

MBA & ENGINEERING PROGRAM GUIDELINES

<u>COURSE</u>	<u>COURSE TITLE</u>	<u>PREREQUISITES</u>	<u>CREDITS</u>	<u>SEMESTER</u>	<u>COMPLETED</u>
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Prerequisites (Not required for Admission) 0
 Waiver exams are available in Financial Accounting & Statistics.

ECO 401	Basic Statistics for Business & Industry		3*	_____	_____
GBUS 401	Fin. Reporting for Managers & Investors		3*	_____	_____
ECO 001	Principles of Economics		4*	_____	_____

* For billing purposes

MBA Core Curriculum 18

MBA 401	Intro to Organization and Its Environment		2	_____	_____
MBA 402	Managing Fin. & Phys. Resources (GBUS 401)		4	_____	_____
MBA 403	Managing Information (GBUS 401 & ECO 401)		4	_____	_____
MBA 404	Managing Products & Services		4	_____	_____
MBA 405	Managing People		4	_____	_____

Business Electives 5

Engineering Core Curriculum 12
 (See Engineering Core Options)

Engineering Electives 6

Free Electives 3

Integrative Project 1

Total MBA & Engineering Credits 45

Chemical Engineering Core Curriculum..... 12

- CHE 331 Separation Processes (3)
- CHE 391 Colloid and Surface Chemistry (3)
- CHE 400 Chemical Engineering Thermodynamics (3)
- CHE 410 Chemical Reaction Engineering (3)
- CHE 415 Transport Processes (4)
- CHE 430 Mass Transfer (3)
- CHE 433 State Space Control (3)
- CHE 461 Math. Methods in Chemical Engineering (3)

Specialties

Students can take a specialty by concentrating their Chemical Engineering coursework as follows:

- General Chemical Engineering—four of eight core courses or other CHE 400-level coursework with the approval of the CHE advisor.
- Polymer Science and Engineering—three of eight core courses, of which two courses should be 400-level, plus either CHE 393 or CHE 394.
- Biotechnology—three of eight core courses, two of which should be at the 400-level, plus either CHE 441 or CHE 442.
- Process Control—CHE 433 plus two of the other eight core courses, and either CHE 434, CHE 436

Civil Engineering Core Curriculum..... 12

- CE 321 Open Channel Hydraulics (3)
- CE 322 Hydromechanics (3)
- ME 331 Advanced Fluid Mechanics (3)
- CE 374 Environmental Water Chemistry (3)
- CE 405 Analytical and Numerical Methods (3)
- CE 413 Mechanics & Behavior of Struct. Members (3)
- CE 444 Advanced Soil Mechanics II (3)
- CE 445 Advanced Foundation Engineering (3)
- CE 450 Advanced Structural Analysis (3)
- CE 470 Reaction Kinetics in Environmental Eng. (3)
- CE 476 Environmental Engineering Microbiology (3)

Computer Engineering Core Curriculum12

- ECE 319 Digital System Design (3)
- ECE 401 Advanced Computer Architecture (3)
- CSE 403/303 Theory of Operating Systems (3)
- CSE 441/CSE 340 Design and Analysis of Algorithms (3)

Computer Science Core Curriculum12

- MBA & E - Computer Science students are required to take CSE 441 Adv. Algorithms plus one course from the lists below in each category. 300-level versions of the below courses may be acceptable substitutes for students who have not taken the course at the undergraduate-level, but at least three of the core courses MUST be taken at the 400-level.
- Systems:
 - CSE 403 Adv. Operating Systems
 - CSE 404 Computer Networks
 - CSE 424 Adv. Communication Networks
 - CSE 443 Network Security
- Software & Theory:
 - CSE 411 Adv. Programming
 - CSE 409 Theory of Computation
 - CSE 434 Software System Security
 - CSE 475 Parallel Computing
- Data & Knowledge Mgmt:
 - CSE 341 Database Systems
 - CSE 426 Pattern Recognition
 - CSE 447 Data Mining
 - CSE 445 WWW Search Engines
 - CSE 435 Intelligent Decision Support Systems
 - CSE 437 Reinforcement Learning

Electrical Engineering Core Curriculum12

- ECE 401 Advanced Computer Architecture (3)
- ECE 402 Advanced Electromagnetic Theory (3)
- ECE 420 Advanced Circuits & Systems (3)
- ECE 441 Fundamentals of Wireless Communication (3)
- ECE 451 Physics of Semiconductor Devices (3)

• MBA & E - Electrical Engineering students are required to take any three of the above five courses. To complete the 12 credits required in the engineering core, select any other 300 or 400 level course in the ECE Department.

Environmental Engineering Core Curriculum12

• Due to the highly-individualized nature of this program, please contact Derick Brown at 610-758-3543, or e-mail dgb3@lehigh.edu, to formulate the program of study.

Industrial & Systems Engineering Core Curriculum12

- ISE 332 Product Quality (3)
- ISE 340 Production Engineering (3)
- ISE 339 Stochastic Models and Applications (3)
- ISE 419 Planning & Scheduling in Manuf. & Services (3)
- ISE 404 Simulation (3)
- ISE 410 Design of Experiments (3)
- ISE 426 Optimization Models and Applications (3)
- ISE 465 Applied Data Mining (3)

• MBA & E - Industrial and Systems Engineering students are required to take any three of the above courses. To complete the 12 credits required in the engineering core, select any other 300 or 400 level courses in the ISE Department.

Manufacturing & Systems Engineering Core Curriculum12

- MSE 362 (IE 362) Logistics & Supply Chain Management (3)
- MSE 401 (ME 401) Integrated Product Development (3)
- MSE 438 Agile Organizations & Manufacturing Systems (3)
- MSE 443 (IE 443) Automation & Production Systems (3)
- MSE 446 International Supply Chain Management (3)
- MSE 456/356 Micromanufacturing Systems & Technologies (3)

Materials Science & Engineering Core Curriculum 12

• Due to the highly-individualized nature of this program, please contact Lisa Arechiga at 610-758-4222, or e-mail lia4@lehigh.edu, to formulate the program of study.

Mechanical Engineering Core Curriculum and Electives 12

- ME 452 Mathematical Methods in Engineering I (3)
- ME 413 Numerical Methods in Mechanical Engineering (3) **OR**
ME 453 Mathematical Methods in Engineering II (3)
- ME 423 Heat Transfer (3)
- ME 430 Fluid Mechanics (3)
- ME 401 Product Development (3) **OR**
ME 402 Manufacturing (3)
- MECH 406 Fundamentals of Solid Mechanics (3)
- MECH 425 Dynamics and Vibrations (3)

• MBA&E - Mechanical Engineering students are required to take ME 452 plus any three additional courses from the list above to complete the required 12 credit engineering core.

Polymer Science & Engineering Core Curriculum 12

• Due to the highly-individualized nature of this program, please contact Ray Pearson at 610-758-3857, or e-mail rp02@lehigh.edu, to formulate the program of study.