TECHNICAL ELECTIVE PROGRAM
SCHOOL OF INDUSTRIAL ENGINEERING

1. Technical Elective Program for Industrial Engineering students

While this is not a strictly structured program like the General Education program, students are encouraged to treat the selection of technical elective courses in much the same way. Students are encouraged to select technical elective courses based on career objectives.

In general, a technical elective is a course that develops new professional skills and/or builds upon previously obtained skills. Courses must focus on the development of skills in engineering, mathematics, business, or selected natural or social sciences.

2. Technical Elective Requirements

The following requirements are specified for the technical elective program. These are the most basic requirements. Additional policies and procedures are discussed below and in Section 3.

Each IE student is required to take 15 credit hours of technical electives to complete the BSIE degree requirements. Technical elective courses are chosen from a list of courses approved by the Industrial Engineering Undergraduate Committee; and must include at least 6 credit hours from courses offered within the School of Industrial Engineering (policy outlined in Section 2.1).

Every course taken as a technical elective must be taken for a letter grade[1].

2.1. Required IE Technical Elective Courses

Of the 15 credit hours of technical electives required, *at least* 6 credit hours must be taken from courses offered by the School of Industrial Engineering (i.e., must have the course identifier "IE"). There are two available options for IE students to accomplish this requirement.

Option 1. IE 47000 *or* IE 48400; *and* approved course offered within the School of Industrial Engineering (either at senior-undergraduate or 50000-level)
Option 2. IE 47000 *and* IE 48400

* The 50000-level IE course listed in Option 1 can be an IE 59000 level course provided it is titled and open to all students who meet the prerequisites. For example, IE 59000 – Financial Engineering is an acceptable IE technical elective.

** Senior-undergraduate courses listed in Option 1 (offered as 4XXXX), in this case, may be special topics courses that are not required for the degree and open to all IE students who meet the prerequisites (for example, IE 48100 – Introduction to System Simulation). This policy also

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[1] Courses transferred to Purdue that either correspond to pre-approved technical electives or receive special approval (e.g., study abroad credits) as technical electives must be taken in such a manner as to qualify for Purdue credit even though no grade will appear on the Purdue transcript.

includes courses approved as IE 49000 taken as part of a Semester Exchange program and approved for use in this capacity by the IE Undergraduate Committee or their designee.

2.2. Other Technical Elective Courses

Additional IE courses taken are allowable to contribute to the remaining 9 credit hours of free technical electives, within the following guidelines:

1. IE 5XX00-level courses, provided they are titled and open to all students who meet the prerequisites.
2. IE 4XX00-level courses, provided they are not required for the degree and open to all students who meet the prerequisites.
2. IE 49000 – Independent Study courses; any course with this listing must have special approval by the IE Undergraduate Office to be considered for technical elective credit. Details about the process for approval are given in Section 3. (up to 6 credit hours).
3. IE 49900 (Reserved for Engineering Honors students; up to 6 credit hours).
4. IE 49500 (Reserved for Co-Op students; student must complete 3 semesters to earn TE credit)

Students are encouraged to consult the list of pre-approved technical electives contained in the Appendix for potential IE 4XX00 and IE 5XX00-level courses that meet the above guidelines.

Students in IE are encouraged to choose technical elective courses from outside the department if such courses align with their career goals. Each IE student has the option to take up to 9 credit hours of non-IE courses to complete the technical elective requirements. The Appendix contains a list of numerous pre-approved courses offered by other departments.

The general criteria for non-IE courses that may be considered for TE credit are provided below. If a course satisfies the below criteria, but is not on the list of pre-approved TE courses then it is subject to approval by the IE Undergraduate Office. Details about the process for approval are given in Section 3.

1. 30000-level or higher level course taken in any other engineering school that are not duplicates of IE courses.
2. PHYS courses at a level higher than PHYS 24100
3. CHM courses at a level higher than CHM 11600
4. MA courses at a level higher than or equal to MA 34100
5. CS courses at a level higher than or equal to CS 18200, excluding CS 23500

2.3. Prohibited Courses

A prohibited course is a course deemed to have sufficient overlap in course material with an IE course so as to be considered an equivalent course. A list of known prohibited courses is as follows:

MGMT 20010 (Course is intended for Technology students)
***   This course is not to be confused with MGMT 20000 – Introductory Accounting, which is
an approved TE.
MGMT 30500 (IE 23000/33000)
MGMT 30600 (IE 33500/33600)
MGMT 30400/31000 (IE 34300)
MGMT 36100 (IE 38300)
ECON 36000 (IE 33000/34300)

Note 1: IE courses in parentheses indicate the courses with which the prohibited courses have a material coverage overlap.
Note 2: Most of the above listed courses are useful for the MGMT or ECON minors. A student may still take these courses to satisfy minor requirements, but they will not be used towards the IE plan of study.

2.4. EPICS

Many students choose to participate in Engineering Projects in Community Service (EPICS) during their time at Purdue. These projects include designing, building, and deploying real systems to solve engineering-based problems for local as well as global community service and education organizations.

Students can earn credit for EPICS participation from freshman through senior year with a variable credit hour structure. Freshman and sophomore level students earn 1 credit hour per semester of involvement in EPICS projects. Juniors and seniors can earn either 1 or 2 credit hours per semester of involvement.

All EPICS (EPCS) courses, including those at the 100- to 200- level, up to a maximum of three (3) credits can be used towards the 9 credit hours of technical elective courses that do not need to originate from within IE. If EPCS courses are used to satisfy the Science, Technology, & Society foundational learning outcome as part of the general education program, then those credits cannot be used to count towards technical elective requirements.

2.5 Courses offered by the Purdue Polytechnic Institute

No course offered by the Purdue Polytechnic Institute can be counted towards the IE plan of study unless it is used to satisfy a foundational learning outcome, or otherwise approved as part of the General Education program.

3. Special Approvals for Non-Pre-Approved Technical Elective Courses

Students must petition for a course to be counted as a technical elective if it is not listed on the Pre-Approved list of courses contained in the Appendix. Each course will be evaluated by the IE Undergraduate Office based on the description of a technical elective course given in Section 1, and any additional factors deemed necessary.

To petition for a course approval, the following process must be observed.

1. A student must obtain a "Elective Approval Request Form" (accessible from the IE undergraduate studies webpage).
2. The student must fill in the course information required on the form and attach a syllabus for the course in question. In addition, the student must write a short synopsis of how the course fits the requirements of a technical elective described in Section 1, and its value towards his/her undergraduate education. (Note: a syllabus is required for any course taken at another university.)
3. Student returns the completed form to the IE Undergraduate Office for final processing and decision.

Each student is notified via email if the course is approved or not. All documentation is stored in the student's permanent record.

3.1 Special Approval for Independent Study Courses

These courses are intended to allow IE undergraduates to engage in independent study and individual or small group research projects under the direction of a faculty member. Projects of this kind may be initiated by students or faculty members, but registration and approval of these courses must follow the following process.

3.1.1 Registration for an IE 49000 – Independent Study Course

1. The student must identify a faculty sponsor.
2. The student and faculty member must discuss and agree to the content and focus of the course and the course expectations for both members. Once agreed to a proposal for the project and a list of deliverables must be documented on the "Independent Study Proposal Approval Form" (available on the IE undergraduate advisors).
3. Pick up a Form VT (Variable Title Course Designation Form) here: http://www.purdue.edu/registrar/documents/forms/Form-VT.pdf.

   Process for completing the Form VT:
   1. Student should fill out items 1-6, the title of the course, and sign (under Authorizations section of the form).
   2. Student obtains signature of faculty member sponsoring the course.
   3. Return the completed form to the IE undergraduate office for additional signatures. The completed "Independent Study Proposal Approval Form" should be delivered along with the completed Form VT.
   4. Once the final signatures are obtained, the student will be notified that the form is ready for pickup so the student may collect from the IE UG office and deliver to the Office of the Registrar for final processing.

The documentation provided to the IE undergraduate office satisfies the information requirement for approval for TE credit as described in Section 3.

IE 49000 – Independent Study courses are typically for 3 credit hours. A student should expect to work 3 hours per week for each credit hour. This means that a student and faculty member should plan on developing a course that requires at least 9 hours per week of work. IE 49000 – Independent Study courses can be created for less than 3 credit hours, but this severely limits the usage of the course on the IE plan of study due to the student needing to make up the remaining credit hours from additional courses. *All IE 49000 – Independent Study courses must be taken for a letter grade in order to be used for TE credit.*