

# College of Engineering

TEMPLE UNIVERSITY®

## UNDERGRADUATE STUDENT INFORMATION HANDBOOK

Website: [www.temple.edu/engineering](http://www.temple.edu/engineering)

Academic Year  
2011-2012

***FOR FRESHMAN AND TRANSFER STUDENTS***  
***\* THE GENERAL EDUCATION / GEN ED CURRICULUM \****

College of Engineering, 1947 N. 12<sup>th</sup> Street Philadelphia, PA 19122

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## ***I. COLLEGE VISION***

Temple University's vision is to provide the most empowering educational experience possible for its diverse student body, and within this context, the College of Engineering's vision is to be the region's magnet school for engineering education. To enable this vision, the College has implemented a Strategic Plan for the evolution of key curricular and research areas, a plan designed to coincide with critical emerging technologies in the region including biomaterials and bioelectronics, computer engineering and information technology, advanced materials, and environmental engineering.

Aided by an active Industrial Advisory Board, the College will establish fundamental procedures for quick and effective change of curricular and research focus to be in sync with advancements in technology and national and international trends. To attain our Vision for the College of Engineering to be the region's magnet school, we intend to:

- Enhance our regional reputation by consistently maintaining an expectation of excellence in all activities including recruitment, teaching, research and service;
- Increase our regional visibility through pro-active and innovative research in the above-cited strategic technologies of the region;
- Promote community synergy by providing a superior engineering education for students of diverse backgrounds; by educational and research cooperation with other colleges within Temple University; and by cooperating where possible with regional organizations, governments, and companies, on technical projects of benefit to our region. We will maintain our ties to the community because we emphasize, accommodate, and encourage lifelong learning.

## ***COLLEGE MISSION***

The mission of the College of Engineering (CoE) is to provide students with a high quality, innovative, and globally competitive learning experience in engineering, engineering technology, and the applied sciences. Engineering graduates are to be educated professionals with the technical, problem-solving, and communication skills required to succeed in the workplace and society.

The College is mindful of its obligation as an environment for the creation of knowledge, and encourages basic and cross-disciplinary applied research by its faculty and students. Great importance is attached to scholarship, practice, and service aimed at improving the quality of life and the economic viability of our society. This value system is reflected in current assessments of faculty for promotion and tenure, and in grading practices for student work.

We strive to pursue these objectives in a learning environment that celebrates ethnic and gender diversity, respects experience, and encourages problem solving through teamwork.

**ADDRESS:** College of Engineering, 1947 N. 12<sup>th</sup> Street Philadelphia, PA 19122

## **II. COLLEGE OF ENGINEERING STAFF**

### **OFFICE OF THE DEAN (3<sup>rd</sup> Floor)**

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### **III. GENERAL INFORMATION**

#### **ACADEMIC ADVISING**

Students in the College of Engineering are assigned to an academic or faculty advisor. Freshmen and Sophomores are advised in the Office of Undergraduate Studies (Room 349), whereas Juniors and Seniors are advised by faculty members in the students department. Please check with the department secretary to obtain the name of your advisor. You should meet with your advisor periodically to ensure that the courses you take will count towards your degree, and that you meet all university, college and department requirements. Please refer to the curriculum outlines in this booklet, which list all the courses required for your particular major. The *Course Schedule* can be located online at [www.temple.edu/tucourses](http://www.temple.edu/tucourses) for the actual list of courses being offered in a specific semester or via TUportal, Self Service Banner (SSB) system. For information on Temple policies and programs, see the *Undergraduate Bulletin* at [www.temple.edu/bulletin](http://www.temple.edu/bulletin).

#### **DEGREE AUDITING REPORTING SYSTEM (DARS)**

Student versions of DARS reports are available on SSB and from the advisors. DARS is a record-keeping system that is automatically updated as a student makes academic progress, semester by semester. DARS not only reports academic history and current registration, it indicates the courses you have yet to take, both in your major and as part of the Gen Ed Curriculum.

#### **FE/ EIT EXAMINATION**

Graduates from ABET-accredited programs are eligible to take the Fundamentals of Engineering, also called Engineering-In-Training examination in Pennsylvania. An EIT certification is a prerequisite for licensing as a Professional Engineer (PE).

A Fundamentals examination preparation course is offered within the College of Engineering. For more information, contact Dr. Steven Ridenour at (215) 204-8825 or email at [steven.ridenour@temple.edu](mailto:steven.ridenour@temple.edu).

#### **GENERAL COLLEGE REGULATIONS**

- Please park bicycles on the rack outside the building. Bicycles are not permitted inside the building.
- Please refrain from smoking, eating or drinking inside classrooms and laboratories. The "no smoking" rule applies to all T.U. buildings and facilities.
- Fire tower exit doors at street level should only be used during emergencies.
- All Temple University students and personnel entering the CoE building must show their I.D. card. All others must show some form of identification and sign in before being permitted to enter the building.
- The use of alcoholic beverages is prohibited in the CoE building at all times.

#### **LEARNING COMMUNITIES**

Learning Communities provide an opportunity for students to form connections for social and academic support by taking several of their classes together in groups. Each Learning Community consists of two or three courses scheduled in a block, plus, in some cases, a weekly seminar design to review course information and acquaint students with university resources. Within the structure of Learning Communities, students will find smaller classes, easier registration and fulfillment of many of the Gen Ed Curriculum requirements. In addition, as students take classes together, they will get to know each other, making it easier to work together in classes and to form student groups outside of class.

Learning Communities are open to first and second-year students with fewer than sixty credits. Interested newly admitted students should inquire about Learning Communities during their scheduled orientation so they can register for the courses specifically designed for Learning Communities at that time. Other students should contact their advisors.

## NON-TRADITIONAL CREDIT

### COOPERATIVE EDUCATION AND INTERNSHIP EXPERIENCE

Full-time matriculated College of Engineering students who have a GPA of 2.5 or greater and who have completed at least 30 semester hours (at least 12 semester hours at Temple) towards the baccalaureate degree may apply for paid cooperative work experience (full-time) during spring or fall semesters. It normally takes five years to complete the degree when participating in the Co-op program; however, at least one year of relevant work experience is gained. Students work at least 35 hours per week and are considered full-time students at Temple University. Students may also document relevant work experience through internships, which are normally during the summer semesters. Internships allow the student to finish the degree program in four years and still gain some experience. College of Engineering students may register and receive technical elective credits for their work experience with the Co-op courses (Engineering 2181, 3181). These programs are managed by the Director of Recruiting and Co-op Programs in the College of Engineering.

### CREDIT FOR LIFE WORK EXPERIENCE (C.L.E.X.)

**Credit for Life Experience** - Matriculated students may be granted academic credits for work experience if it is judged to be an adequate substitute for a particular course required of the student. Experience must be related to a specific course in the curriculum offered by the college. Work experience must be acquired before entering Temple University. Credit will only be granted after completion of 30 semester hours of coursework at Temple. Other requirements and applications are available in the Office of Undergraduate Studies in the college. A maximum of 12 semester hours of credit will be allowed by the CoE in cooperative education, relevant work experience, approved ROTC courses, and Advanced Placement or CLEP examinations. No other non-traditional credit will be granted.

### **PLACEMENT TESTING ( MATH AND ENGLISH )**

The Math and English placement tests are administered to entering freshmen and certain transfer students. The test results are used to place students in the appropriate first level for Math and English courses.

Scores on the English test indicate placement in English 0701, 0711 (remedial), or English 0802, 0812 (College Composition). It is possible to test out of English 0802 with a high placement test score.

In the College of Engineering, Math courses are sequenced as follows:

|                        |            |
|------------------------|------------|
| Precalculus            | Math 1022* |
| Calculus I             | Math 1041  |
| Calculus II            | Math 1042  |
| Calculus III           | Math 2043  |
| Differential Equations | Math 3041  |

\*Some ET curricula may begin with Math 1022.

### **PLACEMENT TESTING (FOREIGN LANGUAGE)**

Entering students may also take a foreign language placement test in the foreign language they have studied. The score on this test indicates the level of proficiency in the language. Based on this score, you will be able to register for whichever level of the language is appropriate for you. Currently there is no university-wide requirement to study a foreign language. However, should you opt to use the foreign language to fulfill a free elective; the foreign language placement test could serve as a useful tool for determining your proficiency level.

## **STUDENT PROFESSIONAL SOCIETIES AND ORGANIZATIONS**

SPEC, the Student Professional Engineering Council, was established to work collectively as a unit to bring together the officers and leaders of COE student professional organizations. Their focus is to share information, plan and promote activities, encourage leadership, networking and professionalism among the student population. Officers of student organizations are members of SPEC.

The following is a list of student chapters of several professional societies and organizations which are active in the College of Engineering:

- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME)
- American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE)
- Construction Management Students Organization (CMSO)
- Engineers without borders (EWB)
- Institute of Electrical and Electronics Engineers (IEEE)
- National Society of Black Engineers (NSBE)
- Society of Automotive Engineers (SAE)
- Society of Hispanic Professional Engineers (SHPE)
- Society of Women Engineers (SWE)
- Pi Tan Sigma ( Mechanical Engineering Honor Society)
- Eta Kappa Nu (Electrical Engineering Honor Society)

## **ON-LINE REGISTRATION**

Online registration (TUportal) is mandatory for all eligible Temple University students. Students will use the TUportal, Self Service Banner (SSB) site, for Online Registration, Schedule, Late Registration, Schedule Revision (Drop/Add/Withdraw), View Holds, Schedule Revision Fees and Billing.

Incoming first year and transfer students are not eligible to use Online registration during the beginning of their first semester, but they will be given permission early during the first semester for the next semester registration.

Besides incoming first-semester and transfers students, the following additional groups are restricted from using Online registration:

1. First semester non-matriculated students
2. Students with a cumulative or semester GPA < 2.0.
3. Students with any type of HOLD on their records.

If your registration privilege has been revoked due to one of the above, someone in your department or in the Office of Undergraduate Studies can help you with your registration.

## **TRANSFER CREDIT**

**Transfer Credit** - Transfer credit to the CoE can be granted only from an accredited institution of higher learning. It is a two step process beginning with the Admissions Office and ending with the CoE. Co-op education, credit for life experience, and advanced placement credits are not transferable from other institutions. Transfer credits are not granted after a student has matriculated into a degree program. Only in exceptional circumstances may students take courses at other institutions and have transfer credits awarded. The Dean or his designee must grant permission for such arrangements in advance. *Senior Design Project* is not transferable to the college.

## **TUTORING SERVICES**

The College of Engineering and Temple University offer a variety of tutoring services. Both undergraduate and graduate students in the College offer free tutoring services to students who are having difficulty in engineering and engineering technology courses. Tutoring services are available at the university level through the Writing Center and the Mathematics and Science Resources Center, MSRC, (for mathematics, physics, and chemistry). Contact the Office of Undergraduate Studies in CoE, on the 3<sup>rd</sup> floor in Rm 349, or call 215.204.2998 to request tutoring for engineering courses.

## **PLAGIARISM AND ACADEMIC CHEATING**

Temple University believes strongly in academic honesty and integrity. Plagiarism and academic cheating are, therefore, prohibited. The penalty for academic dishonesty can vary from a reprimand and receiving a failing grade for a particular assignment, to a failing grade in the course, to suspension or expulsion from the University. The penalty varies with the nature of the offense, individual instructor, the department, and the school or college. For information on policies and procedures see the following web sites: [policies.temple.edu](http://policies.temple.edu) *or* [www.temple.edu/bulletin](http://www.temple.edu/bulletin).

## ***IV. PROCEDURES WITHIN THE COLLEGE/ UNIVERSITY***

### **AUDITING A COURSE**

There may be circumstances under which a student may wish to audit a course (i.e., participate in the class without earning academic credit toward a degree). The student must have special written permission from the course instructor and the Dean of the College in which the course is offered. Full tuition is charged on any audited course. Students may receive permission to audit a course up until the end of the second week of fall and spring semester courses and before the end of the third day during the summer session.

### **CHANGE OF MAJOR**

Changes of major within the College are processed at any time during the semester. Please complete a Change of Program Request form available in the Office of Undergraduate Studies.

### **COURSES AT ANOTHER COLLEGE**

Temple University students are occasionally permitted to take courses at other institutions once enrolled at Temple. Permission is restricted to those students not living within commuting distance of Temple. Students must complete the appropriate form and return it with a course description to the Office of Undergraduate Studies. If the request is approved, the student must have an official transcript sent from the school where the course was taken to the Director of the Office of Undergraduate Studies. The student should check with that office to make sure the transcript was received and the credit officially transferred.

### **CREDIT/NO CREDIT**

Certain courses outside the major concentration can be taken on a credit/no credit basis. This option is limited to juniors and seniors with 60 or more credits, who are registered for a minimum of 12 semester hours and have an overall cumulative GPA of 2.00 or better. Selection is limited to an elective course each semester, with no more than four college "Credit/No Credit" courses being allowed toward the degree. A student must select the CR/NC grading option for a course during the first two weeks of the course.

## GRADUATION PROCEDURE

Those students who have accumulated 90 semester hours of course work must complete a preliminary graduation plan (Check Sheet). This form is available in the department offices.

The graduation plan insures that each student planning to graduate has met all the academic requirements for the degree. Additionally, any existing deficiency will be tagged, and the student must make arrangements to satisfy them before graduation.

Potential graduates must complete a graduation application which is available on line via TUportal. The graduation fee is also paid online, \$45.00 for graduate and \$54.00 for undergraduate students. There is no additional fee for mailing the student's diploma. Students who fail to meet the deadlines to apply for graduation are required to pay an additional \$25.00 late fee. Fees are payable at Student Financial Services.

The following are the deadlines to submit a graduation application:

- JANUARY GRADUATION: October 15, 2010
- MAY GRADUATION: February 15, 2011
- AUGUST GRADUATION: June 1, 2010

## GRIEVANCE PROCEDURE

Students with an academic grievance should refer this to the Dean or the Office of Undergraduate Studies. These offices are located on the 3<sup>rd</sup> floor of the CoE building.

## INTRA-UNIVERSITY TRANSFER

Transfers to other colleges within Temple are processed during specific times each semester. Contact the advising office in the college you wish to transfer to or see the College Advising Office listed in the Vice Provost Undergraduate Studies Office, VPUS, [www.temple.edu/vpus/](http://www.temple.edu/vpus/). Please complete a Change of Program Request form available in the Office of Undergraduate Studies.

## READMISSION

A matriculated student can take a leave of absence for one or two semesters by requesting a Leave of Absence Petition, LOA. If the student does not request an LOA and does not attend for more than the two semesters permitted, you must submit a readmission application upon return. The readmission application may be obtained and returned to the Office of Undergraduate Studies for processing. Also, if you have attended any other college or university in the interim, an official transcript should be sent to the College for possible transfer of credit.

## REPEATING A COURSE

As of September 1, 2003, a course may be repeated once for a higher grade. A course can only be repeated twice with permission. Only the higher grade for a repeated course will be averaged into your GPA and all earned grades and W's for withdraws will appear on your transcript. The office of Academic Records makes changes automatically.

## SEMESTER WITHDRAWAL

Students may take a semester withdrawal from the University by completing a properly endorsed Schedule Revision form and preparing a letter stating the reason(s) for the withdrawal. They must also schedule a personal interview with the Director of Undergraduate Studies in Room 349. If granted, that office will process the semester withdraw.

## WITHDRAWAL & ADD/DROP

The following matrix is applicable for schedule revision which involves add, drop and withdrawal from a course. Students are well advised to heed to the timetable, especially for Summer Sessions. Exact dates for the matrix are published in the Office of the University Registrar website, under academic calendar, [www.temple.edu/vpus/](http://www.temple.edu/vpus/). Students are permitted to withdraw from a particular course via TUportal SSB, but should be *aware* that it counts as *one* of the three (3) allowed attempts. Late fees may apply when adding a course.

|  | <u>Fall/Spring</u> | <u>Summer</u>  |
|--|--------------------|----------------|
| Schedule Revision-Add/Drop<br>(Dropped course are removed from the transcript) | 1-2 weeks          | 1-3/ 1-10 days |
| Withdrawal<br>( W on transcript and will count as an attempt)                  | 3-9 weeks          | 4-18 days      |
| NO WITHDRAWAL PERMITTED<br>(Grade on transcript)                               | 10-14 weeks        | 19-30 days     |

## V. ACADEMIC STANDING

### DEAN'S LIST

To be placed on the Dean's List, you must be matriculated, full-time, have completed at least 12 semester hours with no grades of "I" or less than "C" and have a grade point average of at least 3.52. Part-time students are also eligible for the Dean's List. They must be matriculated students who have earned at least 12 credit hours across an academic year (Fall and Spring semesters). They must meet the same grade and GPA requirements as full-time Dean's List candidates.

### WARNING

Warning is indicated when the semester GPA < 2.0. The total number of credits accumulated by the student is also considered. Students on warning can register via TUportal, but they must meet with an advisor for academic planning and to receive their RAP code for registration.

### WARNING IN THE MAJOR

This is indicated when the GPA in the major is < 2.0.

### PROBATION

Probation is indicated when the cumulative GPA < 2.0. A notice is placed on the student's record. Students on probation cannot register via TUportal, they must meet with an advisor for academic planning and registration. A reduction in the academic load for the following semester is recommended. If a 2.00 cumulative GPA has been achieved after the following semester the student is taken off probation.

### DISMISSAL

If the student is on probation for two consecutive semesters he/she may be eligible for dismissal if the GPA falls below the required minimum, see the Academic Standing policy # 2.10.11 on page 4 under [policies.temple.edu](http://policies.temple.edu). A dismissed student may apply for reinstatement four years from the date of last enrollment at Temple University. At the time of application, all credits will be evaluated. Final determination of the acceptability of such courses is the responsibility of the academic unit. A student may also apply for Academic Forgiveness (02.10.17) at this time.

## VI. THE GENERAL EDUCATION CURRICULUM

The Gen ED Curriculum is divided into categories, with the requirements in each category summarized below. For more detailed information about the General Education Curriculum, students should refer to the Undergraduate Bulletin and the Course Descriptions site ([www.temple.edu/bulletin/ugradbulletin/ucd/ucdtoc.html](http://www.temple.edu/bulletin/ugradbulletin/ucd/ucdtoc.html)), or on Temple's website ([www.temple.edu](http://www.temple.edu)).

### GENERAL EDUCATION REQUIREMENTS

| Gen Ed Area                      | RCI Code | Semester Hours/Credits |
|----------------------------------|----------|------------------------|
| Analytical reading & Writing     | GW       | 4 credits, 1 course    |
| Intellectual Heritage, Mosaic I  | GY       | 3 credits, 1 course    |
| Intellectual Heritage, Mosaic II | GZ       | 3 credits, 1 course    |
| US Society                       | GU       | 3 credits, 1 course    |
| Gen Ed Arts                      | GA       | 3 credits, 1 course    |
| Human Behavior                   | GB       | 3 credits, 1 course    |
| Global / World Society           | GG       | 3 credits, 1 course    |
| Quantitative Literacy            | GQ       | 4 credits, 1 course    |
| Science or Technology            | GS       | 6 credits, 2 courses   |
| Race & Diversity                 | GD       | 3 credits, 1 course    |

Two additional writing-intensive courses (as needed).

**NOTE:** Each course taken must be completed with a grade of "C -" or higher .  
(Math courses must be "C" or higher )

### INTERNATIONAL STUDIES OPTION

You may substitute an approved study-abroad experience for the "World Society Course". If interested in this option, please discuss it with your advisor or with the CoE Office of Undergraduate Studies.

## WRITING INTENSIVE REQUIREMENT

### WRITING INTENSIVE COURSES

The ability of students to write properly, effectively and persuasively is one of the University's major concerns. For this reason, writing is an integral part of the General Education Curriculum. Upon successful completion of English 0802, students must complete four writing-intensive courses before graduation. Mosaic 0851 and 0852 will be two of these four courses. The remaining two courses are in the major. For students who enroll as transfers, regardless of the number of transfer credits awarded, at least two writing-intensive courses must be taken at Temple University.

### COLLEGE OF ENGINEERING CURRICULA:

For your reference, curriculum outlines are provided on the following pages. These are the curricula offered by the College of Engineering:

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### UNDECLARED STUDENTS

- 1.) If your intended major is one of the **Engineering Technology** programs, you can follow the General Engineering Technology Program for your first few semesters. Please note that you must declare your Engineering Technology major by the time you reach 60 credits.
- 2.) If your intended major is one of the **Engineering** programs, you can follow any of the Civil, Electrical, or Mechanical sequences for the first two semesters (30 credits). After this time, you must declare your Engineering major. See attached CE, EE, CompE, and ME programs.
- 3.) To declare your major, go to the Office of Undergraduate Studies, Room 349, and complete the Change of Program request form.

**PLEASE NOTE:** All programs have at least 12 credits of electives, although the electives may be limited. Some programs have 3 credits of free electives.



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
BACHELOR OF SCIENCE IN CIVIL ENGINEERING (BSCE)

PROGRAM OUTLINE - FALL 2011

FALL

1<sup>st</sup> Semester

|  |           |              |                         |    |
|--|-----------|--------------|-------------------------|----|
|  | s.h.      |              |                         |    |
|  | 4         | MATH 1041    | Calculus I              | GQ |
|  | 2         | ENGR 1101    | Intro to Engineering    |    |
|  | 3         | CHEM 1031    | Chemistry I             |    |
|  | 1         | CHEM 1033    | Chemistry 1 LAB         |    |
|  | 4         | English 0802 | Analytical Read & Write |    |
|  | <b>14</b> |              |                         |    |

SPRING

2<sup>nd</sup> Semester

|  |           |                            |                 |    |
|--|-----------|----------------------------|-----------------|----|
|  | s.h.      |                            |                 |    |
|  | 4         | MATH 1042                  | Calculus II     | GQ |
|  | 4         | PHYS 1061                  | Physics I & LAB | GS |
|  | 3         | ENGR 1117                  | Graphics        |    |
|  | 2         | CE 1105                    | Surveying       |    |
|  | 3         | Intellectual Heritage 0851 | Mosaic I        | GY |
|  | <b>16</b> |                            |                 |    |

3<sup>rd</sup> Semester

|  |           |           |                          |    |
|--|-----------|-----------|--------------------------|----|
|  | s.h.      |           |                          |    |
|  | 4         | MATH 2043 | Calculus III             |    |
|  | 4         | PHYS 1062 | Physics II & LAB         | GS |
|  | 3         | ENGR 2331 | Engineering Statics      |    |
|  | 3         | ENGR 2196 | Tech Communication       |    |
|  | 2         | CE 2011   | Civil Engineer Materials |    |
|  | <b>16</b> |           |                          |    |

4<sup>th</sup> Semester

|  |           |                            |                        |    |
|--|-----------|----------------------------|------------------------|----|
|  | s.h.      |                            |                        |    |
|  | 3         | MATH 3041                  | Differential Equations |    |
|  | 3         | ENGR 2332                  | Engineering Dynamics   |    |
|  | 3         | ENGR 2333                  | Mechanics of Solids    |    |
|  | 3         | ENGR 3571                  | Thermodynamics         |    |
|  | 3         | Intellectual Heritage 0852 | Mosaic II              | GZ |
|  | <b>15</b> |                            |                        |    |

5<sup>th</sup> Semester

|  |           |                  |                         |    |
|--|-----------|------------------|-------------------------|----|
|  | s.h.      |                  |                         |    |
|  | 3         | ENGR 3553        | Fluid Mechanics         |    |
|  | 3         | ENGR 3496        | Material Science        |    |
|  | 3         | CE 3331          | Soil Mechanics          |    |
|  | 1         | CE 3332          | Soil Mechanics LAB      |    |
|  | 4         | CE 3411          | Structural Analysis     |    |
|  | 1         | CE 3412          | Structural Analysis LAB |    |
|  | 3         | GenEd US Society |                         | GU |
|  | <b>17</b> |                  |                         |    |

6<sup>th</sup> Semester

|  |           |                              |                            |    |
|--|-----------|------------------------------|----------------------------|----|
|  | s.h.      |                              |                            |    |
|  | 1         | ENGR 4169                    | Engineering Seminar        |    |
|  | 1         | ME 3506                      | Fluids and Energy Lab      |    |
|  | 3         | CE 3048                      | Probability & Statistics   |    |
|  | 3         | CE 3211                      | Transportation Engineering |    |
|  | 4         | CE 3441                      | Steel and Concrete Design  |    |
|  | 3         | GenEd Global / World Society |                            | GG |
|  | <b>15</b> |                              |                            |    |

7<sup>th</sup> Semester

|  |           |                       |                           |    |
|--|-----------|-----------------------|---------------------------|----|
|  | s.h.      |                       |                           |    |
|  | 1         | ENGR 4196             | Senior Design I           |    |
|  | 3         | CE 3311               | Construction Engineering  |    |
|  | 3         | CE 3711               | Environmental Engineering |    |
|  | 3         | CE Technical Elective |                           |    |
|  | 3         | GenEd Arts            |                           | GA |
|  | 3         | Free Elective         |                           |    |
|  | <b>16</b> |                       |                           |    |

8<sup>th</sup> Semester

|  |           |                        |                           |    |
|--|-----------|------------------------|---------------------------|----|
|  | s.h.      |                        |                           |    |
|  | 3         | ENGR 4296              | Senior Design II          | W  |
|  | 3         | EE 2112                | Electrical Dev. & Systems |    |
|  | 3         | CE Technical Elective  |                           |    |
|  | 3         | GenEd Human Behavior   |                           | GB |
|  | 3         | GenEd Race & Diversity |                           | GD |
|  | <b>15</b> |                        |                           |    |

Total: 124 s.h. Revised 5/11

<sup>§</sup> See Advisor or Undergraduate Course Description for Prerequisites

<sup>^</sup> University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

**\*\*Approved CE Technical Electives:**

7<sup>th</sup> Semester/Fall

CE 4211 Bridge Engineering  
CE 4221 Intelligent Transportation Sys  
CE 43xx Engineering Project Management  
CE 4433 Behavior & Design Masonry Structures  
CE 4631 Environmental Hydrology  
CE 4711 Air Pollution Control Engineering  
CE 4xxx Earthquake Engineering & Seismic Des.  
ENGR 3096 Engineering Economics

8<sup>th</sup> Semester/Spring

CE 3334 Structural Design of Pavements  
CE 4321 Geotechnical Engineering  
CE 43xx Construction Administration  
CE 4431 Behavior & Design Steel Structures  
CE 4432 Behavior & Design Concrete Structures  
CE 4421 Structural Dynamics  
CE 4621 Engineering Hydrology  
CE 4721 Water & Wastewater Systems



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
BACHELOR OF SCIENCE IN CIVIL ENGINEERING (BSCE)

*Environmental Engineering Concentration*

PROGRAM OUTLINE - FALL 2011

FALL

1<sup>st</sup> Semester

|    |                                      |  |   |  |
|----|--------------------------------------|--|---|--|
|    | s.h.                                 |  |   |  |
| 2  | ENGR 1101 Intro to Engineering       |  |   |  |
| 4  | MATH 1041 Calculus I                 |  | Q |  |
| 3  | CHEM 1031 Chemistry I                |  |   |  |
| 1  | CHEM 1033 Chemistry I LAB            |  |   |  |
| 4  | English 0802 Analytical Read & Write |  | W |  |
| 14 |                                      |  |   |  |

SPRING

2<sup>nd</sup> Semester

|    |                                     |  |   |  |
|----|-------------------------------------|--|---|--|
|    | s.h.                                |  |   |  |
| 4  | MATH 1042 Calc II                   |  |   |  |
| 4  | PHYS 1061 Physics I & LAB           |  | S |  |
| 3  | ENGR 1117 Graphics                  |  |   |  |
| 2  | CE 1105 Surveying                   |  |   |  |
| 3  | Intellectual Heritage 0851 Mosaic I |  | Y |  |
| 16 |                                     |  |   |  |

3<sup>rd</sup> Semester

|    |  |  |   |  |
|----|--|--|---|--|
|    | s.h.   |  |   |  |
| 4  | MATH 2043 Calculus III                         |  |   |  |
| 4  | PHYS 1062 Physics II & LAB                     |  | S |  |
| 3  | ENGR 2331 Engineering Statics                  |  |   |  |
| 3  | CE 2711 Environmental Chemistry & Microbiology |  |   |  |
| 2  | CE 2011 Civil Engineering Material             |  |   |  |
| 16 |  |  |   |  |

4<sup>th</sup> Semester

|    |                                      |  |   |  |
|----|--------------------------------------|--|---|--|
|    | s.h.                                 |  |   |  |
| 3  | MATH 3041 Differential Equations     |  |   |  |
| 3  | ENGR 2333 Mechanics of Solids        |  |   |  |
| 3  | ENGR 2332 Engineering Dynamics       |  |   |  |
| 3  | ENGR 3571 Thermodynamics             |  |   |  |
| 3  | Intellectual Heritage 0852 Mosaic II |  | Z |  |
| 15 |                                      |  |   |  |

5<sup>th</sup> Semester

|    |                                   |  |   |  |
|----|-----------------------------------|--|---|--|
|    | s.h.                              |  |   |  |
| 3  | ENGR 3553 Fluid Mechanics         |  |   |  |
| 3  | CE 3331 Soil Mechanics            |  |   |  |
| 1  | CE 3332 Soil Mechanics LAB        |  |   |  |
| 3  | CE 3711 Environmental Engineering |  |   |  |
| 3  | ENGR 2196 Technical Communication |  |   |  |
| 3  | GenEd Human Behavior              |  | B |  |
| 16 |                                   |  |   |  |

6<sup>th</sup> Semester

|    |                                  |  |   |  |
|----|----------------------------------|--|---|--|
|    | s.h.                             |  |   |  |
| 1  | ENGR 4169 Engineering Seminar    |  |   |  |
| 3  | CE 3048 Probability & Statistics |  |   |  |
| 3  | CE 3311 Construction Engineering |  |   |  |
| 1  | ME 3506 Fluids and Energy Lab    |  |   |  |
| 3  | CE Technical Elective            |  |   |  |
| 3  | CE Technical Elective            |  |   |  |
| 3  | GenEd US Society                 |  | U |  |
| 17 |                                  |  |   |  |

7<sup>th</sup> Semester

|    |                                 |  |   |  |
|----|---------------------------------|--|---|--|
|    | s.h.                            |  |   |  |
| 1  | ENGR 4196 Senior Design I       |  |   |  |
| 3  | ENGR 3096 Engineering Economics |  |   |  |
| 3  | CE Technical Elective           |  |   |  |
| 3  | GenEd Global / World Soc        |  | G |  |
| 3  | GenEd Arts                      |  | A |  |
| 2  | Free Elective                   |  |   |  |
| 15 |                                 |  |   |  |

8<sup>th</sup> Semester

|    |                                   |  |   |  |
|----|-----------------------------------|--|---|--|
|    | s.h.                              |  |   |  |
| 3  | ENGR 4296 Senior Design II        |  | W |  |
| 3  | EE 2112 Electrical Dev. & Systems |  |   |  |
| 3  | CE Technical Elective             |  |   |  |
| 3  | CE Technical Elective             |  |   |  |
| 3  | GenEd Race & Diversity            |  | D |  |
| 15 |                                   |  |   |  |

Total: 124 s.h. Revised 5/11

§ See Advisor or Undergraduate Course Description for Prerequisites

^ University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

\*\***Approved CE Technical Electives:** (3 out of the 5 bold courses are required for the Environmental Concentration)

5<sup>th</sup>/7<sup>th</sup> Semester

CE 3211 Transportation Engineering  
CE 4221 Intell Transportation Sys  
CE 3411 Structural Analysis  
CE 3412 Structural Analysis Lab  
CE 43xx Engr Project Mgmt  
CE 4631 Environmental Hydrology  
CE 4711 Air Pollution Control Engineering

6<sup>th</sup>/8<sup>th</sup> Semester

CE 4321 Geotechnical Engineering  
CE 43xx Construction Administration  
CE 3611 Hydraulic Engineering (An Advanced course)  
CE 4531 Life Cycle Assessment and Carbon Footprints  
CE 4621 Engineering Hydrology  
CE 4721 Water & Wastewater Systems Design  
CE 4731 Solid and Hazardous Waste Management  
CE 4xxx Urban Streams & Storm Water Management



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
 BACHELOR OF SCIENCE IN ENGINEERING TECHNOLOGY (BSET)  
 CONSTRUCTION MANAGEMENT TECHNOLOGY

## PROGRAM OUTLINE - FALL 2011

FALLSPRING1<sup>st</sup> Semester

|      |    |                                      |    |
|------|----|--------------------------------------|----|
|      |    |                                      |    |
| s.h. | 4  | MATH 1022 Pre Calculus               | GQ |
|      | 2  | ENGR 1101 Intro. to Engineering      |    |
|      | 3  | ENGR 1117 Graphics                   |    |
|      | 4  | English 0802 Analytical Read & Write |    |
|      | 3  | GenEd xxxx World Society             | GG |
|      | 16 |                                      |    |

2<sup>nd</sup> Semester

|      |    |  |    |
|------|----|--|----|
|      |    |  |    |
| s.h. | 4  | MATH 1031 Differential & Integral Calc | GQ |
|      | 4  | PHYS 1021 Gen Physics 1 & LAB          | GS |
|      | 2  | CEE 1105 Surveying (LAB)               |    |
|      | 3  | Intellectual Heritage 0851 Mosaic I    | GY |
|      | 3  | GenEd xxxx Race & Diversity            | GD |
|      | 16 |  |    |

3<sup>rd</sup> Semester

|      |    |                                      |    |
|------|----|--------------------------------------|----|
|      |    |                                      |    |
| s.h. | 3  | GenEd xxxx US Society                | GU |
|      | 4  | PHYS 1022 Gen Physics II & LAB       | GS |
|      | 3  | ENGR 2331 Engineering Statics        |    |
|      | 3  | CMT 2124 Constr Methods & Materials  |    |
|      | 3  | Intellectual Heritage 0852 Mosaic II | GZ |
|      | 16 |                                      |    |

4<sup>th</sup> Semester

|      |    |                                   |     |
|------|----|-----------------------------------|-----|
|      |    |                                   |     |
| s.h. | 4  | STAT 2103 Business Statistics     |     |
|      | 3  | ENGR 2333 Mechanics of Solids     |     |
|      | 2  | CEE 2011 Civil Engr. Materials    | LAB |
|      | 3  | CMT 2125 Constr Contracts & Specs |     |
|      | 3  | CMT 2271 Building Systems         |     |
|      | 15 |                                   |     |

5<sup>th</sup> Semester

|      |    |                                  |     |
|------|----|----------------------------------|-----|
|      |    |                                  |     |
| s.h. | 3  | CMT 3121 Construction Estimating |     |
|      | 1  | CMT 3123 Constr. Estimating      | LAB |
|      | 3  | CMT 3333 Soil Mechanics          |     |
|      | 2  | CEE 2396 Envir. & Safety Aspects | W   |
|      | 4  | CHEM 1031 and CHEM1033           | LAB |
|      |    | OR EES 1001 Introductory Geology |     |
|      | 3  | GenEd xxxx Human Behavior        | GB  |
|      | 16 |                                  |     |

6<sup>th</sup> Semester

|      |    |                                      |   |
|------|----|--------------------------------------|---|
|      |    |                                      |   |
| s.h. | 3  | CMT 3322 Constr Planning & Schedul   |   |
|      | 3  | CMT 3145 Structural Analysis         |   |
|      | 3  | CMT 3351 Applied Hydraulics          |   |
|      | 3  | English 2696 Technical Writing       | W |
|      | 3  | ENGR 3096 Economic Analysis          | W |
|      |    | OR Finance 3101 Financial Management |   |
|      | 15 |                                      |   |

7<sup>th</sup> Semester

|      |    |                                      |    |
|------|----|--------------------------------------|----|
|      |    |                                      |    |
| s.h. | 1  | ET 4119 Professional Seminar         |    |
|      | 3  | CMT 4336 Concrete Masonry Design     |    |
|      | 3  | CMT 4355 Transport Systems Mgmt.     |    |
|      | 3  | GenEd xxxx Arts                      | GA |
|      | 3  | Approved Specialty Elective          |    |
|      | 3  | ECON 1101 Macroeconomic Principles   |    |
|      |    | OR ECON1102 Microeconomic Principles |    |
|      | 16 |                                      |    |

8<sup>th</sup> Semester

|      |    |                                   |   |
|------|----|-----------------------------------|---|
|      |    |                                   |   |
| s.h. | 3  | CMT 4335 Steel & Wood Structures  |   |
|      | 3  | CMT 4396 Capstone in Construction | W |
|      | 3  | Approved Specialty Elective       |   |
|      | 3  | Approved Specialty Elective       |   |
|      | 2  | Free Elective                     |   |
|      | 14 |                                   |   |

Total: 124 s.h. Revised 6/11

<sup>s</sup> See Advisor or Undergraduate Course Description for Prerequisites<sup>^</sup> University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

## APPROVED SPECIALTY ELECTIVES:

|                                 |   |                          |   |
|---------------------------------|---|--------------------------|---|
| ECON 1101-02: Macro/Micro-Econ. | 3 | ET 3323: Dynamics        | 3 |
| HRA 1101: Organiz. & Mgmt       | 3 | ET 2521: Fluid Mechanics | 3 |
| MSOM 3101: Operations Mgmt      | 3 | ET 3532: Thermodynamics  | 3 |
| MKT 2101: Intro to Marketing    | 3 | ET 3396: Materials Tech. | 3 |
| FIN 3101: Managerial Finance /  | 3 | Other CE/ENGR/ET courses | 3 |
| or CCET 4973: Const. Fin. Mgmt  | 3 | ACCT 2101 Accounting I   | 3 |
| RMI 2101 Intro to Risk Mgmt     | 3 | ACCT 2102 Accounting II  | 3 |



**TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (BSEE)**

**PROGRAM OUTLINE FALL 2011**

**FALL**

**SPRING**

**1<sup>st</sup> Semester**

|  |           |                                      |    |  |
|--|-----------|--------------------------------------|----|--|
|  | s.h.      |                                      |    |  |
|  | 4         | MATH 1041 Calculus I                 | GQ |  |
|  | 3         | CHEM 1031 Chemistry I                |    |  |
|  | 1         | CHEM 1033 Chemistry LAB              |    |  |
|  | 2         | ENGR 1101 Intro to Engineering       |    |  |
|  | 4         | ENGLISH 0802 Analytical Read & Write |    |  |
|  | <b>14</b> |                                      |    |  |

**2<sup>nd</sup> Semester**

|  |           |                                      |    |  |
|--|-----------|--------------------------------------|----|--|
|  | s.h.      |                                      |    |  |
|  | 4         | MATH 1042 Calculus II                | GQ |  |
|  | 4         | PHYS 1061 Elem Class Physics I & LAB |    |  |
|  | 4         | CIS 1057 Programming in C(**)        |    |  |
|  | 3         | Intellectual Heritage 0851 Mosaic I  | GY |  |
|  | <b>15</b> |                                      |    |  |

**3<sup>rd</sup> Semester**

|  |           |                                      |    |  |
|--|-----------|--------------------------------------|----|--|
|  | s.h.      |                                      |    |  |
|  | 4         | MATH 2043 Calculus III               |    |  |
|  | 4         | PHYS 1062 Elem Class Phys II & LAB   |    |  |
|  | 3         | EE 2312 Electrical Engr Science I    |    |  |
|  | 1         | EE 2313 Electrical Engr Sci I LAB    |    |  |
|  | 3         | Intellectual Heritage 0852 Mosaic II | GZ |  |
|  | <b>15</b> |                                      |    |  |

**4<sup>th</sup> Semester**

|  |           |                                       |    |  |
|--|-----------|---------------------------------------|----|--|
|  | s.h.      |                                       |    |  |
|  | 3         | MATH 3041 Differential Equations      |    |  |
|  | 4         | EE 2322/2323 Elec Engr Sci II & Lab   |    |  |
|  | 4         | EE 2612/2613 Digital Cir Design & Lab |    |  |
|  | 3         | ENGR 2011 Engineering Analysis        |    |  |
|  | 3         | GenEd xxxx US Society                 | GU |  |
|  | <b>17</b> |                                       |    |  |

**5<sup>th</sup> Semester**

|  |           |                                      |  |  |
|--|-----------|--------------------------------------|--|--|
|  | s.h.      |                                      |  |  |
|  | 4         | EE 3512 Signal Continuous & Discrete |  |  |
|  | 4         | EE 3612 Microprocessors              |  |  |
|  | 3         | EE 3613 Microprocessors LAB          |  |  |
|  | 3         | EE 3712 Electro Mag Fields & Waves   |  |  |
|  | 3         | ENGR 2331 Statics                    |  |  |
|  | 3         | ENGR 2196 Technical Communication    |  |  |
|  | <b>17</b> |                                      |  |  |

**6<sup>th</sup> Semester**

|  |           |                                       |    |  |
|--|-----------|---------------------------------------|----|--|
|  | s.h.      |                                       |    |  |
|  | 3         | EE 3412 Classical Control Systems     |    |  |
|  | 1         | EE 3413 Classical Control Systems LAB |    |  |
|  | 3         | EE 3522 Stochastic Processing         |    |  |
|  | 3         | EE 3312 Electronic Devices            |    |  |
|  | 1         | EE 3313 Electrical Devices LAB        |    |  |
|  | 1         | ENGR 4169 Engineering Seminar         |    |  |
|  | 3         | GenEd xxxx Race & Diversity           | GD |  |
|  | <b>15</b> |                                       |    |  |

**7<sup>th</sup> Semester**

|  |           |  |    |  |
|--|-----------|--|----|--|
|  | s.h.      |  |    |  |
|  | 1         | ENGR 4196 Senior Design Project I      |    |  |
|  | 3         | EE 4512 Analog & Digital Communication |    |  |
|  | 1         | EE 4513 Analog & Digital Communication |    |  |
|  | 4         | EE Elective                            |    |  |
|  | 3         | GenEd xxxx Human Behavior              | GB |  |
|  | 3         | GenEd xxxx Global/World Society        | GG |  |
|  | <b>15</b> |  |    |  |

**8<sup>th</sup> Semester**

|  |           |                                    |    |  |
|--|-----------|------------------------------------|----|--|
|  | s.h.      |                                    |    |  |
|  | 3         | ENGR 4296 Senior Design Project II | W  |  |
|  | 4         | EE xxxx EE Elective                |    |  |
|  | 3         | EE/ENGR xxxx EE/ENGR Elective      |    |  |
|  | 3         | GenEd xxxx The Arts                | GA |  |
|  | 3         | Elective xxxx Free Elective        |    |  |
|  | <b>16</b> |                                    |    |  |

**TOTAL 124 s.h. Revised 5/11**

§ See Advisor or Undergraduate Course Description for Prerequisites

^ University General Education (**Gen Ed**) Curriculum, 35 credit hours required (consult Advisor)

\*\* CIS 1057 is a required course for all ECE students. *Engineering Graphics 1117 can be counted as a free elective.*

\*\*\*See department or engineering website for EE electives.



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
 BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (BSEE)  
 Computer Engineering Concentration

## PROGRAM OUTLINE FALL 2011

FALL1<sup>st</sup> Semester

|  |      |                                      |  |    |
|--|------|--------------------------------------|--|----|
|  | s.h. |                                      |  |    |
|  | 4    | MATH 1041 Calculus I                 |  | GQ |
|  | 3    | CHEM 1031 Chemistry I                |  |    |
|  | 1    | CHEM 1033 Chemistry I LAB            |  |    |
|  | 2    | ENGR 1101 Intro to Engineering       |  |    |
|  | 4    | English 0802 Analytical Read & Write |  |    |
|  | 14   |                                      |  |    |

3<sup>rd</sup> Semester

|  |      |                                    |  |  |
|--|------|------------------------------------|--|--|
|  | s.h. |                                    |  |  |
|  | 4    | MATH 2043 Calculus III             |  |  |
|  | 4    | PHYS 1062 Elem Class Phys II & LAB |  |  |
|  | 3    | EE 2312 Electrical Engr Science I  |  |  |
|  | 1    | EE 2313 Electrical Engr Sc I LAB   |  |  |
|  | 4    | CIS 1166 Math Concepts Computing 1 |  |  |
|  | 16   |                                    |  |  |

5<sup>th</sup> Semester

|  |      |                                      |  |    |
|--|------|--------------------------------------|--|----|
|  | s.h. |                                      |  |    |
|  | 4    | EE 3512 Signal Continuous & Discrete |  |    |
|  | 3    | EE 3612 Microprocessor               |  |    |
|  | 1    | EE 3613 Microprocessor LAB           |  |    |
|  | 3    | GenEd xxxx Global Society            |  | GG |
|  | 3    | GenEd xxxx US Society                |  | GU |
|  | 3    | ENGR 2196 Technical Communications   |  |    |
|  | 17   |                                      |  |    |

7<sup>th</sup> Semester

|  |      |                                     |  |    |
|--|------|-------------------------------------|--|----|
|  | s.h. |                                     |  |    |
|  | 1    | ENGR 4196 Senior Design Project I   |  |    |
|  | 3    | EE 4512 Analog / Digital Comm       |  |    |
|  | 1    | EE 4513 Analog / Digital Comm LAB   |  |    |
|  | 4    | CIS 2168 Data Structure             |  |    |
|  | 3    | EE 4612 Advanced Microprocessor Sys |  |    |
|  | 3    | GenEd xxxx Human Behavior           |  | GB |
|  | 15   |                                     |  |    |

SPRING2<sup>nd</sup> Semester

|  |      |                                       |  |    |
|--|------|---------------------------------------|--|----|
|  | s.h. |                                       |  |    |
|  | 4    | MATH 1042 Calculus II                 |  | GQ |
|  | 4    | PHYS 1061 Elem Classical Phys I & LAB |  |    |
|  | 4    | CIS 1057 Programming in C(**)         |  |    |
|  | 3    | Intellectual Heritage 0851 Mosaic I   |  | GY |
|  | 15   |                                       |  |    |

4<sup>th</sup> Semester

|  |      |                                      |  |    |
|--|------|--------------------------------------|--|----|
|  | s.h. |                                      |  |    |
|  | 3    | MATH 3041 Differential Equations     |  |    |
|  | 3    | EE 2322 Electrical Engr Science II   |  |    |
|  | 1    | EE 2323 Electrical Engr Sci II LAB   |  |    |
|  | 3    | EE 2612 Digital Circuit Design       |  |    |
|  | 1    | EE 2613 Digital Circuit Design LAB   |  |    |
|  | 3    | ENGR 2011 Engineering Analysis       |  |    |
|  | 3    | Intellectual Heritage 0852 Mosaic II |  | GZ |
|  | 17   |                                      |  |    |

6<sup>th</sup> Semester

|  |      |                                       |  |  |
|--|------|---------------------------------------|--|--|
|  | s.h. |                                       |  |  |
|  | 3    | EE 3622 Embedded System Design        |  |  |
|  | 1    | EE 3623 Embedded Systems Des LAB      |  |  |
|  | 3    | EE 3522 Stochastic Processing         |  |  |
|  | 4    | CIS 1068 Program Design & Abstraction |  |  |
|  | 1    | ENGR 4169 Engineering Seminar         |  |  |
|  | 3    | Free Elective                         |  |  |
|  | 15   |                                       |  |  |

8<sup>th</sup> Semester

|  |      |                                    |  |    |
|--|------|------------------------------------|--|----|
|  | s.h. |                                    |  |    |
|  | 3    | ENGR 4296 Senior Design Project II |  |    |
|  | 3    | EE/CIS xxxx EE/CIS Elective        |  |    |
|  | 3    | EE 4516 Computer Data Comm         |  |    |
|  | 3    | GenEd xxxx The Arts                |  | GA |
|  | 3    | GenEd xxxx Race & Diversity        |  | GD |
|  | 15   |                                    |  |    |

TOTAL 124 s.h. Revised 5/11

<sup>s</sup> See Advisor or Undergraduate Course Description for Prerequisites

<sup>^</sup> University General Education (**Gen Ed**) Curriculum, 35 credit hours required (consult Advisor)

\*\* CIS 1057 is a required course for all ECE students. Engineering Graphics 1117 can be counted as a free elective.

\*\*\* See department or the engineering website for EE electives.



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
 BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (BSEE)  
*Bioelectrical Plan of Study*

## PROGRAM OUTLINE FALL 2011

FALLSPRING1<sup>st</sup> Semester

|      |    |                                      |    |  |
|------|----|--------------------------------------|----|--|
|      |    |                                      |    |  |
| s.h. | 4  | MATH 1041 Calculus I                 | GQ |  |
|      | 3  | Chem 1031 Chemistry I                |    |  |
|      | 1  | Chem 1033 Chemistry I LAB            |    |  |
|      | 2  | ENGR 1101 Intro to Engineering       |    |  |
|      | 4  | English 0802 Analytical Read & Write |    |  |
|      | 14 |                                      |    |  |

2<sup>nd</sup> Semester

|      |    |                                       |    |  |
|------|----|---------------------------------------|----|--|
|      |    |                                       |    |  |
| s.h. | 4  | MATH 1042 Calculus II                 | GQ |  |
|      | 4  | PHYS 1061 Elem Classical Phys I & LAB |    |  |
|      | 4  | CIS 1057 Programming in C(**)         |    |  |
|      | 4  | BIO 1011 Biology I                    |    |  |
|      | 15 |                                       |    |  |

3<sup>rd</sup> Semester

|      |    |  |  |  |
|------|----|--|--|--|
|      |    |  |  |  |
| s.h. | 4  | MATH 2043 Calculus III                 |  |  |
|      | 4  | PHYS 1062 Elem Class Phys II & LAB     |  |  |
|      | 3  | EE 2312 Electrical Engr Science I      |  |  |
|      | 1  | EE 2313 Electrical Engr Sc I LAB       |  |  |
|      | 3  | Intellectual Heritage 0851 Mosaic I GY |  |  |
|      | 15 |  |  |  |

4<sup>th</sup> Semester

|      |    |   |  |  |
|------|----|---|--|--|
|      |    |   |  |  |
| s.h. | 3  | MATH 3041 Differential Equations        |  |  |
|      | 3  | EE 2322 Elec Engr Science II            |  |  |
|      | 1  | EE 2323 Elec Engr Science II LAB        |  |  |
|      | 3  | EE 2612 Digital Circuit Design          |  |  |
|      | 1  | EE 2613 Digital Circuit Design LAB      |  |  |
|      | 3  | ENGR 2011 Engineering Analysis          |  |  |
|      | 3  | Intellectual Heritage 0852 Mosaic II GZ |  |  |
|      | 17 |   |  |  |

5<sup>th</sup> Semester

|      |    |                                      |  |  |
|------|----|--------------------------------------|--|--|
|      |    |                                      |  |  |
| s.h. | 4  | EE 3512 Signal Continuous & Discrete |  |  |
|      | 3  | EE 3612 Microprocessor               |  |  |
|      | 1  | EE 3613 Microprocessor LAB           |  |  |
|      | 3  | EE 3712 Electromagnetic Fields       |  |  |
|      | 4  | KINES 1223 Human Anatomy & Phy I     |  |  |
|      | 3  | ENGR 2196 Technical Communication    |  |  |
|      | 18 |                                      |  |  |

6<sup>th</sup> Semester

|      |    |                                       |  |  |
|------|----|---------------------------------------|--|--|
|      |    |                                       |  |  |
| s.h. | 3  | EE 3412 Classical Control Systems     |  |  |
|      | 1  | EE 3413 Classical Control Systems LAB |  |  |
|      | 3  | EE 3522 Stochastic Processing         |  |  |
|      | 4  | KINES 1224 Human Anatomy & Phy II     |  |  |
|      | 3  | GenEd xxxx Race & diversity GD        |  |  |
|      | 1  | ENGR 4169 Engineering Seminar         |  |  |
|      | 15 |                                       |  |  |

7<sup>th</sup> Semester

|      |    |                                    |  |  |
|------|----|------------------------------------|--|--|
|      |    |                                    |  |  |
| s.h. | 1  | ENGR 4196 Senior Design Project 1  |  |  |
|      | 3  | EE 4522 Digital Signal Processing  |  |  |
|      | 4  | EE EE/ BIO Elective                |  |  |
|      | 3  | GenEd xxxx US Society GU           |  |  |
|      | 3  | GenEd xxxx Global/World Society GC |  |  |
|      | 14 |                                    |  |  |

8<sup>th</sup> Semester

|      |    |                                      |  |  |
|------|----|--------------------------------------|--|--|
|      |    |                                      |  |  |
| s.h. | 3  | ENGR 4296 Senior Design Project II W |  |  |
|      | 3  | EE xxxx EE Elective                  |  |  |
|      | 3  | GenEd xxxx The Arts GA               |  |  |
|      | 3  | GenEd xxxx Human Behavior GB         |  |  |
|      | 3  | Elective Free Elective               |  |  |
|      | 15 |                                      |  |  |

TOTAL 124 s.h. Revised 5/11

<sup>S</sup> See Advisor or Undergraduate Course Description for Prerequisites

<sup>^</sup> University General Education (**Gen Ed**) Curriculum, 35 credit hours required (consult Advisor)

\*\* CIS 1057 is a required course for all ECE students. *Engineering Graphics 1117 can be counted as a free elective.*

\*\*\*See department or engineering website for EE electives.



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (BSME)

## PROGRAM OUTLINE FALL 2011

FALL1<sup>st</sup> Semester

|      |    |                                      |  |    |
|------|----|--------------------------------------|--|----|
|      |    |                                      |  |    |
| s.h. | 4  | MATH 1041 Calculus I                 |  | GQ |
|      | 3  | CHEM 1031 Chemistry I                |  |    |
|      | 1  | CHEM 1033 Chemistry I LAB            |  |    |
|      | 2  | ENGR 1101 Intro to Engineering       |  |    |
|      | 4  | English 0802 Analytical Read & Write |  |    |
|      | 14 |                                      |  |    |

3<sup>rd</sup> Semester

|      |    |  |  |  |
|------|----|--|--|--|
|      |    |  |  |  |
| s.h. | 4  | MATH 2043 Calculus III                 |  |  |
|      | 4  | PHYS 1062 Elem Class Phys II & LAB     |  |  |
|      | 3  | ENGR 2331 Engineering Statics          |  |  |
|      | 3  | ENGR 2196 Technical Communication      |  |  |
|      | 3  | Intellectual Heritage 0851 Mosaic I GY |  |  |
|      | 17 |  |  |  |

5<sup>th</sup> Semester

|      |    |                                     |  |  |
|------|----|-------------------------------------|--|--|
|      |    |                                     |  |  |
| s.h. | 3  | ENGR 3496 Materials Science/ Engr W |  |  |
|      | 3  | Math 2101 Linear Algebra            |  |  |
|      | 3  | EE 2112 Elect Devices & Sys I       |  |  |
|      | 1  | EE 2113 Elect Devices & Sys I LAB   |  |  |
|      | 3  | ME 3301 Machine Theory & Design I   |  |  |
|      | 1  | ME 3305 Lab/Materials & Mach Design |  |  |
|      | 3  | GenEd xxxx Human Behavior GB        |  |  |
|      | 17 |                                     |  |  |

7<sup>th</sup> Semester

|      |    |                                    |  |  |
|------|----|------------------------------------|--|--|
|      |    |                                    |  |  |
| s.h. | 1  | ENGR 4196 Engr Design Project 1    |  |  |
|      | 3  | ENGR 3096 Economic Analysis        |  |  |
|      | 3  | ME 4572 Heat & Mass Transfer       |  |  |
|      | 1  | ME 4405 Lab *                      |  |  |
|      | 3  | ME xxxx Technical Elective # 2     |  |  |
|      | 3  | GenEd xxxx Global/World Society GG |  |  |
|      | 14 |                                    |  |  |

SPRING2<sup>nd</sup> Semester

|      |    |                                   |  |    |
|------|----|-----------------------------------|--|----|
|      |    |                                   |  |    |
| s.h. | 4  | MATH 1042 Calculus II             |  | GQ |
|      | 4  | PHYS 1061 Elem Class Phys I & LAB |  |    |
|      | 3  | ENGR 1117 Graphics                |  |    |
|      | 3  | GenEd xxxx US Society             |  | GU |
|      | 14 |                                   |  |    |

4<sup>th</sup> Semester

|      |    |   |  |  |
|------|----|---|--|--|
|      |    |   |  |  |
| s.h. | 3  | MATH 3041 Differential Equations        |  |  |
|      | 3  | ENGR 3571 Class & Stat. Thermodynamics  |  |  |
|      | 3  | ENGR 2333 Mechanics of Solids           |  |  |
|      | 3  | ENGR 2332 Dynamics                      |  |  |
|      | 1  | ME 2305 Lab/ Measurement/ Dynamics      |  |  |
|      | 3  | Intellectual Heritage 0852 Mosaic II GZ |  |  |
|      | 16 |   |  |  |

6<sup>th</sup> Semester

|      |    |                                  |  |  |
|------|----|----------------------------------|--|--|
|      |    |                                  |  |  |
| s.h. | 3  | ENGR 3553 Mechanics of Fluids    |  |  |
|      | 3  | ENGR 3117 Computer- Aided Design |  |  |
|      | 1  | ENGR 4169 Engineering Seminar    |  |  |
|      | 1  | ME 3506 Lab/ Fluids & Energy     |  |  |
|      | 3  | ME 3421 Dynamic Systems          |  |  |
|      | 3  | ME xxxx Technical Elective #1    |  |  |
|      | 3  | GenED xxxx Race & Diversity GD   |  |  |
|      | 17 |                                  |  |  |

8<sup>th</sup> Semester

|      |    |                                    |  |  |
|------|----|------------------------------------|--|--|
|      |    |                                    |  |  |
| s.h. | 3  | ENGR 4296 Engr Design Project II W |  |  |
|      | 3  | ME xxxx Technical Elective # 3     |  |  |
|      | 1  | ME 4506 Lab/ Energy Conversion *   |  |  |
|      | 3  | ME xxxx Technical Elective # 4     |  |  |
|      | 2  | Free Elective                      |  |  |
|      | 3  | GenEd xxxx The Arts GA             |  |  |
|      | 15 |                                    |  |  |

TOTAL 124 s.h. Revised 5/11

\* See Advisor or Undergraduate Course Description for Prerequisites

^ University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

\* Either ME 4422 & ME 4405 OR ME 4571 & ME 4506 required in the Mechanical Engineering Program, *except in Bioengineering Concentration.***Elective courses offered EVERY Fall semester**

Cell Biology for Engineers (ENGR 3725)  
 Entrepreneurship (ENGR 3033) (SPRING & FALL)  
 Vibrations (ME4422) \*  
 Advanced Thermodynamics (ME 4571) \* (EVERY SPRING)  
 HVAC (ME 4574)  
 Intro. to Environmental Engineering (CE 3711)  
 Renewable/alternative energy (ME 4575)

-Required course in the Bioengineering Concentration  
 -Free Elective

-Required course in the Energy Systems Concentration  
 -Required course in the Energy Systems Concentration  
 -Required course in the Energy Systems Concentration  
 -Required course in the Energy Systems Concentration

**Elective courses offered EVERY OTHER Spring semester**

Cardiovascular Fluid Dynamics (M 4731)  
 Mechanics of Composite Materials (ME 4311)  
 Biomaterials (ENGR 4741)  
 Introduction to Bioengineering (ENGR 3719)  
 Metallurgy (ME 4313)  
 Mammalian Physiology (BIO 3334)

-Recommended in the Bioengineering Concentration

-Required in Bioengineering Concentration

-Required in Bioengineering Concentration



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
 BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (BSME)  
 Bioengineering Concentration

PROGRAM OUTLINE FALL 2011

FALL

1<sup>st</sup> Semester

|  |           |                                      |    |  |
|--|-----------|--------------------------------------|----|--|
|  | s.h.      |                                      |    |  |
|  | 4         | MATH 1041 Calculus I                 | GQ |  |
|  | 3         | CHEM 1031 Chemistry I                |    |  |
|  | 1         | CHEM 1033 Chemistry I LAB            |    |  |
|  | 2         | ENGR 1101 Intro to Engineering       |    |  |
|  | 4         | English 0802 Analytical Read & Write |    |  |
|  | <b>14</b> |                                      |    |  |

3<sup>rd</sup> Semester

|  |           |  |  |  |
|--|-----------|--|--|--|
|  | s.h.      |  |  |  |
|  | 4         | MATH 2043 Calculus III                 |  |  |
|  | 4         | PHYS 1062 Elem Class Phys II & LAB     |  |  |
|  | 3         | ENGR 2331 Engineering Statics          |  |  |
|  | 3         | ENGR 2196 Tech Communication           |  |  |
|  | 3         | Intellectual Heritage 0851 Mosaic I GY |  |  |
|  | <b>17</b> |  |  |  |

5<sup>th</sup> Semester

|  |           |                                     |  |  |
|--|-----------|-------------------------------------|--|--|
|  | s.h.      |                                     |  |  |
|  | 3         | ENGR 3496 Materials Science/Engr W  |  |  |
|  | 3         | ENGR 3571 Class&Stat.Thermodynamics |  |  |
|  | 4         | EE 2112/2113 Elect Devices & Sys I  |  |  |
|  | 3         | ME 3301 Machine Theory & Design I   |  |  |
|  | 1         | ME 3305 Materials & Mach Design LAB |  |  |
|  | 3         | ME xxxx Technical Elective # 1      |  |  |
|  | <b>17</b> |                                     |  |  |

7<sup>th</sup> Semester

|  |           |                                     |  |  |
|--|-----------|-------------------------------------|--|--|
|  | s.h.      |                                     |  |  |
|  | 1         | ENGR 4196 Senior Design Project I   |  |  |
|  | 3         | ENGR 3096 Economic Analysis         |  |  |
|  | 3         | ME 4572 Heat & Mass Transfer        |  |  |
|  | 3         | ME xxxx Technical Elective # 3      |  |  |
|  | 3         | GenEd xxxx Global/ World Society GG |  |  |
|  | <b>13</b> |                                     |  |  |

SPRING

2<sup>nd</sup> Semester

|  |           |                                   |    |  |
|--|-----------|-----------------------------------|----|--|
|  | s.h.      |                                   |    |  |
|  | 4         | MATH 1042 Calculus II             | GQ |  |
|  | 4         | PHYS 1061 Elem Class Phys I & LAB |    |  |
|  | 3         | ENGR 1117 Graphics                |    |  |
|  | 3         | GenEd xxxx US Society             | GU |  |
|  | <b>14</b> |                                   |    |  |

4<sup>th</sup> Semester

|  |           |   |  |  |
|--|-----------|---|--|--|
|  | s.h.      |   |  |  |
|  | 3         | MATH 3041 Differential Equations        |  |  |
|  | 3         | MATH 2101 Linear Algebra                |  |  |
|  | 3         | ENGR 2333 Mechanics of Solids           |  |  |
|  | 3         | ENGR 2332 Dynamics                      |  |  |
|  | 1         | ME 2305 Measurement/ Dynamics LAB       |  |  |
|  | 3         | Intellectual Heritage 0852 Mosaic II GZ |  |  |
|  | <b>16</b> |   |  |  |

6<sup>th</sup> Semester

|  |           |                                  |    |  |
|--|-----------|----------------------------------|----|--|
|  | s.h.      |                                  |    |  |
|  | 3         | ENGR 3553 Mechanics of Fluids    |    |  |
|  | 3         | ENGR 3117 Computer- Aided Design |    |  |
|  | 1         | ENGR 4169 Engineering Seminar    |    |  |
|  | 1         | ME 3506 Fluids & Energy LAB      |    |  |
|  | 3         | ME 3421 Dynamic Systems          |    |  |
|  | 3         | ME xxxx Technical Elective # 2   |    |  |
|  | 3         | GenED xxxx Race & Diversity      | GD |  |
|  | <b>17</b> |                                  |    |  |

8<sup>th</sup> Semester

|  |           |                                      |    |  |
|--|-----------|--------------------------------------|----|--|
|  | s.h.      |                                      |    |  |
|  | 3         | ENGR 4296 Senior Design Project II W |    |  |
|  | 3         | ME xxxx Technical Elective # 4       |    |  |
|  | 4         | XXXX xxxx Free Elective              |    |  |
|  | 3         | GenEd xxxx Human Behavior            | GB |  |
|  | 3         | GenEd xxxx The Arts                  | GA |  |
|  | <b>16</b> |                                      |    |  |

**TOTAL 124 s.h. Revised 5/11**

<sup>5</sup> See Advisor or Undergraduate Course Description for Prerequisites

<sup>^</sup> University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

Elective Courses:

|                                |                             |   |
|--------------------------------|-----------------------------|---|
| Cell Biology for Engineers     | (ENGR 3725)                 | -Required course in the Bioengineering Concentration    |
| Entrepreneurship               | (ENGR 3033) (SPRING & FALL) | -Required course in Bioengineering and Energy Systems   |
| Cardiovascular Fluid Dynamics  | (M 4731)                    | -Technical Elective in the Bioengineering Concentration |
| Biomaterials                   | (ENGR 4741)                 | -Technical Elective in the Bioengineering Concentration |
| Introduction to Bioengineering | (ENGR 3719)                 | -Required in Bioengineering the Concentration           |
| Mammalian Physiology           | (BIO 3334)                  | -Required in Bioengineering the Concentration           |



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
 BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (BSME)  
 Energy Systems Concentration

## PROGRAM OUTLINE FALL 2011

FALL1<sup>st</sup> Semester

|      |           |                                      |  |    |
|------|-----------|--------------------------------------|--|----|
|      |           |                                      |  |    |
| s.h. | 4         | MATH 1041 Calculus I                 |  | GQ |
|      | 4         | CHEM 1031 Chemistry I                |  |    |
|      | 1         | CHEM 1033 Chemistry I LAB            |  |    |
|      | 2         | ENGR 1101 Intro to Engineering       |  |    |
|      | 4         | English 0802 Analytical Read & Write |  |    |
|      | <b>14</b> |                                      |  |    |

3<sup>rd</sup> Semester

|      |           |                                     |  |    |
|------|-----------|-------------------------------------|--|----|
|      |           |                                     |  |    |
| s.h. | 4         | MATH 2043 Calculus III              |  |    |
|      | 4         | PHYS 1062 Elem Class Phys II & LAB  |  |    |
|      | 3         | ENGR 2331 Engineering Statics       |  |    |
|      | 3         | ENGR 2196 Technical Communication   |  |    |
|      | 3         | Intellectual Heritage 0851 Mosaic I |  | GY |
|      | <b>17</b> |                                     |  |    |

5<sup>th</sup> Semester

|      |           |  |  |    |
|------|-----------|--|--|----|
|      |           |  |  |    |
| s.h. | 3         | ENGR 3496 Materials Science/Engr Write |  |    |
|      | 3         | ENGR 3571 Class&Stat Thermodynamics    |  |    |
|      | 4         | EE 2112/ 2113 Elect Devices & Sys I    |  |    |
|      | 3         | ME 3301 Machine Theory & Design I      |  |    |
|      | 1         | ME 3305 Materials & Mach Design LAB    |  |    |
|      | 3         | GenEd xxxx Human Behavior              |  | GB |
|      | <b>17</b> |  |  |    |

7<sup>th</sup> Semester

|      |           |                                   |  |    |
|------|-----------|-----------------------------------|--|----|
|      |           |                                   |  |    |
| s.h. | 3         | ENGR 4196 Senior Design Project I |  |    |
|      | 3         | ENGR 3096 Economic Analysis       |  |    |
|      | 3         | ME 4572 Heat & Mass Transfer *    |  |    |
|      | 3         | ME xxxx Technical Elective # 2    |  |    |
|      | 3         | GenEd xxxx Global/World Society   |  | GG |
|      | <b>13</b> |                                   |  |    |

SPRING2<sup>nd</sup> Semester

|      |           |                                   |  |    |
|------|-----------|-----------------------------------|--|----|
|      |           |                                   |  |    |
| s.h. | 4         | MATH 1042 Calculus II             |  | GQ |
|      | 4         | PHYS 1061 Elem Class Phys I & LAB |  |    |
|      | 3         | ENGR 1117 Graphics                |  |    |
|      | 3         | GenEd xxxx US Society             |  | GU |
|      | <b>14</b> |                                   |  |    |

4<sup>th</sup> Semester

|      |           |                                      |  |    |
|------|-----------|--------------------------------------|--|----|
|      |           |                                      |  |    |
| s.h. | 3         | MATH 3041 Differential Equations     |  |    |
|      | 3         | MATH 2101 Linear Algebra             |  |    |
|      | 3         | ENGR 2333 Mechanics of Solids        |  |    |
|      | 3         | ENGR 2332 Dynamics                   |  |    |
|      | 1         | ME 2305 Measurement/ Dynamics LAB    |  |    |
|      | 3         | Intellectual Heritage 0852 Mosaic II |  | GZ |
|      | <b>16</b> |                                      |  |    |

6<sup>th</sup> Semester

|      |           |                                  |  |    |
|------|-----------|----------------------------------|--|----|
|      |           |                                  |  |    |
| s.h. | 3         | ENGR 3553 Mechanics of Fluids    |  |    |
|      | 3         | ENGR 3117 Computer- Aided Design |  |    |
|      | 1         | ENGR 4169 Engineering Seminar    |  |    |
|      | 1         | ME 3506 Fluids & Energy LAB      |  |    |
|      | 3         | ME 3421 Dynamic Systems          |  |    |
|      | 3         | ME xxxx Technical Elective #1    |  |    |
|      | 3         | GenEd xxxx Race & Diversity      |  | GD |
|      | <b>17</b> |                                  |  |    |

8<sup>th</sup> Semester

|      |           |                                    |  |    |
|------|-----------|------------------------------------|--|----|
|      |           |                                    |  |    |
| s.h. | 3         | ENGR 4296 Senior Design Project II |  | W  |
|      | 3         | ME xxxx Technical Elective # 3     |  |    |
|      | 1         | ME 4506 Lab/ Energy Conversion *   |  |    |
|      | 3         | ME xxxx Technical Elective # 4     |  |    |
|      | 3         | Free Elective                      |  |    |
|      | 3         | GenEd xxxx The Arts                |  | GA |
|      | <b>16</b> |                                    |  |    |

TOTAL 124 s.h. Revised 5/11

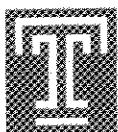
\* See Advisor or Undergraduate Course Description for Prerequisites

^ University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

\* Either ME 4422 & ME 4405 OR ME 4571 & ME 4506 required in the Mechanical Engineering Program, *except in Bioengineering Concentration.*

## Elective Courses:

|                                     |                             |  |
|-------------------------------------|-----------------------------|--|
| Entrepreneurship                    | (ENGR 3033) (SPRING & FALL) | -Required course in the Bioengineering & Energy Systems        |
| Advanced Thermodynamics             | (ME 4571) * (EVERY SPRING)  | -Required course in the Energy Systems Concentration           |
| HVAC                                | (ME 4574)                   | -Required course in the Energy Systems Concentration           |
| Intro. to Environmental Engineering | (CE 3711)                   | -Technical Elective course in the Energy Systems Concentration |
| Renewable/alternative energy        | (ME 4575)                   | -Required course in the Energy Systems Concentration           |
| Photovoltaics                       |                             | -Technical Elective course in the Energy Systems Concentration |



TEMPLE UNIVERSITY - COLLEGE OF ENGINEERING  
BACHELOR OF SCIENCE IN ENGINEERING TECHNOLOGY (BSET)  
ENGINEERING TECHNOLOGY

PROGRAM OUTLINE - FALL 2011

FALL

SPRING

1<sup>st</sup> Semester

| s.h.      |              |                         |  |
|-----------|--------------|-------------------------|--|
| 4         | MATH 1022    | PreCalculus             |  |
| 3         | CHEM 1031    | General Chemisrty I     |  |
| 1         | CHEM 1033    | General Chemistry Lab I |  |
| 2         | Engr 1101    | Intro to Engineering    |  |
| 4         | English 0802 | Analytical Read & Write |  |
| <b>14</b> |              |                         |  |

2<sup>nd</sup> Semester

| s.h.      |                            |                      |    |
|-----------|----------------------------|----------------------|----|
| 4         | MATH 1041                  | Calculus I           | GQ |
| 3         | Engr 1117                  | Engineering Graphics |    |
| 3         | GenEd xxxx                 | The Arts             | GA |
| 3         | Intellectual Heritage 0851 | Mosaic I             |    |
| 3         | Free xxxx                  | Approved Elective    |    |
| <b>16</b> |                            |                      |    |

3<sup>rd</sup> Semester

| s.h.      |                            |                         |  |
|-----------|----------------------------|-------------------------|--|
| 4         | MATH 1042                  | Calculus II             |  |
| 4         | PHYS 1021                  | General Physics I & LAB |  |
| 3         | SPCOM 1111                 | Public Speaking         |  |
| 3         | ENVT ENGR TECH 0845        | The Environment         |  |
| 3         | Intellectual Heritage 0852 | Mosaic II               |  |
| <b>17</b> |                            |                         |  |

4<sup>th</sup> Semester

| s.h.      |            |                          |    |
|-----------|------------|--------------------------|----|
| 4         | Phys 1022  | General Physics II & LAB |    |
| 3         | Engr 2331  | Statics                  |    |
| 3         | Tech xxxx  | Approved Elective        |    |
| 3         | Econ 1102  | Microeconomics           |    |
| 3         | GenEd xxxx | Global / World Society   | GG |
| <b>16</b> |            |                          |    |

5<sup>th</sup> Semester

| s.h.      |                |                     |    |
|-----------|----------------|---------------------|----|
| 3         | Engr 2333/2332 | Mechanics of Solids |    |
| 3         | Engr 3096      | Economic Analysis   |    |
| 3         | STAT 2101      | Statistics          |    |
| 3         | Tech xxxx      | Approved Elective   |    |
| 3         | GenEd xxxx     | Human Behavior      | GB |
| <b>15</b> |                |                     |    |

6<sup>th</sup> Semester

| s.h.      |              |                      |    |
|-----------|--------------|----------------------|----|
| 3         | ET 3396      | Materials Technology |    |
| 3         | ET 2521/3532 | Fluid Mech or Thermo |    |
| 1         | ET 4119      | Professional Seminar |    |
| 3         | Tech xxxx    | Approved Elective    |    |
| 3         | GenEd xxxx   | US Society           | GU |
| 3         | Free xxxx    | Approved Elective    |    |
| <b>16</b> |              |                      |    |

7<sup>th</sup> Semester

| s.h.      |              |                              |  |
|-----------|--------------|------------------------------|--|
| 3         | EE 2112      | Electric Devices & Systems 1 |  |
| 1         | EE 2113      | Electric Devices & Sys LAB   |  |
| 3         | English 2696 | Technical Writing            |  |
| 3         | Tech xxxx    | Approved Elective            |  |
| 1         | Tech xxxx    | Approved Lab Elective        |  |
| 1         | Tech xxxx    | Approved Lab Elective        |  |
| 3         | GenEd xxxx   | Race & Diversity - GD        |  |
| <b>15</b> |              |                              |  |

8<sup>th</sup> Semester

| s.h.      |           |                       |  |
|-----------|-----------|-----------------------|--|
| 3         | ET 4161   | Capstone Project      |  |
| 3         | Tech xxxx | Approved Elective     |  |
| 3         | Tech xxxx | Approved Elective     |  |
| 3         | Tech xxxx | Approved Elective     |  |
| 1         | Tech xxxx | Approved Lab Elective |  |
| 2         | Free xxxx | Approved Elective     |  |
| <b>15</b> |           |                       |  |

Total: 124 s.h. Revised 05/11

§ See Advisor or Undergraduate Course Description for Prerequisites

^ University General Education (Gen Ed) Curriculum, 35 credit hours required (consult Advisor)

| Recommended Tech Electives       | S.H. | S.H.                             |
|----------------------------------|------|----------------------------------|
| ET 3652 (255) CAD/CAM/ CNC       | 3    | ME 2305 Lab/ Measure & Dynamics  |
| ET 4641 Production Tooling       | 3    | ME 3506 Lab Fluid & Energy       |
| ET 4342 Machine Elements         | 3    | ME 4405 Lab Vibration & Controls |
| ENGR 2332 Dynamics               | 3    | ME 4506 lab Energy Conversion    |
| ME 3305 Lab Materials & Mach Dev | 1    |                                  |

Note: ET 4161 Senior Capstone 3 s.h. Effective Spring 2008, ALL ET majors are required to take a Senior Capstone Project. Students can either work in a group setting or in a work environment with engineers where employed. Dr. Diloyan will decide if the project is valid.

## ENGINEERING TECHNOLOGY TRACKS

### Identifiable Track of "Energy Technology" (in buildings)

|   |      |  |                |
|---|------|--|----------------|
| ET  | 2521 | Applied Fluid Mechanics                  | 3              |
| ET  | 3532 | Thermodynamics                           | 3              |
| ET  | 4532 | Heating Ventilating and Air Conditioning | 3              |
| CE  | 1105 | Surveying with laboratory                | 2              |
| CE  | 2341 | Construction Materials Laboratory        | 2              |
| CCET  | 2120 | Construction Methods & Materials         | 3              |
| CCET  | 3121 | Construction Estimates & Costs           | 3              |
| CCET  | 3322 | Construction Planning and Scheduling     | 3              |
| CCET  | 3123 | Estimating Laboratory                    | 1              |
| Related technical Elective including laboratory |      |  | <u>1</u>       |
|   |      |  | <b>24 s.h.</b> |

### Identifiable Track of "Environmental Technology"

|  |      |  |                |
|--|------|--|----------------|
| ET   | 2521 | Applied Fluid Mechanics                      | 3              |
| CE   | 3711 | Environmental Engineering                    | 3              |
| CE   | 4731 | Solid & Hazardous Waste Engineering          | 3              |
| CE   | 4711 | Air Pollution Control Sys (prereq. ET 2521)  | 3              |
| CCET   | 3350 | Applied Hydraulics (Prereq. ET 2521)         | 3              |
| CE   | 4721 | Water and Wastewater Sys (prereq. CCET 3350) | 3              |
| Related Technical Electives including Laboratories |      |  | <u>24 s.h.</u> |

### Identifiable Track of "Construction Technology"

|   |      |   |                |
|---|------|---|----------------|
| CE  | 1105 | Surveying with laboratory               | 2              |
| CE  | 2341 | Construction Materials Laboratory       | 2              |
| CCET  | 2120 | Construction Methods & Materials        | 3              |
| CCET  | 3121 | Construction Estimates & Costs          | 3              |
| CCET  | 3322 | Construction Planning and Scheduling    | 3              |
| CCET  | 3123 | Estimating Lab                          | 1              |
| CCET  | 2125 | Construction Contracts & Specifications | 3              |
| CCET  | 4973 | Construction Financial Management       | 3              |
| CCET  | 4396 | Capstone in Construction w/Lab          | 3              |
| Related technical Elective including laboratory |      |   | <u>1</u>       |
|   |      |   | <b>24 s.h.</b> |

### Identifiable Track of "Computer Technology"

|     |           |                                     |                |
|-----|-----------|-------------------------------------|----------------|
| EE  | 2612/2613 | Digital Circuit Design w/lab        | 4              |
| EE  | 3612/3613 | Microprocessor Systems w/lab        | 4              |
| EE  | 3312/3313 | Electronic Devices & Circuits w/lab | 4              |
| EE  | 4612      | Advanced Processor Systems          | 3              |
| CIS | 1057      | Programming in C                    | 4              |
| CIS | 1068      | Program Design & Abstraction        | 4              |
| EE  | 3091      | Independent Study in EE             | <u>1</u>       |
|     |           |                                     | <b>24 s.h.</b> |

## VIII. CO-OP PROGRAM

The Co-Op program is an option for students that may elect to work for *one or two* semesters to gain practical work experience in the engineering field. Students who have a GPA of 2.5 or greater and who have completed at least 30 semester hours (at least 12 credits at Temple for transfer students) towards the baccalaureate degree are eligible to apply for Co-Op. A student may begin their Co-Op experience in their sophomore or junior year and have the choice of completing one or two semesters. The Co-Op will add one or two semesters to a regular 4 year curriculum. It is the responsibility of the student to review his/her curriculum and consult with the Co-Op program director and the academic or faculty advisor to see how this would affect the time it would take to complete their chosen degree.

## IX. COLLEGE REQUIREMENTS FOR ALL MAJORS

### CE, CE/Environment, EE, EE/Computer, ME

- 32 minimum credits in Math and Science
- 15 minimum credits in Humanities and Social Science
- 60 -70 credits in major (varies with major), minimum 2.0 GPA in the major
- 124 minimum credits TOTAL

### CMT, ET

- 24 minimum credits in Math & Science
- 15 minimum credits in Humanities and Social Science
- 50 – 60 credits in major (varies with major), minimum 2.0 GPA in the major
- 124 minimum credits TOTAL

## X. MINORS IN THE UNIVERSITY ACADEMIC MINORS

### MATHEMATICS MINOR FOR ENGINEERING MAJORS

This minor is described in the University Bulletin web-page which can be accessed from the Temple main web-page by the *Search* feature. Once in the bulletin click on *Academic Programs*, select *College of Science and Technology*, on the left side look for *Mathematics Minor*. The complete minor consists of about 34 credits, 15 – 22 of which will be provided by the Engineering curriculum.

### PHYSICS MINOR FOR ENGINEERING MAJORS

This minor is described in the University Bulletin web-page which can be accessed from the Temple main web-page using the *Search* feature. Once in the Bulletin, click on *Academic Programs, College of Science and Technology*, then *Physics Minor*. The complete minor consists of about 26 credits, 8 of which will be provided by the Engineering curriculum.

### MINOR IN COMPUTER SCIENCE

This minor is described in the University Bulletin which can be accessed from the Temple main web-page using the *Search* feature. Once in the Bulletin, click on *Academic Programs, College of Science and Technology*, then *Computer Science Minor*. The complete minor consists of about 36 credits, 16 of which will be provided by the Computer Engineering curriculum.

### MINOR IN BUSINESS

Two minors are available in General Business Studies and Traditional Minor in Business (for MBA). Both consist of 8 courses and 24 credits. This minor is described in the University Bulletin which can be accessed from the Temple main web-page using the *Search* feature. Once in the Bulletin click on *Academic Programs*, then *Business and Management*, then *Minor*.

## ACCREDITATION

All Engineering Programs (CE, EE, EE/Computer, ME) are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

All Engineering Technology Programs (CMT, ET) are accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET).

Accreditation Board for Engineering and Technology, Inc  
111 Market Place, Suite 1050 Baltimore, MD 21202 / Web site: [www.abet.org](http://www.abet.org)

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