

Proposal for Revision of the Engineering Science Curriculum to
Comply with the General Education Requirements of Community
College of Philadelphia

David F. Cattell, Ph.D.

December 11, 2008

Rationale

The minimum number of credits for the Associates degree in Engineering Science is currently 68. A review of the current Engineering Science curriculum shows that all General Education requirements are met except one: the requirement that students take course CIS 103 for the Technological Competency requirement.

The general requirements of transfer institutions for the first two years of an Engineering degree do not make it possible to delete any of the Engineering Science required courses in favor of CIS 103. In particular, specific agreements with the Colleges of Engineering at Temple and Drexel Universities, including those for Materials and Biomedical Engineering at Drexel, do not allow for the removal of any currently required courses.

It is therefore proposed that CIS 103 be added to the Engineering Science curriculum as specified in the attached document “Program Revision to Comply with General Education Requirements”. The proposed new minimum number of credits for the Associates degree in Engineering Science is 71.

This proposed revision was made in consultation with Mr. Peter Watkins of Academic Affairs, Dr. Mary Anne Celenza, Dean of Math, Science and Health Careers, Mr. Charles Herbert, Chair of the Computer Information Systems Department and Dr. Alex Gontar, Supervisor of the Engineering Science curriculum.

Program revision in order to comply with General Education requirements

College-wide general education requirements go into effect in Fall 2009. This information documents that the program is in compliance with the new general education requirements. The General Education Requirements are as follows:

Social Science (3 cr.)
Humanities (3 cr.)
Mathematics (3/4 cr.) – at or above MATH 118
Natural Science (3/4 cr.)
English 101
English 102 or 112
Writing Intensive (3 cr.)
Interpretive Studies (3 cr.)
American/Global Diversity (3 cr.)
Information Literacy (Engl 102)
Technological Competency (CIS 103)

Description of Program Compliance

Program Engineering Science

Previous Number of Credits Required for Graduation = 68

Number of Credits Required for Graduation with General Education incorporated into the program = 71

Provide a brief explanation of the decision(s) made to comply with the General Education Requirements and complete the following chart. Indicate how your program meets the General Education Requirements. In the last column show which General Education Requirement each course fulfills.

The course CIS 103 (PC Applications) was added as a first-semester course to fulfill the Technological Competency requirement. SOC 101, which was formerly listed in the first semester, is moved to the last semester. The second social science elective was removed from the last semester. In its place is a Humanities Elective. These courses may be taken at any time, including Summer semesters.

Note: A Program that requires a major curriculum change (e.g. increase or decrease in credits, addition or deletion of a program course) will need to proceed through the College's Governance Structure (Academic Affairs Council, Curriculum Committee, IWC). A minor program change needs to only be approved by the coordinator of curriculum development and the dean of the division where the program is housed.

ENGINEERING SCIENCE

Course Number and Name	Prerequisites and Corequisites	Credits	Gen Ed Req.
FIRST SEMESTER			
ENGR 102 – Engineering Design and Laboratory I	MATH 162	4	
MATH 171 – Calculus I	MATH 161 – 162	4	Mathematics
CHEM 121 – College Chemistry I	CHEM 110 (or H.S. chemistry)	4	
ENGL 101 – English Composition I		3	ENGL 101
CIS 103 – PC Applications		3	Technological Competency
SECOND SEMESTER			
ENGR 202 – Engineering Design and Laboratory II	ENGR 102	4	Writing Intensive
PHYS 140 – Mechanics, Heat and Sound	MATH 171	5	Natural Science
MATH 172 – Calculus II	MATH 171	4	
MATH 270 – Linear Algebra	MATH 171, MATH 172	4	
Summer Session I			
ENGL 102 – English Composition II	ENGL 101	3	ENGL 102 & Info lit
THIRD SEMESTER			
MATH 271 – Calculus III	MATH 172, MATH 270	4	
CHEM 122 – College Chemistry II	CHEM 121	4	
ENGR 221 – Statics ¹	PHYS 140, MATH 172	3	
PHYS 241 – Electricity, Magnetism and Light	PHYS 140, MATH 172	5	
FOURTH SEMESTER			
Humanities Elective		3	Humanities
Social Science Elective		3	Social Science
MATH 272 – Differential Equations	MATH 172, MATH 270	4	
ENGR 222 – Dynamics ¹	ENGR 221, MATH 271	3	
CSCI 111 – Program Alg. Dev. I or ENGR 205 – Materials Engineering	MATH 161 prereq. for CSCI 111 PHYS 241, MATH 172 prereq's for ENGR 205	4	
MINIMUM CREDITS NEEDED TO GRADUATE		71	

¹A student planning to major in Chemical Engineering at a transfer institution may substitute CHEM 221 – 222 (or CHEM 211 – 212) for ENGR 221 and ENGR 222.

GENERAL EDUCATION REQUIREMENTS

All General Education requirements are met through required courses (as indicated above) except for the **Interpretive Studies** requirement and the **American/Global Diversity** requirement. Therefore, in order to graduate, students in this program must choose one course that is designated Interpretive Studies and one course that is designated American/Global Diversity. The same course may be used to fulfill both of these requirements. A list of courses that fulfill these requirements and a more detailed explanation of the College's general education requirements appears elsewhere in this catalog and on www.ccp.edu.

For More Information Contact:

The Division of Math, Science and Health Careers Room W2-7, 1700 Spring Garden Street, Philadelphia, PA 19130, Telephone (215) 751-8431; or the College Information Center (215) 751-8010.

Student Learning Outcomes

Regional accreditors now require that the College lists learning outcomes in the catalog. Please list learning outcomes for your program exactly as you wish them to appear in the catalog.

Upon completion of this program graduates will be able to:

- Solve problems in algebra, trigonometry and calculus.
- Solve basic problems in science and engineering.
- Work in teams to implement projects.
- Use computers for data acquisition and instrumentation control.
- Communicate technical information using written, verbal and graphical presentations.
- Transfer as engineering majors to Bachelors degree granting institutions.