KGI HENRY E. RIGGS SCHOOL OF APPLIED LIFE SCIENCES

Class of 2023 Graduation Requirements

Master of Engineering in Biopharmaceutical Processing (MEng)

Students in the MEng program are required to complete a minimum of **64.5 Credits** over the course of two years of study.

- Biopharmaceutical Processing (18 credits)
- Biopharmaceutical Processing Labs (7.5 credits)
- Biopharmaceutical Capstone - Team Design Project (12 credits)
- Quality and Regulatory (6 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 1st Year Courses	Credits
MEB 301 Mathematics for Scientists**	1.5
MEB 323 Fluid Flow, Heat Transfer and Mass Transfer**	3
MEB 305 Introduction to Bioprocessing Fundamentals*	1.5
MEB 307 Introduction to Biology and Biochemistry*	3
MEB 312 Principles of Bioprocess Engineering	1.5
MEB 310 Mammalian Cell Culture Engineering	1.5
MEB 362 Mammalian Cell Culture LAB	1.5
MEB 306 Bioprocessing Fundamental LAB	1.5
MEB 302 Principles of Bioreaction Engineering	1.5
MEB 304 Molecular Biology and Biotechnology	1.5
ALS/MEB 359 Introduction to Bioscience Industry	3
ALS/MEB 400 Team Master's Project	3
Subtotal	**19.5**

Spring 1st year Courses	Credits
MEB 360 Advanced Fundamental Microbial Fermentation	1.5
MEB 361 Microbial Fermentation LAB	1.5
MEB 311 Bioseparations Engineering and Science	1.5
MEB 315A Downstream Processing LAB	1.5
MEB 315B Advanced Downstream Processing LAB	1.5
MEB 309 Data Analytics for Bioprocessing	3
MEB 317a Biopharmaceutical Quality Assurance and Control	1.5
MEB 317b CMC Regulation of Pharmaceuticals	1.5
MEB 303 Molecular Basis of Disease	1.5
ALS/MEB 400 Team Master's Project	3
Subtotal	**18.0**

* 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)

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Program Requirements

Fall 2nd 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)[$]	0-3[$]
Subtotal	**12.0-15.0**

Spring 2nd 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)[$]	0-3[$]
PDEV 5220 Healthcare and Life Sciences Industry Ethics	1.5
Subtotal	**12.0-15.0**

[$] 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	2
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 5000 Team Masters' Project	3

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