

## Dual-Degree Program Planning

This is a concise guide to course planning for dual degree students. For more information, contact the Thayer School of Engineering at 603-646-3677, or via [ugengg@dartmouth.edu](mailto:ugengg@dartmouth.edu).

Students completing the dual degree program receive the Bachelor of Engineering degree. Thayer School offers Bachelor of Engineering concentrations in the following fields:

- Biomedical (BEM) — e.g., imaging, orthopaedics, instrumentation, medical devices
- Biological (BIO) — biotech, biochemical
- Chemical (CHE)
- Computer (COMP)
- Electrical (EE)
- Energy (ENRG)
- Environmental (ENV)
- Materials (MAT)
- Mechanical (ME)

See <https://engineering.dartmouth.edu/academics/undergraduate/be/samples/> for more information about these concentrations.

In the first year of the dual degree program, students are fulfilling core requirements (21-23) and taking prerequisites for their potential concentrations, usually from the list 24-37. Students take two engineering courses and one additional course each term. It is strongly recommended that the third course not be in engineering or science, particularly in the first term.

Students are advised to plan their first-year programs in light of their plans for the second year, to make sure that all necessary prerequisites are taken before the advanced courses. Here is a recommended process:

1. Read about the concentrations that are interesting to you at the website noted above.
2. Note the recommended 20- and 30-level prerequisites for your concentration. Read about the upper level undergraduate and graduate level courses, and note their prerequisites as well.
  - Undergraduate: <https://engineering.dartmouth.edu/academics/courses/undergraduate>
  - Graduate: <https://engineering.dartmouth.edu/academics/courses/graduate>
3. Consult the tables below to draft a schedule for taking 20- and 30-level courses in your first year, then discuss with your advisor.

The following courses are required in all programs: ENGS 21, 22, 23; two from ENGS 24-27; two from ENGS 30-37; one of ENGS 91-93; and ENGS 89-90. The remaining courses are elected to fulfill total course count and tailor the program to the student's professional interests. Appropriate 20- and 30-level courses for particular disciplines are listed below, along with the terms in which they are offered. A junior-level physics course in electromagnetism from the home institution may be allowed in place of the core course ENGS 23, permitting another ENGS elective to be taken in its place.

Course number, title (prerequisites)		Terms	Engineering areas
21	Intro to Engineering	X, F, W, S	All
22	Systems	X, F, W, S	All
23	Distributed Systems and Fields (22)	F, W, S	All
24	Materials Science (chem or QM)	X, W, S	ME, EE, ENRG, BME, CHE, MAT
25	Thermodynamics	X, W, S	CHE, ENV, EE, ENRG, MAT, BME
26	Feedback Control (22)	F, S	EE, COMP, ME, CHE, BME
27	Discrete & Probabilistic Systems	F	COMP, EE

30	Biological Physics (chem)	S	BIO, BME
31	Digital Electronics (CS)	X, S	EE, COMP
32	Analog Electronics (22)	W	EE, ENRG, COMP, ME, BME
33	Solid Mechanics	X, F, W	ENRG, ME, MAT, BME
34	Fluid Mechanics (23)	W	ENRG, ME, CHE, ENV
35	Biotechnology (chem, bio)	F	BIO, BME, CHE, ENV
36	Chemical Engineering (22, 25)	F	CHE, ENRG, ENV, BIO
37	Environmental Engineering (chem)	F	ENRG, ENV, CHE

Here is another view of these courses, organized by term offered. Consult the online course listings for hours.

Summer (X)	Fall (F)	Winter (W)	Spring (S)
21	21	21	21
22	22	22	22
24	23	23	23
25	26	24	24
31	27	25	25
33	33	32	26 (odd years)
	35	33	31
	36	34	
	37		

Engs 32 is only offered in the winter, so potential electrical engineering concentrators must be sure to take the prerequisite, Engs 22, in summer or fall. Engs 33 is not offered in the spring, so potential mechanical engineering concentrators must take it in summer, fall, or winter.

In the fifth (Bachelor of Engineering) year, students take three courses in each of the three terms. A few of these are fixed, and the rest are elective to build a disciplinary concentration. An applied math course, chosen from Engs 91-93, is required for the BE. All three are offered in the fall, and additionally, a section of Engs 93 (statistics) is offered in the winter. Statistics courses equivalent to Engs 93 are available at some colleges.

Fall	Winter	Spring
Engs 89 (BE Project)	Engs 90 (BE project)	Elective
Engs 91, 92, or 93	Elective	Elective
Elective	Elective	Elective

Up to eleven courses in math, natural science, and computer science, including the program prerequisites (calculus, physics, chemistry), may be brought from the home college into the BE program.

Consult the Bachelor of Engineering program planning guide for more information about course requirements: <https://engineering.dartmouth.edu/images/uploads/be-program-plan-dual-degree.pdf>.