Pre-Approved[1] Chemical Engineering Technical Electives

(NOTE: Technical Electives ≠ Engineering Electives ≠ Bioengineering Electives)[2]

Updated: November 2012

Course #	Title	Offered	Credits
BCH 441	Biochemistry of Macromolecules	[F]	3
BIOB 375	General Genetics	[F,S]	3
BIOB 425	Advanced Cell and Molecular Biology	[S]	3
BIOM 360	General Microbiology I	[F,S]	5
BIOM 410	Microbial Genetics	[S]	3
BIOM 430	Applied and Env Microbiology	[F]	4
BIOM 450	Microbial Physiology	[F]	3
CHMY 311	Analytical Chemistry-Quant Analysis	[S]	4
CHMY 371	Phys Chem-Quantum Chem & Spectroscopy I	[F]	3
CHMY 372	Physical Chemistry Laboratory I	[F]	1
CHMY 374	Physical Chemistry Laboratory II	[S]	2
CHMY 401	Advanced Inorganic Chemistry	[S]	3
CHMY 417	Synthetic Chemistry	[S odd]	3
CHMY 421	Advanced Instrument Analysis	[F]	3
CHMY 422	Instrumental Analysis Lab	[F]	2
EBIO 216	Elem Princ of Bioengineering	[S]	3
EBIO 324	Bioengineering Transport	[F]	3
EBIO 439	Downstream Processing	[S]	3
EBIO 443	Bioengineering Lab II	[S]	2
EBIO 490	Undergraduate Research	[F,S,Su]	1 to 3
EBIO 498	Internship (1 cr per work period)	[F, S, Su]	1 to 3
ECHM 490	Undergraduate Research	[F,S,Su]	1 to 3
ECHM 498	Co-op Internship (1 cr per work period)	[F, S, Su]	1 to 3
EELE 201	Circuits I for Engineering	[F,S]	4
EELE 203	Circuits II for Engineering	[S]	4
EELE 250	Circuits, Devices, and Motors	[F,S]	4
EENV 340	Principles of Environmental Engineering	[F,S]	3
EENV 434	Groundwater Supply and Remediation	[S]	3
EENV 441	Natural Treatment Systems	[S]	3
EENV 443	Air Pollution Control	[F even]	3
EENV 445	Hazardous Waste Treatment	[F odd]	3
EENV 447	Hazardous Waste Management	[S even]	3
EGEN 201	Engineering Mechanics-Statics	[F,S,Su]	3
EGEN 202	Engineering Mechanics- Dynamics	[F,S,Su]	3
EGEN 205	Mechanics of Materials	[F,S]	3
EGEN 211	Honors Statics	[F,S,Su]	3
EIND 313	Work Analysis & Design	[S]	3
EIND 354	Engr Probability and Statistics I	[F]	3
EIND 434	Project and Engineering Management	[F]	3
EMAT 252	Materials Science Laboratory	[F,S]	1
EMAT 452	Adv. Engineering Materials	[on demand]	3
EMEC 321	Thermodynamics II	[F,S]	3
EMEC 444	Mechanical Behavior of Materials	[F even]	3
ENSC 345	Soil and Environmental Chemistry	[S odd]	3
ETME 215	Manufacturing Processes	[F,S]	3
M 348	Techniques of Applied Mathematics I	[F]	3

Note 1: Other courses may be allowed for technical elective credit, but you should get any course you are considering approved prior to enrolling. **See your advisor about approving potential technical elective courses.**

Courses that are required in a program cannot also be counted as technical electives. (No double counting allowed.)

Note 2: The Chemical Engineering Curriculum requires 11 credits of Technical Electives, but, if a 5 credit course (BCH 380 or BIOM 360) is taken for the Chemistry and Biochemistry Elective, then 2 of those credits may be used as Technical Electives, leaving 9 credits required from this list.

M 349	Techniques of Applied Mathematics II	[S]	3
M 386R	Software Applications In Mathematics	[S]	3
M 441	Numerical Linear Algebra & Optimization	[F]	3
M 442	Numerical Solution of Differential Equations	[S]	3
M 450	Applied Mathematics I	[F odd]	3
M 451	Applied Mathematics II	[S even]	3
M 454	Introduction to Dynamical Systems I	[F even]	3
M 455	Introduction to Dynamical Systems II	[S odd]	3
M 472	Introduction to Complex Analysis	[S even]	3
PHSX 224	Physics III	[S]	4
PHSX 301	Intro. to Theoretical Physics	[S]	3
PHSX 327	Optics	[S even]	3
PHSX 337	Laser Applications	[S odd]	3
PHSX 441	Solid State Physics	[F even]	3
PHSX 446	Thermo. & Statistical Physics	[S odd]	3