording and bring the motion back to the faculty at a future meeting.

- C. **MOTION:** To approve the BS in ElectroMechanical Technology and Robotics (EMTR) degree. (Submitted and presented by Zhizhang Shen, Chair of the Computer Science and Technology Dept.)

(The proposed BS in ElectroMechanical Technology and Robotics degree is attached as Appendix B; note that a powerpoint presentation was also sent to the faculty with the agenda.)

Motion was proposed and seconded. Zhizhang Shen spoke to the motion and described the goals and plans for the proposed new degree.

The faculty engaged in a lengthy discussion of the proposal. It was moved and seconded to hold a ballot vote. The motion for a ballot vote passed by voice vote.

The motion to approve the BS in ElectroMechanical Technology and Robotics passed by ballot vote: 55 in favor, 41 opposed.

- D. **MOTION:** To change the distribution requirements of the General Education program as many programs make the transition to four-credit curriculum offerings. (Submitted and presented by Wendy Palmquist, Chair of the General Education Committee)
(The proposed change is attached as Appendix C.)

Motion was proposed and seconded. During the discussion that followed, some science faculty voiced concerns about how the proposal would affect science general education courses; other faculty stated that not all science faculty are opposed to the change.

A motion to table was made and seconded. The motion to table failed by voice vote.

Faculty asked whether the proposed change to the General Education requirements would affect PSU's NEASC compliance. Dean Mears assured the faculty that this change would not put PSU out of compliance with NEASC requirements.

The motion passed by voice vote.

- IV. **Reports:** There was not sufficient time left in the meeting to allow for questions and discussion related to the Reports.

A. President

(The report was distributed via email from the President's Office on November 27.)

B. Academic Deans

(The report will be distributed via email from the Academic Affairs Office)

C. Principal Policy Making Committees

(Committee reports from Academic Affairs, Academic Technology and Online Education, Curriculum Committee, Faculty Welfare, General Education, and Graduate Council follow this agenda as Appendices D-I. Committee chairs will be available to speak to the reports and answer questions during the meeting.)

Meeting adjourned at 5:20 PM.

APPENDIX A:

MOTION: To approve an update to the Excused vs. Unexcused Absences policy, by adding the proposed language.

Rationale: Instructors must allow students with excused absences the opportunity to make up missed graded work. Some students have reported that the only opportunity the instructor allows will occur during finals week, even when the missed graded work was originally due in the beginning of the semester. These students report that having such a delayed opportunity creates additional stress. The Academic Affairs Committee introduces additional language, given in bold below, to allow students more timely opportunities.

CURRENT: The current policy is found on page 34 of the 2017-2018 catalog, as follows:

Excused vs. Unexcused Absences

Student absences are defined as excused or unexcused. Unexcused absences are those that occur without adequate reason. Unexcused absences may be used in the computation of grades.

Excused absences are defined as absences stemming from (a) participation in University-sponsored activities and (b) compelling and extenuating circumstances beyond a student's control. Documented excused absences may not be used in the computation of grades. Instructors must allow students to make up missed examinations, quizzes, writing assignments, and other course work for documented excused absences. Examples of excused absences include, but are not limited to, the following:

- documented student's participation in University-sponsored events,
- student's documented illness,
- student's documented injury,
- documented death in a student's immediate family,
- documented illness or injury in a student's immediate family,
- documented student's required military duty, or
- documented student's required jury duty.

Instructors are not obligated to excuse an absence if a student fails to provide requested documentation. Instructors also reserve the right to determine when the number of excused absences exceeds a reasonable limit to the extent that it significantly interferes with a student's satisfactory mastery of course content/skills. Excused absences do not exempt a student from course requirements, and therefore in circumstances that entail excessive excused absences the instructor may reasonably recommend that a student consider withdrawal from a course.

PROPOSED POLICY:

Excused vs. Unexcused Absences

Student absences are defined as excused or unexcused. Unexcused absences are those that occur without adequate reason. Unexcused absences may be used in the computation of grades.

Excused absences are defined as absences stemming from (a) participation in University-sponsored activities and (b) compelling and extenuating circumstances beyond a student's control. Documented excused absences may not be used in the computation of grades. Instructors must allow students to make up missed examinations, quizzes, writing assignments, and other course work for documented excused absences. **Any make-up work must be offered to students in as timely a manner as possible during the semester. Students shall not be required to make up work during finals week.**

Examples of excused absences include, but are not limited to, the following:

- documented student's participation in University-sponsored events,
- student's documented illness,
- student's documented injury,
- documented death in a student's immediate family,
- documented illness or injury in a student's immediate family,
- documented student's required military duty, or
- documented student's required jury duty.

Instructors are not obligated to excuse an absence if a student fails to provide requested documentation. Instructors also reserve the right to determine when the number of excused absences exceeds a reasonable limit to the extent that it significantly interferes with a student's satisfactory mastery of course content/skills. Excused absences do not exempt a student from course requirements, and therefore in circumstances that entail excessive excused absences the instructor may reasonably recommend that a student consider withdrawal from a course.

APPENDIX B: New Program Proposal

Bachelor of Science in ElectroMechanical Technology and Robotics (EMTR)

General Information

- Institution name: Plymouth State University
- Date of proposal: November, 2017
- Degree and program name: B.S. in Electromechanical Technology and Robotics (EMTR)
- Name of proposing department: Computer Science and Technology
- 2010 CIP code and CIP title <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>
14.4201 Mechatronics, Robotics, and Automation Engineering
- Proposed date of program implementation (effective term/year): *Fall, 2018*
- Primary contact person: Dr. *Zhizhang Shen, Chair of Computer Science and Technology*
zshen@plymouthl.edu

Evidence of indicators of student demand, employer or community-based demand

The department currently hosts two programs: B.S. in Computer Science, and B.S. in Information Technology. Computer Science students learn how to make the computer usable; while Information Technology students learn how to make the computer useful, to help human beings to get something done.

With the rapid progress in areas such as communication network, increasing use of big data, growing applications of Internet of things, a new trend of automation system has emerged, *where computers can directly make use of information and make something happen*. For example, *McDonald* will put in 5,500 automatic ordering kiosks by the end of 2018. *Stop and Shop* has started to use robots to clean its stores' floor, keep track of the items that it sells, and exchange information with a centralized database to ensure information accuracy. *Amazon* has replaced 90,000 human "pickers" with 15,000 *KIVA* robots to fulfill customers' orders, which would save 22 million in just one warehouse each year.

These automatic machines, indeed, have taken over many of the tasks requiring high precision, speed, and endurance in various areas, including manufacturing, shipping, medical field, and military, leading to high efficiency and savings. This area continues to attract significant attention and strong financial support from the industry. Indeed, according to estimates made in a recent report from *Forrester Research*, a market research company, "Close to 15 million new jobs will be created in the U.S. over the next decade as a direct result of automation and artificial intelligence, equivalent to 10% of the workforce." Needless to say, such a trend will certainly have a huge economic and social impact on us all.

A market analysis report, commissioned by Dean’s Office, Plymouth State, in February, 2017, based on the Bureau of Labor Statistics, reveals that “There should be demand for electro-mechanical technicians as demand increases for engineers to design and build new equipment in various fields. Consequently, employers will likely seek out electro-mechanical technicians with knowledge of photonics to help implement and maintain automated processes.”

Following is a projection of industry growth in the area of electrical engineering technician.

Served Industry	State of NH
Computer/Electronic Product Mfg	50.1%
Electric Equipment and Appliances	9.9%
Architectural and Engineering Services	7.2%
Machinery Manufacturing	4.2%
Mgmt of Companies and Enterprises	3.3%
Mgmt of Technical Consultant Svc	N
<i>Source: June 2014 Long Term Projections Economic & Labor Market</i>	

Apparently, we are not the only one who has been thinking about entering such a field. Based on the program completion date reported to the National Center for Education Statistics (IPEDS data, Institute of Education Services), the above market analysis report finds that institutions that are comparative to PSU offer programs in electromechanical technology, electrical technology/engineering, mechanical technology/engineering, robotics, etc. have had consistent growing rates for program completions. Note that these results are not based on students graduating with a degree solely in Electromechanical Technology, but degrees related to this field of study.

Institution	2012	2013	2014	2015
Colby College	9	8	11	10
Miami University Hamilton	0	0	0	12
Millersville University of Penn.	24	35	26	36
Rochester Institute of Technology	1,398	1,484	1,558	1,706
Shippensburg University of Penn.	55	67	100	81
SNHU	75	144	207	450
UNH Manchester	53	51	63	70
Wentworth Institute of Technology	360	391	455	412
Western Connecticut State	5	10	12	6
Westfield State University	24	28	28	30

A natural question arises: *Can this proposed EMTR program at Plymouth State be able to compete with those already established?* A recent visitor refers to our program as “unique” in the region. Indeed, programs in electromechanical and electromagnetic technologies that are not engineering based, and especially those focus on system integration, are limited in New England. Moreover, most of the schools in the New England area that offer this type of program, i.e., without a focus in engineering, only provide an Associate’s degree, including the *Robotics and Automation Engineering Technology* associate degree program offered in *NHTI*, Concord, NH, which emphasizes on the electrical engineering aspect of the robotics.

Furthermore, there are six more in the New England Region who offer Associate's degree in Electromechanical Technology (Asnuntuck Community College, Bristol Community College, Community College of RI, Quincy College, Quinsigamond Community College, and Springfield Technical Community College).

So, besides offering the bachelor degree to students just graduated from high schools, this proposed program provides yet another opportunity to those who hold an associative degree in this area and wishes to continue their study in a program that combines electronics, mechanics and computer science.

Regarding the benefits and outlook for Plymouth State, the aforementioned market analysis concludes that "Based on the data provided, but without the knowledge of projected budget costs/ additional required resources, the creation of a new electromechanical technologies (EMT) program will positively impact Plymouth State. Following industry trends and needs, a BS in such technologies will better prepare students wishing to pursue careers in a lucrative and expanding field. The creation of this program will also help PSU maintain its 2012 commitment with other New Hampshire public colleges and universities to double the number of science graduates in the state by 2025. Having an EMT/EMET program with a potential concentration in Robotics will fulfill market needs and attract new students to PSU. "

Furthermore, we notice that, based on Dr. Mary Ann McGarry's report from the Board of Trustee's October 20, 2017 meeting, it is estimated that the college student enrollment in the period of 2012 and 2032 will drop 27 % in New Hampshire, and 12% in the Northeast region, while we still observe a national and local emphasis on need of graduates in the STEM area.

The world is changing. We need to prepare Plymouth State, and our students, to keep up and respond. The proposed new program on Electromechanical Technology and Robotics can be regarded as one of our empirical, visionary, and creative responses to such changes.

Appropriateness of the program to the institution's mission and goals

This proposed EMTR program has a broad, multi-disciplinary vision that fits well with the institution's overall direction, by transforming our students through advanced practices where engaged learning produces well-educated undergraduates to keep up with this constantly changing world, thus "meeting the evolving educational needs of the New Hampshire and New England community".

Robotics is an inherently multi-disciplinary field, thus an excellent match with the current educational vision of Plymouth State, as well as the cluster model that we are transitioning into, where we "develop ideas and solutions for a connected world and produce society's global leaders within interdisciplinary integrated clusters, open labs, partnerships and through entrepreneurial, innovative, and experiential learning."

We anticipate that this EMTR program could connect well with multiple clusters: Arts and Technologies (making things, augmenting human-computer communication, and facilitating human-computer interface), Exploration and Discovery (bio robotics, cognitive science, robotics application in meteorology), TESD (environment monitoring, social impact of robotics), Health

and Human Enrichment (assistive robots, medical applications of robotics), Innovation and Entrepreneurship (business applications of robotics, and start-ups).

We have been reaching out to a dozen or so disciplines on campus, including Art, Biological Science, Business, Communication and Media Studies, Education, English, Environment Science, Meteorology, Philosophy, Physical Therapy, Psychology, to discuss possible cooperation, and ask for recommendations for courses which might be related to this program. As a result, we have identified some joint work, with, e.g., physical therapy; and have included nine courses offered by other disciplines as major elective courses for the EMTR program.

As mentioned earlier, this program can also help us to fulfill our obligation, as a public institution, to serve the State of New Hampshire and its citizens, especially to the North Country and Lakes Region. In addition to the fact that this will be a concrete step to deliver our commitment, along with other sister state institutions, to double our STEM graduates by 2025, it will also enable us to actively participate in other endeavors such as Summer Steam Institute for educators of Math/Tech/Robotics, NH Impact Center, CS 4 NH, the annual FIRST Robotics competition, and the recently announced New Hampshire Robotics Fund for K-12 schools.

Student Learning Outcomes

1. Equipping students with both theoretical knowledge, and practical hands-on skills to solve real-world problems.
2. Educating students to take part in the development of the internet of things.
3. Preparing students to be innovators, entrepreneurs, and connectors in a dynamic and complex field where no one person can know it all.
4. Connecting computer science and robotics with artistic design and interactive performance to build upon cluster knowledge.

At the core of this automation system, a microprocessor collects information via a variety of sensors, and process them, and then issues a command to actuators, which change the world. After going through the EMTR program, students will be expected to demonstrate, both during their participation in the program and at the completion of their degree, analytical skills to design a system, and address various issues, through the design process cycle; Computer science skills to write scripts and make the robots to work as intended; Engineering and design skills to make viable, user-friendly products that meet users' needs; Electromechanical skills to convert electronic signals into directed mechanical actions; System skills to integrate various parts into a whole; and other information technology skills to address various technological issues such as communication, big data analytics, networking, security, etc.

Certification, licensing, or accreditation requirements associated with program

We notice that there are five ABET accredited B.S. programs in Electromechanical Engineering Technology nationwide. However, at this point, we do not have a plan to immediately work on such a full-scale program.

Program Design

We do not expect any special requirement, or additional admission standards and criteria, applied on potential application for this program, though students will be placed into appropriate math courses based on their Math Assessment scores.

Incidentally, for the students who enrolled in Fall 2015 semester at the Penn State University at Berks (one of the five institutions that offer the EMET undergraduate program), 25 and 75 percentile of the SAT score on math was 430 and 560 respectively. The average math score for that year was about 495.

According to Plymouth State Admission Office, the average SAT Math score of students enrolled in Plymouth State in Fall 2015 is a comparable 481.

The EMTR program, with its origin lying in cognitive science and artificial intelligence, combining electronics, mechanics and computer science, is a highly technical discipline. Two external reviewers, Dr. Wheeler Uml from UNH, Computer Science and Engineering, and Dr. Bruce Maxwell from Colby College, and one industrial consultant, Dr. Nicusor Iftimia, have been working with us on this EMTR curriculum, to make sure that it serves its purpose while making a full use of the existing resource and specialty at Plymouth State.

Besides its needed math and general education component, at its core, after taking CS 2010 Fundamental computing to acquire a basic understanding of the computing field in general, EMTR students will move on to CS 2521 Introduction to EMT, where they will learn the basic knowledge and skill of electronics, mechanics, and simple programming. They will consolidate their understanding of these subjects and their integration through a sequence of projects with incremental challenging degrees. They will continue to learn two courses, CS 2470 System Programming in C/C++ to set the stage for working with the ROS (Robotics Operating System) based robots, and CS 2525 Microprocessor and Distributed Systems to have a peek of the inside of a microprocessor, which they took for granted when taking CS 2521. At this point, they will be ready to take CS 3650 Robotics I and start to appreciate what a sophisticated robot, e.g., TurtleBot II has to offer; and CS 4650 Robotics II, where they will add on components, which will work with existing components, all under the control of ROS. In another front, a robot is an engineering product, which has to be well designed, and manufactured through an engineering process. Thus, a student will also take CS 3850 Intro to Engineering Design where she will be exposed to a team based engineering development process. Finally, an EMTR student will take CS 4750 Robotics III, a capstone course, where she is to create a new robot to address a real issue. An example could be to work with Physical Therapy program students to design a robot based massage system that is to help some of the 762,000 people who suffer from stroke every year to recover.

This program also contains several other utility courses, such as Computer Communication, Cybersecurity, Cyberethics, Human-Computer Interaction, Programming courses, System analysis and design, to help students to achieve a holistic perspective of their subject field.

Aside from the technical perspective, the increasing application unavoidably replaces human employment, thus also creating an increasingly felt social impact. With the advancement of computer technology, robotic technology finds more and more applications in both our works and lives. As a result, this is truly an interdisciplinary area, leading to many opportunities of collaborations. To encourage EMTR students to pursue such opportunities and apply their knowledge skills to various fields, after discussing this program with various disciplines, we have included several courses offered in other disciplines into the major elective list of this program. These courses include BU 3420 Organization Behavior (Business), CM 3090 Technical Communication (Communication and Media Studies), PY 3380 Humans and Humanoids: Ethics in Technology (Philosophy), PS 1120 Cognitive Psychology Labs and PS 3220 Cognitive Psychology (Psychology), and TH 3300 Design for the Theatre and TH 3310 Theatre Technology (Theatre).

Below shows degree requirements (list of required and elective courses), and sequential outline of the new program

Degree Requirements	Credits
CS 2010 Computing Fundamentals (TECO)	3
CS 2370 Introduction to Programming	4
CS 2381 Data Structures and Intermediate Programming	4
CS 2470 Systems Programming in C/C++	2
CS 2521 Introduction to Electromechanical Technology	3
CS 2525 Microcontroller and Distributed Systems	4
CS 3240 Data Communication and Computer Networks	3
CS 3420 Introduction to Cybersecurity	3
CS 3690 Robotics I	4
CS 3720 Systems Analysis and Design	3
CS 3890 Engineering Design	3
CS 4520 CyberEthics (DICO) (INCO) (WRCO)	3
CS 4690 Robotics II	4
CS 4790 Robotics III	<u>4</u>
	47
 EMTR Major Electives - complete two of the following: (*)	 <u>6-8</u>
BU 3420 Organization Behavior	
CM 3090 Technical Communication	
CS 3015 Mobile Application Development	
CS 3221 Algorithm Analysis	
CS 3500 Introduction to Artificial Intelligence	
CS 3600 Database Management Systems	
CS 3650 Big Data Analytics	
CS 3820 Human-Computer Interaction	
CS 4140 Software Engineering	
CS 4310 Operating Systems	
CS 4230 System Administration	
CS 4400 Computer Networks and Protocols	
CS 4500 Topics in Computer Science and Technology	
CS 4920 Computer Science Internship (maximum of three credits)	
MT 3710 Meteorological Instruments and Observations	
PS 1120 Cognitive Psychology Lab	
PS 3220 Cognitive Psychology	
PY 3380 Humans and Humanoids: Ethics in Technology	
PY 3610 Philosophy and Technology	
TH 3300 Design for the Theatre	
TH 3310 Theatre Technology	

53-55

Math Requirement		
MA 2140	Precalculus (QRCO)	4
MA 2250	Mathematics for Computer Scientists	3
MA 2300	Statistics	3
MA 2490/2550	Applied Calculus I or Calculus I	<u>4</u>
		14
<i>General Education:</i>		
EN 1200	Composition	3
IS 1111	The First Year Seminar:	
	Critical Thinking and the Nature of Inquiry	3
CTDI	Creative Thought Directions	6
PPDI	Past and Present Directions	6
SIDI	Scientific Inquiry Directions	6-8
SSDI	Self and Society Directions	6
GACO	Global Awareness Connection	3
WECO	Wellness Connection	<u>3</u>
		36-38
<i>Electives</i>		17-13
Total		120

(*) The prerequisites of all those courses offered by the Computer Science disciplines are included in the required and this elective course list. For those offered by other disciplines, there might be prerequisites not listed here.

Recommended Course Sequence

Check all course descriptions for prerequisites before planning course schedule. *Course sequence is suggested but not required.*

Year One		Credits
EN 1200	Composition	3
IS 1111	The First Year Seminar:	
	Critical Thinking and the Nature of Inquiry	3
CS 2010	Computing Fundamentals (TECO)	3
CS 2221	Introduction to Electromechanical Technology	3
CS 2370	Introduction to Programming	4
MA 2300	Statistics	3
MA 2250	Math for Computer Scientists	3
CTDI	Creative Thought Directions	6
GACO	Global Awareness Connection	<u>3</u>
		31
Year Two		Credits
CS 2381	Data Structure and Intermediate Programming	4
CS 2470	Systems Programming in C/C++	2
CS 2525	Microprocessors and Distributed Systems	4
CS 3240	Data Communication and Computer Networks	3
MA 2140	PreCalculus (QRCO)	4
MA 2490/2550	(Applied) Calculus I	4
WECO	Wellness Connection	3
SIDI	Scientific Inquiry Directions	<u>6-8</u>
		32-30
Year Three		Credits
CS 3690	Robotics I	3
CS 3890	Introduction to Engineering Design	3
CS 3420	Introduction to Cybersecurity	3
CS 3720	Systems Analysis and Design	3
SSDI	Self and Society Directions	6

PPDI Past and Present Directions	6
Electromechanical Technology Major Elective	3
Electives	<u>3-4</u>
	30-31
Year Four	Credits
CS 4520 CyberEthics (DICO) (INCO) (WRCO)	3
CS 4690 Robotics II	4
CS 4790 Robotics III	4
Electromechanical Technology Major Elective	3-4
Electives	<u>14-13</u>
	28-27
Total	120

Program Delivery System

The entire EMTR program will be offered in the main campus of Plymouth State. All the courses will be taught in person, not robot yet, in Memorial and/or Rounds. Labs will be held, in the short term, in Memorial 304 and the third floor hallway, as well as in part of the FAB lab (under construction as of November 2017) on the first floor, D&M; and in the long run, in the planned open EMTR Lab on the fourth floor, D&M, which is to be shared with all the disciplines on campus.

Enrollment Impact

We expect between 12 and 15 students per year for the first four years, with a total around 50 at the end of the fourth year after its inception, and budgeted accordingly. Note that the forthcoming budget is made based on 12 students.

Based on the data as contained in the aforementioned external analysis, the impact of this enrollment on the total FTE of Plymouth State might vary. In the SNHU case, over three years, its engineering enrollment jumps from 75 to 450, and in UNH Manchester, it went up from 53 to 70. Such an impact is much smaller in some of the other places such as Westfield, Western Connecticut, and Colby. If a significantly large body of new students are to join us, we would have to add a section in the lower level courses, such as CS 2010, CS 2370, and CS2381, CS 2470, besides the new core courses, which will gradually be phased in the next few years.

Institutional Resources

Existing faculty members can teach many of the EMTR courses, but we need an expert of robotics to teach the Robotics core, as well as finalize, further develop, and lead the program. To serve this purpose, we are hiring a tenure track faculty at Assistant/Associate level. We also expect to hire two student workers to help this Robotics faculty to maintain the labs, and the equipment, so that they are in working orders, when shared with other disciplines.

On the facility side, we need a microcontroller lab, and a fleet of robots, tentatively consisting of 12 TurtleBot II robots. <http://www.turtlebot.com/>; and we also need six computers to run simulating programs before downloading them to robots.

We don't expect to request much resource from library, since most of the relevant material can be found on line.

Frankly, robotics program is not cheap. Working together with our external advisers, and an industry consultant, we have communicated our request to administration for a seed money of \$60,000 to support the establishment of this program for the first four years. Most of the robots and the computers will be carried over to serve the needs of future classes.

The administration strongly supports the development of such a program, and Plymouth State will also work, through its University Advancement division, to explore possibility of external resource. Below is a broken down budget.

EMTR Program Budget (2019-2022)

	Unit price	Quantity	Budget
Spring 2019			
CS 2521			
Arduino	\$99.95	12	\$1,199.40
H-Bridge	\$8.99	12	\$107.88
Soldering Kit	\$25.99	12	\$311.88
Measuring meter	\$50.00	2	\$100.00
Accessories			\$1,000.00
TurtleBot II	\$1,925.00	1	\$1,925.00
Course total			\$4,644.16
First Yr Subtotal:			\$4,644.16
Fall 2019			
CS 2525			
8086 MICROPROCESSOR TRAINER KIT	\$ 150.00	12	\$1,800.00
8085 MICROPROCESSOR TRAINING KIT	\$ 120.00	12	\$1,440.00
Accessories		1	\$1,000.00
Course total			\$4,240.00
Second Yr Subtotal:			\$4,240.00
Fall 2020			
CS 3690			
TurtleBot II Complete	\$1,925.00	8	\$15,400.00
Hokuyo URG sensor	\$1,100.00	4	\$4,400.00
Accessories		1	\$1,000.00
Course total			\$20,800.00

Spring 2021			
CS 3890			
Accessories			\$5,000.00
Course total			\$5,000.00
Third Yr Subtotal			\$25,800.00
Fall 2021			
CS 4690			
Simulating machine	\$1,569.42	6	\$9,416.52
Accessories			\$2,000.00
Course total			\$11,416.52
Spring 2022			
CS 4790			
TurtleBot II Complete	\$1,925.00	6	\$11,550.00
Accessories			\$3,000.00
Course total			\$14,550.00
Fourth Yr Subtotal			\$25,966.52
Total			\$60,650.68

Course Syllabi

This new program comes with six new courses, which are all approved by the Curriculum Committee on November 17, 2017.

External Review and Response

Drs. Bruce Maxwell of Colby College and Wheeler Ruml of UNH visited us on July 14, 2017, and submitted their external reviewer report on July 21, 2017. They pointed out in their report (See attached) that "The Plymouth State University CS department has developed a strong proposal for an EMT or CyberPhysical Systems major. The proposal comes at a propitious time, given the rise of the internet of things, the ubiquity of embedded computing systems, and developments in modern robotics and sensor systems. There will be tremendous opportunities for graduates of this program who have experience in designing and implementing cyber-physical systems. We strongly recommend moving forward with this program and applaud the strong and broad support expressed by the administration for this effort."

We agree with these external reviewers' opinions and will try our best to turn their expectation to reality.

APPENDIX C:

Motion: To change the distribution requirements of the General Education program as many programs make the transition to four credit curriculum offerings.

Proposed Revisions to the General Education Requirements

Encompassing three of the Four Tools of clusters, the general education program plays a vital role in establishing a strong foundation for students at Plymouth State University. In order to meet the demands of this responsibility, it is evident that a logical transition of the general education program is necessary to accommodate the curricular shift to a four-credit model. The proposed transitional model provides flexibility in myriad ways including: meeting times, assignment/project structure, open lab opportunities, and personalized learning. By focusing on quality versus quantity of courses, students can engage in depth of knowledge through project-based learning that contributes to authentic learning experiences in and out of the classroom. The proposed model provides this flexibility in an outcomes-focused approach without forcing an immediate change to INCO courses or causing an increase in credit requirements for programs. The time is right for PSU Gen Ed to transition to a model that provides opportunity to accommodate curricular choices that provide the strongest preparation for our graduates.

The attached proposal provides a pathway to allow programs wishing to move to a 4-credit model to do so without adding additional credits to students' programs.

This model incorporates:

- The plan to move First Year Seminar and Composition to 4 credits
- The option for 1-4 credit Directions courses
- A reduction in required minimum Directions courses from 24-26 to 20 credits with a requirement that students take at least one 3 or 4 credit course in each Direction.
- Flexibility for Directions and Connection courses to be 3 or 4 credits. This was approved for Connection courses last year.
- A reduction in minimum general education requirements from 45-47 to 42 credits.

See model next page.

General Education Proposed Model

We are required to have a minimum total of **40 credits** for General Education.

The *current* Gen Ed model is 45-47.

The *proposed* model is at least 42.

	Current	Proposed Model
FYS	3	3-4 (4 is likely transition, not yet in process)
Math	3	3-4 (per Math Dept.)
Comp	3	4 (Comp proposal is in process)
	9	AT LEAST 10
CTDI	6	At least 3-4; <i>at least one 3 or 4 cr. course is required</i>
PPDI	6	At least 3-4; <i>at least one 3 or 4 cr. course is required</i>
SIDI	6-8	At least 3-4; <i>at least one 3 or 4 cr. course is required</i>
SSDI	6	At least 3-4; <i>at least one 3 or 4 cr. course is required</i>
	24-26	AT LEAST 20 (allows for 1-2 cr. courses designated as DI)
	<i>Connections (CO) are allowed to double count [Connections & the Major]</i>	<i>Connections (CO) are allowed to double count [Connections & the Major]</i>
DICO	3	3-4; <i>at least one 3 or 4 cr. course is required</i>
GACO	3	3-4; <i>at least one 3 or 4 cr. course is required</i>
INCO	3	3-4; <i>at least one 3 or 4 cr. course is required</i>
WECO	3	3-4; <i>at least one 3 or 4 cr. course is required</i>
	12	AT LEAST 12
QRCO	<i>In major</i>	3-4 <i>In major</i>
TECO	<i>In major</i>	3-4 <i>In major</i>
WRCO	<i>In major</i>	3-4 <i>In major</i>
TOTAL	45-47	At least 42

APPENDIX D:

**Academic Affairs Committee Report
December 2017**

The yearlong goal of the Academic Affairs Committee is to revise the academic integrity policy and related processes. Currently, subcommittees are working on

1. Rewriting the current academic integrity violation process, and
2. Researching remediation processes and feasibility here at PSU.

A new draft should be ready to be shared with the faculty in early January. The Academic Affairs Committee has applied to conduct a session at January Jamboree in which faculty are encouraged to give their feedback on the latest draft. The feedback generated during University Days was very helpful, and the Academic Affairs Committee would like to thank those who participated.

Additionally, the AAC has drafted a revision to the excused absence policy to ensure that students are given a timely option to make up missed work, which will be presented to the faculty for a vote at the December meeting.

Submitted by Emma Wright,
Chair, Academic Affairs Committee

APPENDIX E:

Academic Technology and Online Education Committee (ATOEC) Report December 2017

Meeting Date: November 14, 2017

Discussion Items:

ATOEC Bylaws Review: Function

- Committee reviewed current function as stated in Faculty Bylaws
- Brainstorm discussion with a focus on the following:
 - Purpose Statement
 - Listing of 5 committee functions
- Discussion to be continued over the next few meetings
- Brainstorming notes available in November 2017 ATOEC Minutes

Proposal for Technology Enhanced Learning Spaces:

Cybersecurity and Digital Forensics Lab (Complete Proposal attached to Nov. 2017 Minutes)

- 1) *Recommendation:* Due to the nature of the project (i.e. looks like an upgrade), voted on moving this request to the area of general technology upgrades
Vote: In Favor: 7 Abstain: 1 Oppose: 0

Other: Old Business

- a. *Student Member Selection Process Update:* Recommend a policy to put on our website; Will vote on a draft next meeting (December 2017)
- b. *EduNav Update:* No decision made at point of meeting. A discussion among people this would impact will address which of the tools being considered will best help with retention
- c. *Online/Distance Learning Policy Review Work Group Update:* Prioritize discussion around the function before we complete the policy to accurately address the function of the council

Submitted by Lynn V. Johnson,
Chair, ATOEC

APPENDIX F:

Curriculum Committee Report December 2017

New Program Approval: After a thoughtful and productive discussion, the committee approved a new major, Electromechanical Technology and Robotics (EMTR.) The committee vote was as follows:

- In favor: 3
- Opposed: 1
- Abstain: 3
- Absent: 2

Clusters and Curriculum – Meeting with TLT members: The committee is continuing its efforts to provide the flexibility needed for innovation while maintaining consistency and integrity of academic experiences. Several members of the TLT attended the November 17th meeting to discuss the committee’s progress on Clusters and Curriculum. The committee recognizes the need for continued discussion on this matter and reminded the TLT of the group’s timeline established last April. See the slides at the following link under the April 18th Forum: <https://campus.plymouth.edu/clusters/faculty-staff-resources/events/> . It includes plans to hold additional meetings in the spring to gather further feedback from faculty and staff before establishing and proceeding with next steps.

Although the committee recognizes the sense of urgency associated with Clusters and Curriculum, it is very busy with standard curricular business through the catalog deadline in February. In addition, the committee provided a report in August explaining the rationale behind its decisions about timing and focus of committee work. Feedback via the Curriculum Chair email (psu-curriculum-chair@plymouth.edu) or discussion with any committee member is always welcome.

Toolkit and Project Courses: The committee approved four Toolkit courses at its November meeting as well as one Project Course. Faculty and students can search for Toolkit courses by attribute (similar to Directions and Connections) and all project courses have “project” in the title so they are searchable by course name.

Meeting Times and Deadlines

Curriculum Committee meetings this academic year will be as follows at the specified location:

- December 15th HUB Student Senate Room
 - Deadline: December 4th by 11:59:59pm
- February 16th HUB Student Senate Room
 - Deadline: February 5th by 11:59:59pmCATALOG DEADLINE FOR SUBSTANTIVE CHANGES
- March 16th HUB Student Senate Room
 - Deadline: March 5th by 11:59:59pm
- April 20th HUB Student Senate Room
 - Deadline: April 9th by 11:59:59pm
- May 18th HUB Student Senate Room

- Deadline: May 7th 11:59:59pm

The committee conducts voting twice a month. Any proposals requiring discussion will be on the agenda of the first committee meeting after the proposal is submitted. Below is a list of each month's second proposal deadline:

- January 29th by 11:59:59pm
- February 19th by 11:59:59pm
CATALOG DEADLINE FOR CHANGES NOT REQUIRING SIGNATURE OF A DEAN.
- April 23rd by 11:59:59pm

The committee will be voting electronically on all proposals. Only those proposals requiring discussion (as determined by committee members) will be voted on in-person at committee meetings.

Curriculum Committee Chair Email: There is a separate email address for the curriculum committee chair. Please direct all inquiries, notifications and proposals to psu-curriculum-chair@plymouth.edu. Please try to remember to use this email address.

Updates to Forms and Procedures Documents: The committee is working to revise curriculum forms and related documentation to align with current administrative structures and account for new opportunities in course offerings.

The most recent Curriculum Change and New Course Proposal forms, approved in August 2015, are available at the following link: <https://campus.plymouth.edu/faculty-governance/committees-and-appointed-groups/curriculum-committee/> as is the updated Experimental Course Proposal form. The newest forms will be available at the link above as they are ready. Please use this link to retrieve the most current forms instead of using older ones you may have saved to your computer.

If you are unsure how to proceed, contact psu-curriculum-chair@plymouth.edu with your questions.

Reminders

- Transitioning to Four-Credit Model The committee welcomes proposals for program changes to the four-credit model. The committee has developed the following guidelines for departments as they prepare proposals:
 - The overall degree requirements must remain at 120
 - The requirement for a *minimum* of 15 free elective credits remains in effect
 - The degree program should not increase in size (number of required credits.)
- Procedures: Please submit one electronic file (PDF) for each proposal (with appropriate required signatures, recorded votes, etc.) to psu-curriculum-chair@plymouth.edu by the deadline indicated. When your department has one or more items on the agenda, I will inform the department chair if there are questions and if a representative will need to

attend the meeting.

The syllabus checklist can be found at the link below. *Be sure to use the newest ADA and Academic Integrity statements in your syllabi.* The checklist has not yet been updated to the newest statements because of anticipated changes for the Spring 2018 semester:

<https://www.plymouth.edu/committee/faculty/files/2010/08/PSU-Syllabus-checklist-Appvd-06Feb2012.pdf>

Submitted by Hilary Swank,
Chair, Curriculum Committee

APPENDIX G:

Faculty Welfare Committee Report December 2017

The Faculty Welfare Committee met Nov 17, 2017.

Ongoing work:

- The committee will meet with the Deans (Academic Affairs) during our Dec 8 committee meeting about Promotion & Tenure policies in light of changes in administrative structure as Clusters transition away from Departmental Chairs and when Deans step down. We will query Cluster administrators (as these form) and Cluster members on proposed P&T management strategies in each Cluster. We continue to encourage Cluster guides to visit during a Faculty Welfare meeting to share and discuss emerging P&T management ideas.
- The Faculty Welfare Committee discussed the potential for a new Promotion and Tenure Advisory Council that might advise on the structure of the P&T process within clusters and under the new administrative framework, at least for tenure-track and tenured faculty. The aim of this council would be to ensure equity across clusters, not to set parameters for P&T. We will request time on the agenda to discuss further details of this evolving idea at February Faculty Meeting (after we've received input from Academic Affairs).

Planned work:

As Chair, Lisa Doner will work with Gail Mears (representing Academic Affairs) to communicate Faculty Welfare interests in Intellectual Property policy.

Respectfully submitted, December 1, 2017
Lisa Doner, Chair, Faculty Welfare Committee

APPENDIX H:

General Education Committee Report December 2017

The General Education Committee was active in November. Our first regular meeting on November 13 was replaced by the Forum on the impact of moving to 4 credit courses on the General Education program. The discussion was attended by many faculty, and provided us with notes from the tables to consider at our next meeting, which was November 27.

At that meeting, after entering the approval of two new Gen Ed courses, the Committee met with the new INCO task force, to discuss their charge and some of the issues relevant to their work that the Committee had developed.

This was followed by a discussion of the 4 credit forum. The committee decided to approve the transitional 4 credit model and bring it to the faculty for a vote, and it is on the Faculty Meeting Agenda for December.

The final issue for the Committee was the upcoming Forum (Dec. 8, 2-4 pm) on Themed Gen Ed. This is the next major issue to be explored and developed by the Committee. We hope for many ideas to be brought to the Forum; there will be presentations on what kinds of things this new idea for Gen Ed, themes or pathways, could be, how it could be structured in relation to clusters, and include words from an experimental grouping of courses that might be an example. We look forward to hearing many possible ideas from many faculty, as we begin to explore and structure this model.

Submitted by Wendy Palmquist,
Chair, General Education Committee

APPENDIX I:

Graduate Council December 2017

The Graduate Council held its fourth meeting of the year on November 27th in Frost Commons. The minutes from our October 23rd meeting were accepted with one correction regarding member attendance.

We continued our conversation regarding the authentic integration of graduate programs into the cluster model. As a council we've identified adult learners, the adult consumer, curriculum/academic affairs related issues, and non-academic policy related issues as the broader relevant discussion points and several subtopics that help to more fully understand the needs of graduate students and projects in the clusters. We will be working collaboratively to develop a written *letter* to the cabinet and cluster leaders. Additionally, a sub-group of the council will arrange to meet with the cabinet to discuss these discussion points and have requested time during Winter Jamboree to host a panel discussion for faculty interested in learning more about how graduate students, graduate programs, and how to authentically integrate them into the clusters.

In addition to our discussion about the integrations of graduate programs we discussed our concerns for graduate programs in the URI process with Dean Mears. Notably, we raised concerns with the data and current level of integration of graduate programs into the clusters.

The council will meet on December 18th in Frost Commons from 3:30-5:00.

Submitted by Linda Carrier,
Chair, Graduate Council