

Dual Degree Program Agreement

Marian University
and
Indiana University-Purdue University Indianapolis (IUPUI)

July 9, 2012

DUAL DEGREE PROGRAM AGREEMENT
between
MARIAN UNIVERSITY
and
INDIANA UNIVERSITY-PURDUE UNIVERSITY
INDIANAPOLIS

The purpose of the Dual Degree Program Agreement is to describe a framework for students attending Marian University who concurrently participate in another academic program offered by the School of Engineering and Technology at Indiana University-Purdue University Indianapolis (IUPUI). Students who complete all academic requirements for this dual degree program qualify for a Bachelor of Science (B.S.) or Bachelor of Arts (B.A.) degree from Marian University and a Bachelor of Science in Engineering (B.S.E.), a Bachelor of Science in Electrical Engineering (B.S.E.E.), a Bachelor of Science in Mechanical Engineering (B.S.M.E.), Bachelor of Science in Computer Engineering (B.S.Cmp.E.), or Bachelor of Science in Biomedical Engineering (B.S.BME.) degree from Purdue University awarded at Indianapolis.

It is anticipated that other engineering degree programs, such as the Bachelor of Science in Energy Engineering (B.S.EEN.) and the Bachelor of Science in Motorsports Engineering (B.S.MSTE.) will be included in options available to Marian University students as the corresponding dual degree programs of study are completed. The B.S.E.E., B.S.M.E., B.S.CmpE., and B.S.BME. degree programs are accredited by the Engineering Accreditation Commission of ABET, Inc., the recognized worldwide leader in assuring quality in applied science, computing, engineering, and engineering technology education. ABET accreditation will be pursued for new engineering programs shortly after they become eligible. Special admission is required to participate in the dual degree program. While participating in the program, students are considered to be matriculants at both institutions.

Program Structure

Faculty members from both institutions must approve the plans of study for each dual degree program and the list of course equivalencies identified by the specific program syllabi. It is anticipated that these plans of study will expand to include additional engineering degrees, as well as the corresponding Marian University degrees. Three example plans are attached to this agreement: Mechanical Engineering/Mathematics, Biomedical Engineering/Mathematics, and Electrical Engineering/Mathematics. These syllabi sheets detail precisely how each course will be integrated into the student's plan of study. To ensure consistency and accuracy, these documents must be periodically reviewed by representatives of both institutions to communicate and update information regarding curriculum. Each institution will be expected to designate a key individual as its representative to manage effective communication and program planning and to serve as the day-to-day point of contact and liaison.

Satisfactory completion of the dual degree program requires meeting all academic requirements as enumerated on specially prepared curriculum guides identifying the proposed academic courses for each semester. Students are expected to reside in the Marian University

community throughout the entire enrollment periods and as Marian residents pay the appropriate tuition and fees for that institution each term. As primary fiscal agent, Marian University will also be responsible for administration and disbursement of all scholarships and/or financial aid.

It is expected that Marian University students will be expected to commute to the IUPUI campus for the majority of their engineering courses. However, it is possible that some engineering courses identified for the curriculum (depending on specific program) may be taught on the Marian University campus by IUPUI faculty, provided a mutually agreed upon enrollment threshold is reached. Determination of the enrollment threshold, time, and location for engineering course scheduling on the Marian campus will be a joint responsibility shared by the two institutions. IUPUI will be responsible for ensuring proper coordination with the IUPUI Registrar in preparation of the IUPUI course schedule.

IUPUI will provide an optional internship experience for dual degree students provided a given student has a cumulative GPA of at least 3.0 and the student has at least a 3.0 GPA on all engineering courses. An internship experience will require a Marian University student to register for the corresponding internship course at IUPUI. IUPUI will identify the internship sites, and assign individual students to their respective internship positions.

In the event that the program grows to the point in which IUPUI and Marian University agree that a full-time staff member is needed to ensure the quality of the student experience, the staff member will be employed through IUPUI. Marian University will be financially responsible for the full-time salary. IUPUI will be financially responsible for the full-time benefits. This staff member will help manage and direct the program.

Provisions for student housing and food service will be the same as for all other students attending Marian University during the entire period of enrollment necessary to fulfill provisions of the dual degree program. Fees for IUPUI Parking accommodations will also be provided by Marian University during the academic terms when it is necessary for students to commute between the two institutions.

Both universities may advertise the availability of the program. Prior agreement and consent, however, will be obtained by each institution before implementation of any advertising or marketing strategy. This will include for example, but not be limited to, review of proposed press releases, brochures, academic bulletins, video, and other electronic or print media to be employed.

Enrollment at IUPUI through the Consortium for Urban Education (CUE) will not be applicable for this program.

Admission Procedures

Marian University will be the lead institution for identification and selection of students. All prospective students will complete an application for admission to Marian University including submission of all necessary accompanying credentials and pay the appropriate

admission fee. Marian University will designate those students to be selected for admission in accord with criteria jointly approved by both institutions.

Once identified, all correspondence to qualified applicants will identify that admission has in fact been for a dual program involving two different institutions. This correspondence will prominently identify both participating Schools.

An IUPUI admission application will not be required. Upon matriculation students who enroll in this special program will be individually identified along with necessary demographic data for completion of the IUPUI student profile. Copies of each student's secondary school transcript, plus any other academic credentials used for admission or advanced standing, will also be provided at that time.

Orientation, Advising, and Registration

Students reside at Marian University and enroll for the majority of academic course work on the Marian campus during the first year where new student orientation will be facilitated by Marian University. IUPUI, however, will ensure availability of necessary personnel to assist in planning for new student orientation and registration procedures that may prove necessary for the engineering course component.

IUPUI will provide engineering curricula related academic counseling for students throughout their participation of the dual degree program. Academic counselor availability will be maintained by each institution on both campuses as needed. During the fall semester for freshman, a "batch process" enrollment procedure will be utilized by IUPUI. Thereafter, students continuing in the dual program may utilize the online self-enrolling registration system at both institutions.

Grades, Grade Reports, and Academic Transcripts

Individual student grades will be initially reported by each faculty member in accord with procedures established by the Registrar for the institution responsible for a specific course. At the end of each term, each institution will provide individual students a Grade Report for courses completed under the auspices of that institution. Registration by each student in the dual degree program will constitute authorization for release and sharing of all academic records for official use at both institutions.

Student academic records will be consolidated between both institutions after each academic term in order to record cumulative academic progress. Marian University will maintain a complete academic transcript for students participating in the dual degree program. At IUPUI, Marian University credits will be considered transfer credit; however all passing grades will be accepted.

Transfer Credit and/or Advanced Standing

Special provisions, from time-to-time, may be necessary if initial matriculants are admitted with advanced standing and/or transfer credit. When this occurs, the following conditions apply:

- a. If the criteria utilized by Marian University are the same or greater than criteria employed by the cognizant academic department at IUPUI, comparable credit will be awarded.
- b. If the criteria utilized by Marian University are not equivalent to the criteria employed by the cognizant academic department at IUPUI, and the School of Engineering and Technology is still willing to accept the substitute for the academic degree credit, undistributed credit will be recognized for that course.
- c. The School of Engineering and Technology at IUPUI may withhold approval for any transfer credit or special credit course suggested for inclusion in a dual degree program by a student if the original course does not appear to meet expected academic standards.

Jurisdiction

Dual degree students will be subject to academic and disciplinary policies of both universities. Should an infraction occur in a course offered by Marian University or in violation of social policies for conduct on the Marian campus, for example, the academic regulation of Marian University will apply to these matters; reciprocally, IUPUI's student disciplinary code will apply to matters related to courses offered through IUPUI and to social conduct for matters related to IUPUI. Students are expected to complete the majority of their courses at Marian University and live in Marian University housing; accordingly Marian University will assume responsibility for most matters related to social interactions. In the case of an ambiguous or unresolved matter, the deans of students of the respective campuses will confer and recommend a resolution or decision.

Measures of Satisfactory Academic Progress

All participants in the dual degree program are considered to be simultaneously enrolled at both institutions, each semester. As a result each institution will maintain a grade point average for all courses attempted at that institution. Marian University will maintain a student's cumulative grade point average for all courses previously attempted at either institution.

Students will be placed on academic probation in the dual degree program by Marian University any time the cumulative grade point average for courses attempted at Marian and IUPUI falls below 2.00. Excessive probation, or continued probation without improvement, can lead to a student being declared academically ineligible for the dual degree program.

Tuition and Fees

Marian University will serve as the fiscal agent for collection of tuition and fees for all courses contained in the dual degree program. The following re-distribution of fees will be utilized for IUPUI:

Marian University will reimburse IUPUI at the applicable tuition rate, i.e., resident or non-resident, per credit hour for each student. The cost of attendance rate for each dual degree program student will include the basic credit hour fee and any mandatory course related fees, plus applicable student technology fee, student activity fee, and any campus wide temporary fee and athletic development fee as determined by the total number of credit hours attempted for IUPUI courses.

IUPUI Admissions Office Fees

For all students admitted through Marian University for the dual degree program Marian University will pay IUPUI the applicable IUPUI fee for application processing. At the conclusion of each semester courses taken at Marian University will be transferred to IUPUI at the previously agreed upon amount of \$20 per student transcript per semester.

Other IUPUI Fees

IUPUI also charges for other special programs and services, i.e., late program changes, late registration, locker rental, recreation, etc., none of which are mandatory. These fees, when assessed, will be the individual student's responsibility.

Extra-Curricular Activities

Both institutions are concerned about the total development of individual students and the opportunities to enrich life experiences outside the classroom. Although the character and mission of the two institutions, one private and one public, differs widely, an extra benefit to be offered the dual degree student will be eligibility to share in the wide range of programs, activities and support services offered (except in athletics) at either institution.

Eligibility for athletic participation, however, is a special case and must be conducted in accord with provisions of the National Collegiate Athletic Association (NCAA) and the National Association of Intercollegiate Athletics (NAIA). Prospective dual degree candidates who also contemplate participation as a member of any varsity athletics team should confer as soon as possible with a member of the athletic coaching staff. Students in the dual degree program will only be eligible for athletic participation through Marian University.

Authorization

This agreement, including any modifications, may be reviewed by either institution upon request. *While all parties to this agreement understand its purpose is to maximize opportunities for individual students, they also recognize that limits may be placed on courses accepted under*

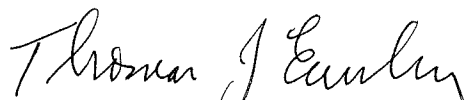
provisions of this agreement should the student subsequently decide to change to another program other than that covered by this agreement at either institution.

This agreement will remain in effect until by mutual agreement a date is set for termination or until one party gives notice of termination to the other party at least one full calendar year in advance of the termination date. In the event of termination, both parties will work with individual students who may be enrolled to ensure the completion of their degrees to the greatest extent reasonably possible.

Review

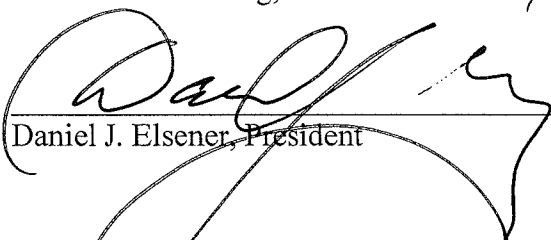
The agreement will require continuous collaboration, review, and modification to adapt the program as circumstance and experience warrant. It is expected that the parties to the agreement will make such modifications as needed to ensure the quality and integrity of the degrees offered within the framework of this overall agreement; in such case, a new agreement need not be executed as long as the enabling agreement remains intact. Periodically, both universities will collaborate in a more substantive program review after five to seven years of operation to ensure that the agreement is meeting its objectives.

MARIAN UNIVERSITY



8/8/12

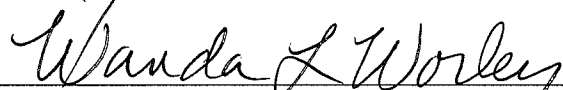
Thomas J. Enneking, Executive Vice President and Provost, Marian University



8/16/12

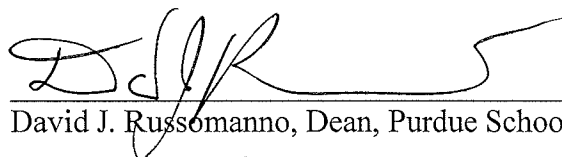
Daniel J. Elsener, President

INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS



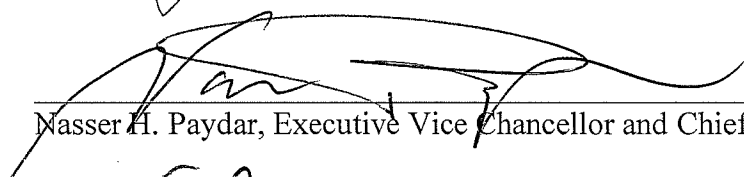
7/30/12

Wanda L. Worley, Interim Associate Dean for Academic Affairs and Undergraduate Programs, Purdue School of Engineering and Technology, IUPUI



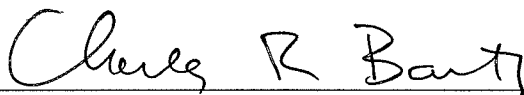
7/30/2012

David J. Russomanno, Dean, Purdue School of Engineering and Technology, IUPUI



8/1/12

Nasser H. Paydar, Executive Vice Chancellor and Chief Academic Officer, IUPUI



8/2/12

Charles R. Bantz, Chancellor, IUPUI and Vice President, Indiana University

Month-Day-Year

Marian University Dual Math/Biomedical Engineering Plan of Study (TENTATIVE)

Fall	SCH	Spring	SCH
Year 1			
MAT 230 Calculus I	4	MAT 231 Calculus II	4
CHE 151 General Chemistry I	4	CHE 152 General Chemistry II	4
<i>ENGR 196 Engineering Problem Solving</i>	3	<i>ENGR 197 Intro to Computing (C Prog)</i>	2
THL 105 Introduction to Theology	3	PHY 1XX Mechanics (calc.-based)	4
ENG 101 English Composition	3	COM 101 Public Speaking	3
COL 111 First Year Experience	0		
	17		17
Year 2			
MAT 305 Calculus III	4	MAT 310 Linear Algebra	4
PHY 2XX Elec, Heat, Optics (calc-based)	5	MAT 315 Differential Equations	3
BIO 204 Cell Biology	4	BIO 410 Advanced Cell Biology	4
<i>ENGR 297 Intro to Computing (MATLAB)</i>	1	PHL 130 Human Nature and Person	3
(Other math degree requirement)	3	HIST 102 History of the Modern World	3
	17		17
Year 3			
<i>BME 220 Biomeasurements</i>	4	<i>BME 241 Intro Biomechanics</i>	4
MAT 320 Probability & Statistics I	4	MAT 420 Real Analysis I	3
CHE 305 Organic Chemistry I	4	<i>TCM 360 Communication in Engr Practice</i>	2
ECN 200 Introductory Economics	3	ECN 315 Health Economics	3
SOC 101/102 Sociology Elective	3	BIO 225 Human Anatomy	5
	17		17
Year 4			
<i>BME 381/3 Implant Mater+Biol Resp</i>	4	<i>BME 352/4 Tissue Behavior+Properties</i>	4
<i>BME 331 Biosignals and Systems</i>	3	<i>BME Gateway Elective</i>	3
<i>BME 334 Biomedical Computing</i>	3	<i>BME 402 BME Seminar</i>	1
HUM 230 Lit, Music, Art West Trad I	3	<i>BME 496 BME Design Projects*</i>	1
MAT 3XX Math Elective	3-5	HUM 231 Lit, Music, Art West Trad II	3
		Gen Ed Elective [Cultural Awareness]	3
	16-18		15
Year 5			
<i>BME 491 BME Design I</i>	3	<i>BME 492 BME Design II</i>	3
<i>BME 411 Quantitative Physiology</i>	3	<i>BME 461 Transport Processes in BME</i>	3
<i>BME 442 Biofluid Mechanics</i>	3	<i>BME Tech Elective</i>	3
<i>BME Tech Elective</i>	3	BIO/ENGR 490 Senior Seminar	3
(Other math degree requirement)	3	PHL 2XX Ethics (engineering version)	3
	15		15

NOTES:

BIOL-K 101 + Cell Bio requirements (10 cr) satisfied with BIO 204 Cell Biology (4 cr) + BIO 410 Advanced Cell Bio (4 cr) + 2 credits BIO 2?? Human Anatomy. The other three credits from Human Anatomy can be applied toward one Depth Area (BME/Sci/Tech) elective.

If the calculus-based Physics classes developed by Marian College total 8 cr rather than 9 cr, perhaps the extra Marian College math credit (four 4-credit + one 3-credit course = 19 cr) can be used to make up the difference?

First draft on Marian College plan included BIO 202 Evolution and Ecology, and BIO 203 Genes and Genomics. These are not needed for the IUPUI BME Plan of Study. If they are needed due to Marian College requirements, they could potentially be substituted in place of some of the humanities/social sciences electives in Year 2 (and those humanities courses delayed to a later semester).

This plan is one credit short in Organic Chemistry. What is the best way to make up that deficiency?

Students who take MAT 320 Probability and Statistics I instead of BME 322 Probability and Applications for BME will be expected to pass an exam covering the BME 322 learning outcomes and to complete the engineering projects required in BME 322. The one-credit BME 496 BME Design Projects in spring of Year 4 is for the purposes of completing these projects. (Students who opt to take BME 322 should do so in the spring of Year 4 in place of the BME 496 class.)

To count toward the Ethics for BME requirement, the PHL 2XX Ethics course should address medical ethics, research ethics (including human subject and animal research), and professional ethics in engineering.

Dual Math/Electrical Engineering

Fall	SCH	Spring	SCH
Year 1			
MAT 230 Calculus I	4	MAT 231 Calculus II	4
CHE 151 General Chemistry I	4	CHE152 General Chemistry II	4
MAT209 Discrete Mathematics	3	PHY 120 Physics I*	4
ENGR 195 Engineering Seminar	1	ENG101 English Composition	3
ENGR 196 Engineering Problem Solving	3	COM101 Public Speaking	3
	15		18
Year 2			
MAT305 Calculus III	4	MAT310 Linear Algebra	4
PHY 121 Physics II*	4	MAT315 Differential Equations	3
ECE 201/207 Linear Circuit Analysis I/Lab	4	ECN202 Microeconomics	3
ECE 263/261 Intro Computing in EE	4	ECE 202 Circuit Analysis II	3
		THL105 Introduction to Theology	3
		ENGR 297 Computer Tools (MATLAB)	1
	16		17
Year 3			
ECE 301 Signals and Systems	3	MAT320 Probability & Statistics (ECE 302 Probabilistic Methods)	3
ECE 270 Digital Logic Design	4	ECE 255/208 Electronic Ckt Anal/Des	4
ECE 311 Electric and Magnetic Fields	3	ECE 362 Microprocessor	4
ME 295 Mechanics and Heat	3	PHL130 Human Nature and Person	3
PSY101 General Psychology	3	ECE 21000 Sophomore Seminar	1
	16		15
Year 4			
ECE 440 Intro. Communication Syst. Analysis	4	XXXX EE Elective	3
EE Elective	3	ECE 382 Feedback System Analysis	3
EE Elective	3	TCM360 Communications in Engr Practice	2
SOC101 OR SOC102 Sociology General Ed	3	HUM231 Lit, Music, Art West Trad II	3
HUM230 Lit, Music, Art West Trad I	3	THLXXX Second Theology Course	3
	16		14
Year 5			
MAT/ENGR490 Senior Seminar	3	ECE 488 Senior Design II	2
MAT3XX Math Elective 300 & Up	3	Gen Ed Elective [Cultural Awareness]	3
MAT3XX Math Elective 300 & Up	3	XXXX EE Elective	3
ECE401/PHL215 Ethics [or Engineering Variant]	3	XXXX EE Elective	3
ECE 487 Senior Design I	1	HIS102 History of the Modern World	3
	13		14

Dual Math/Mechanical Engineering

Fall	SCH	Spring	SCH
Year 1			
MAT 230 Calculus I	4	MAT 231 Calculus II	4
CHE 151 General Chemistry I	4	CHE152 General Chemistry II	4
MAT209 Discrete Mathematics	3	PHY 120 Physics I	4
<i>ENGR 195 Engineering Seminar</i>	1	ENG101 English Composition	3
<i>ENGR 196 Engineering Problem Solving</i>	3	<i>ENGR197 Intro to Computing (C Prog.)</i>	2
	15		17
Year 2			
MAT305 Calculus III	4	MAT310 Linear Algebra	4
PHY 121 Physics II	4	MAT315 Differential Equations	3
<i>ME200 Thermodynamics</i>	3	ECN202 Microeconomics	3
<i>ME270 Mechanics I – Statics</i>	3	<i>ME274 Mechanics II – Dynamics</i>	3
<i>ENGR297 Intro to Computing (MATLAB)</i>	1	THL105 Introduction to Theology	3
COM101 Public Speaking	3		
	18		16
Year 3			
<i>ME262 Mechanical Design I</i>	3	MAT320 Probability & Statistics	3
<i>ME272 Mechanics of Materials</i>	4	<i>ME 330 Model/Anal/Des Dyn System</i>	3
<i>ME310 Fluid Mechanics</i>	4	<i>ME340 Dynamic Systems & Measure.</i>	3
<i>ECE 204 Introduction to Circuits</i>	4	PHL130 Human Nature and Person	3
PSY101 General Psychology	3	HIS102 History of the Modern World	3
	18		15
Year 4			
<i>ME314 Heat and Mass Transfer</i>	4	XXXX Technical Elective	3
<i>ME344 Introduction to Engineering Materials</i>	3	<i>ME414 Thermal/Fluid System Design</i>	3
<i>ME372 Mechanical Design II</i>	4	<i>TCM360 Communications in Engr Practice</i>	2
SOC101 OR SOC102 Sociology General Ed	3	HUM231 Lit, Music, Art West Trad II	3
HUM230 Lit, Music, Art West Trad I	3	THLXXX Second Theology Course	3
	17		14
Year 5			
MAT/ENGR490 Senior Seminar	3	<i>ME405 FE Exam Prep</i>	1
MAT3XX Math Elective 300 & Up	3	<i>ME462 Engineering Design</i>	3
MAT3XX Math Elective 300 & Up	3	XXXX Technical Elective	3
<i>ME401/PHL215 Ethics [or Engineering Variant]</i>	3	XXXX Technical Elective	3
Gen Ed Elective [Cultural Awareness]	3	<i>ME 482 Control Sys. Analysis/Design</i>	3
	15		13

Dual Math/Mechanical Engineering

NOTES:

1. Course numbers listed in italics are IUPUI courses for which there is currently no Marian equivalent, or at least not one that is apparent. We have discussed creating what amount to dummy course numbers for IUPUI courses in order to show all of a student's courses on one transcript. This should be an administrative detail.
2. I have used PHY120*/121* to represent a calculus-based physics course, for which I do not presently have a course number. IUPUI puts Physics I in the second semester, with Calc II as a co-requisite. We have agreed to do the same.
3. We will need to create our own version of ENGR195, as that's an orientation course that includes environment-specific content. It might have to split itself between Marian and IUPUI, actually, since the students will be working at both locations. It should include a portion of the content of COLL111 as well, since that course isn't in this matrix. It might become a 2 hour course in line with COLL111, as it would substitute for COLL111 if that course becomes mandatory. Workable either way.
4. I still believe that we should be able to create a course equivalent to IUPUI's TCM360, Communications in Engineering Practice, but right now that's beyond what we can do. Suggest substituting that course for the English 115 General Education requirement.
5. I am recommending a substitution for the University's General Education requirement for a second theology course, with PHL215 as the substitute. PHL215 is a three hour ethics course; IUPUI's engineering ethics course is one hour. [This fits well with the Catholic identity and environment we're offering here as an alternative to another engineering school.] I have contacted Professor Spear, and creating an engineering-focused flavor of this course could be as simple as selecting engineering case studies in the context of the standard readings and assignments.
6. In structuring this grid, I gave some thought to where a student will take these courses, and tried to concentrate them on one campus or another where practical. For instance, the fall semester of Year 3 can be done entirely at IUPUI, since the only general education course is Psychology 101, a ubiquitous course that can be taken almost anywhere and transfer. Sociology is another candidate for this slot, as might be the open science/technical elective. The first two years should probably end up entirely Marian-based, assuming we have enough students to justify doing the preliminary courses here.
7. This program is definitely the easiest [speaking very much in relative terms here] of the grids I've done so far. The first two years are packed, and have to be that way because of prerequisites in the engineering program, but the last two years actually offer a fair degree of flexibility. A student who comes in with enough general education credit *might* manage to graduate in 9 semesters. This probably can't happen in a Biomedical program, again due to sequencing.
8. The total program adds to 162 semester credit hours, a little bit less than the either of the biomedical engineering combinations, but a student might choose to take a 4 hour course listed as a 3 hour elective. We might investigate offering summer internship credits for technical electives, as well.