Minor in Business Administration for Engineers

What is it?

- focused set of 5 required courses plus 2 elective courses
- provides valuable management training which is very desirable in industry
- offered by the College of Management (CoM) for undergraduate students in Engineering
- two elective courses are management-oriented courses which are “tuned” to each Engineering Department’s needs
- depending on the Department, several of the courses may also count as core, Technical and/or Design electives
- the net additional course work varies depending on the Department, from a minimum of THREE to a maximum of FIVE additional courses (which may be taken online or during the summer)

Why should I enroll in this?

- provides a competitive advantage when searching for employment
- provides training which will likely lead to more rapid job advancement
- allows an easy transition into a later MBA program - successful completion of this Business Minor will allow you to reduce the UMass Lowell MBA from 16 down to 10 courses (pending individual course approval by the College of Management)

What do these people have in common?

- President & CEO, Mattel Inc.
- Founder, Data General
- President, Bell Labs
- President & CEO, Albany Int’l
- President & CEO, Freudenberg/NOK
- Senior VP, Duke Energy
- Senior VP, Netscape/AOL

Answer:

They are ALL Managers with an Engineering degree from Lowell

“UMass Lowell engineering students, graduating with a Minor in Business Administration, will have a distinct competitive advantage and be uniquely prepared when facing today’s challenging, fast-paced workplace environment.”
Courses in the Minor in Business Administration for Engineers

This Minor is offered by the College of Management (CoM) in conjunction with the College of Engineering

Required courses:

- 49.201 Economics I (may count as Gen Ed course)
- 60.201 Accounting/Financial
- 61.301 Business Finance
- 62.201 Marketing Principles
- 66.301 Organizational Behavior

Elective courses:

Two courses from a selected list which is approved by the Engineering department and College of Management or 63.301 Management information Systems plus one additional course from a selected list which is approved by the Engineering department and CoM

For Civil & Environmental Engineering, these two additional courses are:

- 14.372 Civil Engineering Systems (already core in CEE) and one from the following list:
- 14.475 Construction Management (*)
- 22.576 Engineering Project Management (*)

Courses marked with * and 66.301 Organizational Behavior may be used as Technical Electives in CEE.

For Plastics Engineering, these two additional courses are:

- 26.537 Business Law for Engineers (*) and one from the following list:
- 26.507 Plastics Industry Organization (*)
- 26.840 Commercial Development of Polymeric Systems (*)
- 26.590 Survey of Intellectual Property (*)
- 22.576 Engineering Project Management. (*)

† Course 26.537 counts as a Design elective, and courses marked with * count as a Technical Elective in Plastics. In addition, Plastics students not taking 22.576 are encouraged to take 60.202 Accounting/Managerial 14.470 Engineering Economics or 10.409 Economics & Process Analysis.

For Chemical Engineering, these two additional courses are:

- 10.409 Economics and Process Analysis and one from the following list
- 14.372 Civil Engineering Systems (*) or 63.210 Operations Analysis Techniques
- 22.576 Engineering Project Management (*)
- 26.537 Business Law for Engineers (*)
- 26.590 Survey of Intellectual Property (*)

Courses marked with * may count as a Technical Elective in ChE.

For Mechanical Engineering, these two additional courses are:

- 22.576 Engineering Project Management (*)
- 22.573 Manufacturing Systems (*)
- 14.372 Civil Engineering Systems or 63.210 Operations Analysis Techniques
- 14.470 Engineering Economics (*) or 10.409 Economics & Process Analysis (*)
- 26.537 Business Law for Engineers (*)

Courses marked with * may count as a Technical Elective in ME.

For Electrical and Computer Engineering, these two additional courses may be:

- 14.372 Civil Engineering Systems or 63.210 Operations Analysis Techniques
- 14.470 Engineering Economics or 10.409 Economics and Process Analysis
- 22.576 Engineering Project Management
- 26.537 Business Law for Engineers

Additional courses may be added by each Engineering Department to their list of elective courses, with the approval of the College of Management.

How do I enroll in this minor?

- File a Declaration of Minor form with the College of Management before registering for 300 level courses
- Indicate your intention to pursue this Minor with your Engineering Faculty Advisor
- Immediately after registering for the final courses which complete the minor, file an academic petition with the Office of Enrollment Services approved by the CoM.

Course Descriptions

Required courses:

49.201 Economics I. Principles of production and exchange. Introduction to demand, supply, pricing and output under alternative market structures; derived demand and resource markets. 3 cr.

60.201 Accounting/Financial. Basic accounting theory; the accounting cycle, preparation of the statement of financial position and income statement; accounting for assets, liabilities and stockholders equity of the firm; cash flow and financial statement analysis. 3 cr.

61.301 Business Finance. Principles of financial management, including working and fixed capital, sources of funds, financial statements, financial planning and capital structure. Prerequisite: junior standing. 3 cr.

62.201 Marketing Principles. The role of marketing in the economy. The elements of the marketing mix - product, price, distribution, and promotion - are discussed in the context of social and political constraints on marketing activity. Prerequisite: 49.201. 3 cr.

66.301 Organizational Behavior. Examination of individuals, groups and organizations from a behavioral and structural perspective. Topics include employee motivation and satisfaction, work group dynamics and processes, conflict management, and organizational structure and design. Prerequisite: junior standing. 3 cr.

Elective Courses:

10.409 Economics and Process Analysis. Economic evaluation of manufacturing operations and projects. Accounting terms, time value of money, evaluation of investment alternatives. A major part of the required work involves the development of written plans for establishing specific enterprises. Oral presentations of findings are required. 3 cr.

14.372 Civil Engineering Systems. Introduction to methods of operations research, management science and economic analysis used in the design, planning and managing of engineering systems. Main topics covered: systems modeling, optimization concepts, network analysis, mathematical programming, critical path analysis, decision analysis, economic considerations. Prerequisite: junior status. 3 cr.

14.470 Engineering Economics. Mathematical principles of economic analysis, with emphasis on defining alternatives and predicting consequences of proposed investments. Economic, social and environmental impacts of proposed Civil Engineering projects. Assessing investments using Rate of return, equivalent cash flow and benefit cost ratio techniques. Sensitivity analysis and depreciation in economic studies. 3 cr.

14.475 Construction Management. Development of management skills and techniques to plan, schedule, supervise, and control construction projects. Project estimating; labor costs and productivity; construction plans, specifications and contracts; labor relations; time, cost and quality control; construction equipment and project decision making and financing. Prerequisite: senior status. 3 cr.

22.576 Engineering Project Management. Develop an understanding of the dynamic environment in which high technology companies operate. Identify the role new products and new processes play in establishing competitive advantage; the urgency for reducing time-to-market interval. Topics include: functional structure of companies; elements of a disciplined Project Management process; construction of a project plan including work breakdown, staffing, budget, scheduling; execution of a project plan to meet cost, timeframe and product performance objectives; change management. 3 cr.

26.507 Plastics Industry Organization. Economics of producing plastic raw materials and converting them into end products, from research and development to plant construction, manufacturing and marketing. Market analysis of plastics production, processing, and consumer patterns; commercial development, sales, and technical service. 3 cr.

26.537 Business Law for Engineers. Employment agreements, concluding ethical work considerations, non-compete provisions, trade secrets, assignment of rights to inventions; contracts including types, terms, warranties, risk of loss, remedies of breach; legal aspects of product design, prototyping and testing; materials, product & equipment defects and liability; intellectual property including patents, trade secrets, trademarks, copyright, accounting for intellectual property, licensing; business torts, damages & remedies including environmental pollution, conversion, breach of contract, injunctions. 3 cr.

26.590 Survey of Intellectual Property. A review of patents, trademarks, copyrights and their application for protection of technology in the plastics industry. Other topics to be considered will be employee rights/non-competition agreements, foreign protection and technology licensing. 3 cr.