IDEAS: Integrated Degree in Engineering, Arts and Sciences

IDEAS: INTEGRATED DEGREE IN ENGINEERING, ARTS AND SCIENCES

Co-Directors: H. Daniel Ou-Yang, Professor, College of Arts and Sciences; William Best, Professor of Practice, P.C. Rossin College of Engineering and Applied Science

IDEAS is a four-year honors program resulting in an integrated Bachelor of Science (BS) Degree—jointly administered by the College of Arts and Sciences and the P.C. Rossin College of Engineering and Applied Science.

Interdisciplinary education in the arts and sciences and engineering is of significant value to students who will pursue a wide variety of careers. The complex challenges and problems confronting us in the 21st century dramatically underscore the importance of liberally educated and technologically sophisticated individuals whose habits of thought are thoroughly and comfortably interdisciplinary. Moreover, Lehigh is one of a small number of universities with the resources necessary to provide such an education. The students in this program will benefit from the integrated strategic leveraging of strengths across college boundaries.

This program cultivates a new breed of cross-disciplinary innovators. It provides an education that produces students well versed in dual focus areas, one in engineering and one in the arts, humanities, social sciences, mathematics or natural sciences. This educational environment also cultivates a multitude of thinking styles. It is renaissance thinking for the technological era.

Entry Requirements

1. Admitted students who have expressed an interest when applying will be considered for the IDEAS program. Only a limited number of students will be accepted. Students are invited to join this honors program by invitation.

2. To remain in the IDEAS program students must maintain a 3.25 GPA. At the end of the first year, a student with a GPA below 3.25 is given two semesters to achieve a GPA of 3.25; otherwise the student will be asked to transfer to a regular degree program.

3. Students may transfer into the IDEAS program at the end of their first semester or year if space becomes available. A formal application to the program must be filed and approval from the co-directors must be obtained.

4. Students who are interested in the IDEAS program should indicate that interest when applying.

The IDEAS program is designed so that students who transfer out of the program at the completion of the first year will still be able to complete an arts and sciences or engineering degree in four years. The four-year IDEAS program does not lead to an ABET accredited engineering degree. It is possible for students to complete a BS degree in IDEAS and an ABET accredited BS engineering degree (dual degrees) in one or two additional semesters.

PROGRAM COMPONENTS

The IDEAS degree requires a minimum of 136 credits in the program components shown below:

IDEAS Seminars
IDEA 011 IDEAS Seminar I 2
IDEA 012 IDEAS Seminar II 2
IDEA 111 IDEAS Seminar III 1
IDEA 112 IDEAS Seminar IV 1
IDEA 150 IDEAS Seminar V 1

First-Year Writing 1
WRT 001 Academic and Analytical Writing 3

Math/Science core 2
MATH 021 Calculus I 4
MATH 022 Calculus II 4
MATH 023 Calculus III 4
MATH 205 Linear Methods 3
CHM 030 Introduction to Chemical Principles 4

Free Electives 5

Total Credits 136

1 First-Year Writing: IDEAS students are required to take one semester of First-Year Writing with WRT 001. Students may fulfill this requirement through appropriate Advanced Placement or International Baccalaureate scores, or approved transfer credit.

2 The math/science core consists of 24 credits of required courses (see table above) plus 8 additional credits drawn from two of the following disciplinary areas: biological sciences, chemistry, EES, physics, math. All students in the IDEAS program will automatically fulfill the CAS math and natural science distribution requirements, as well as most engineering math/science requirements.

3 The engineering concentration consists of a selection of engineering courses drawn from one of the traditional engineering disciplines or from an approved interdisciplinary engineering concentration. The concentration is drawn solely from courses offered within the college of engineering, and requires at least 16 credits of advanced coursework (200-level or above). ENGR 160 or ENGR 200 may not be counted towards the engineering concentration.

4 The arts and sciences concentration consists of a selection of courses drawn either from one of the traditional CAS disciplines or from an approved interdisciplinary concentration. The concentration is drawn solely from courses offered within the college of arts and sciences, and requires at least 16 credits of advanced coursework (200-level or above).

5 Free electives can be taken within any college or outside of the colleges (e.g. CINQ courses) and may contribute to a minor program. ENGR 160 or ENGR 200 may be counted as free electives. CINQ courses may count for up to six credits towards the degree.
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Academic Advising
1. The program is jointly administered by co-directors from the College of Arts and Sciences and the P.C. Rossin College of Engineering and Applied Science. They, after the first year, become the secondary academic advisors for all IDEAS students.
2. Primary faculty advisors from appropriate disciplines provide quality curriculum advising in each of the student’s chosen concentrations. Careful advising is required because of the greater flexibility of IDEAS.
3. Students who wish to earn an accredited engineering degree in one additional year should inform their advisors.

For general information visit the IDEAS web site at: www.lehigh.edu/IDEAS (http://www.lehigh.edu/ideas/)

Courses
IDEA 011 IDEAS Seminar I 2 Credits
The first year IDEAS core courses will emphasize intensive faculty mentoring within a small seminar environment where students develop, write, and present their individual interest areas and select their concentrations.

IDEA 012 IDEAS Seminar II 2 Credits
The first year IDEAS core courses will emphasize intensive faculty mentoring within a small seminar environment where students develop, write, and present their individual interest areas and select their concentrations.

IDEA 111 IDEAS Seminar III 1 Credit
A continuation of IDEA 01 & IDEA 012 where interest areas are integrated into themes as individual concentrations are pursued.

IDEA 112 IDEAS Seminar IV 1 Credit
A continuation of IDEA 011 & IDEA 012 where interest areas are integrated into themes as individual concentrations are pursued.

IDEA 150 IDEAS Seminar V 1 Credit
The Senior-year IDEAS Seminar has students working on team-based projects and focuses on thesis work.

IDEA 251 IDEAS Seminar VIII 1 Credit
The senior year honors thesis courses.

IDEA 300 Apprentice Teaching 1-4 Credits
Repeat Status: Course may be repeated.