

Class of 2024 Graduation Requirements

Master of Engineering in Biopharmaceutical Processing (MEng)

Students in the MEng program are required to complete a minimum of **60 Credits** over the course of two years of study.

- Biopharmaceutical Processing (15 credits)
- Biopharmaceutical Processing Labs (7.5 credits)
- Biopharmaceutical Capstone - Team Design Project (12 credits)
- Quality and Regulatory (4.5 credits)
- Other Business, Science courses (21 credits)

Students are also required to complete a 400-hour, paid, industry internship in the summer following their first year, and present an internship poster reviewed by KGI faculty

Program Requirements

Fall 1 st Year Courses	Credits
ENG 5153 Engineering Fundamentals for Bioprocessing**	3
SCI 5500 Introduction to Biology and Biochemistry*	3
ENG 5100 Bioprocess Engineering Principles	1.5
ENG 5120 Microbial Fermentation	1.5
ENG 5121 Microbial Fermentation LAB	1.5
ENG 5151 Vector & Strain Design LAB	1.5
SCI 5200 Molecular Biology and Biotechnology	1.5
BUS 5000 Introduction to Bioscience Industry	3
PDEV 5000 Team Master's Project	3
Subtotal	16.5

Spring 1 st year Courses	Credits
ENG 5130 Mammalian Cell Biotechnology	1.5
ENG 5131 Mammalian Cell Culture LAB	1.5
ENG 5140 Bioseparations Engineering and Science	1.5
ENG 5141 Introduction to Bioseparations Engineering Lab	1.5
ENG 5142 Advanced Bioseparations Engineering Lab	1.5
MATH 5130 Data Analytics for Bioprocessing	3
REG 5310 Quality Systems and Regulation for Biologics	1.5
SCI 6311 Cell-Produced Therapeutics	1.5
PDEV 5000 Team Master's Project	3
Subtotal	16.5

* Requirement for students with ENG background (assigned by MEng Program Director based on transcript)

** Requirement for students with SCI background (assigned by MEng Program Director based on transcript)

Program Requirements

Fall 2 nd Year Courses	Credits
ENG 6100 Team Design Project (TDP)	6
ENG 6140 Advanced Bioseparations Engineering	1.5
ENG 6160 Engineering Design for Bioprocessing	1.5
REG 6310 Advanced Quality Topics for Biologics	1.5
BUS 5100 Financial Accounting	1.5
BUS ##### Elective (Can be opted either in Fall and/or in Spring semesters – total 3 credits) [§]	
Subtotal	12.0

Spring 2 nd Year Courses	Credits
ENG 6100 Team Design Project (TDP)	6
ENG 6152 Bioprocessing for Emerging Therapeutics	1.5
REG 6320 Advanced Regulatory Topics for Biologics	1.5
BUS 6110 Bioprocess Economics	1.5
BUS ##### Elective (Can be opted either in Fall and/or in Spring semesters – total 3 credits) [§]	3
PDEV 5220 Healthcare and Life Sciences Industry Ethics	1.5
Subtotal	15

[§] All MEng students must complete Business Elective Courses worth 3 credits from list below in Fall and/or Spring semester. Waiver from MEng Program Director required outside this list.

2nd Year BUS ELECTIVES	Credits
BUS 6710 Building an Entrepreneurial Organization	1.5
BUS 6410 Leadership in Organizations	1.5
BUS 6400 Organizational Behavior	3
BUS 6600 Business Operations	3
BUS 6500 Marketing Management	3
BUS 6610 Supply Chain Biotech Operations	3
BUS 6730 Applied Entrepreneurship	3
BUS 6120 Valuation in the Life Sciences [¶]	1.5
BUS 6220 Drug Pricing and Reimbursement [¶]	1.5
BUS 6330 Intellectual Property Strategy [¶]	1.5
MATH 6510 Market Analytics [¶]	1.5

([¶]) Pre-requisites not part of MEng curriculum - Contact instructor for approval prior to registration

Optional Courses: All MEng students may also choose Optional Courses from below

Optional Courses	Credits
RES 6000 Advanced Bioprocessing Research	1.5-3
RES 6000 Independent Research	1.5-3
RES 6010 Independent Study	3
PDEV 6000 Team Masters' Project	3