

# Bachelor of Engineering Arts – BEA

(Management Engineering)

## Engineering the management of your enterprise

This is an exciting time to come to the University of Windsor. We will soon break ground on an ambitious addition to our expanding campus: a large state-of-the-art Centre for Engineering Innovation. This is evidence of our ongoing commitment to "Thinking Forward" for the next generation of successful UWindsor graduates.

The Industrial and Manufacturing Systems Engineering Department (IMSE) is introducing an innovative, perhaps the first in Canada, **Bachelor of Engineering Arts (BEA)**.

Like Industrial Engineering, Management Engineering is concerned with the design, installation, operations and improvement of integrated systems consisting of equipment, materials, information and energy flows, and people. This is truly an exciting multi-disciplinary program.

Unlike other engineering disciplines Management Engineering is concerned with the entire system, and especially the role people play in such systems. The educational approach is, therefore, more multi-disciplinary and includes the study of human factors involved in industrial operations, service industries, and any business.

Graduates with the ability to understand both complex technological processes and the creative arts and social skills are increasingly sought after in today's industrial and business world in areas of: Manufacturing Management, Health and Service Sectors, Product Engineering and Technical Sales, Transportation and Logistics. Using their strong technical and communication skills, engineering managers oversee a variety of team-based activities. Students will enjoy team projects and real experiences: "learning by doing".



**Industrial & Manufacturing Systems Engineering Dept. (IMSE)**  
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**Approval Pending**

University of Windsor  
*thinking forward*



**Professional Competitive Advantage**

science / technology

social sciences

business

arts

## The Curriculum

Course	Discipline
<b>Fall Term TERM # 1</b>	
01-150. (Foundations Academic Writing I)	English
24-100. (The Nature of Theatre I)	Arts
59-140. (General Chemistry I)	Science
64-114. (Physical Concepts and Numeracy I)	Science
85-133. (Engineering and Design)	Gen. Engg.
<b>Winter Term TERM # 2</b>	
Arts / Humanities course	Arts
62-126. (Linear Algebra)	Math
62-130. (Elements of Calculus)	Math
75-100. (Intro. to Business)	Business
84-101. (Collaborative Innovative Design)	BEA
<b>Fall Term TERM # 3</b>	
28-150. (Contemporary Visual Culture)	Arts
34-221. (Introduction to Ethics)	Arts
45-211. (Legal Process in Canada) if available else FASS course	Pol. Science/Arts
85-250. (Engineering and the Environment)	Gen. Engg.
91-201. (Engineering Management and Globalization)	IMSE (new)
<b>Winter Term TERM # 4</b>	
Science course	Science
45-211. (Legal Process in Canada) if available else FASS course	Pol. Science/Arts
85-219. (Introduction Engineering Materials)	Gen. Engg.
85-222. (Treatment of Experimental Data)	IMSE
84-200. (Socio-Technical Design Theory and Applications)	BEA
<b>Fall Term TERM # 5</b>	
45-323. (Government and Business)	Pol. Science
85-313. (Engineering Economics)	IMSE
91-312. (Operations Research I)	IMSE
91-315. (Product and Process Design)	IMSE
91-317. (Systems Analysis and Design)	IMSE
<b>Winter Term TERM # 6</b>	
27-385. (Green Corridor)	Arts
71-243. (Human Resource Mgt)	Business
84-301. (Leadership and Entrepreneurship)	BEA
84-302. (Service Eng. Mgt)	BEA
91-302. (Health, Safety & Human Factors)	IMSE
<b>Fall Term TERM # 7</b>	
Arts / Humanities course	Arts
84-400. (Capstone Design Project)	BEA
91-413. Production Analysis	IMSE
91-422. (Simulation of Industrial Sys)	IMSE
91-428. (Facilities & Material Hand)	IMSE
<b>Winter Term TERM # 8</b>	
Arts / Humanities course	Arts
74-231. (Principles of Marketing)	Business
84-400. (Capstone Design Project)	BEA
84-401. (Risk Engineering Management)	BEA
84-402. (Design for Sustainability)	BEA

www.uwindsor.ca/imse



## Frequently Asked Questions (FAQ)

### Q1: What is the overall aim of the proposed new program?

The Bachelor of Engineering Arts program educates students to become competent leaders capable of addressing today's challenges, as well as anticipating and addressing future needs of the 21<sup>st</sup> Century. Graduates with the ability to understand both complex technological processes and the creative arts and social skills are increasingly sought after in today's industry and in all service sectors of society.

### Q2: What is Management Engineering? And what does it mean to be a "leader"?

Management engineering refers to ways of taking the disciplines and practices of engineering and transferring them to the business management processes. Leaders do not "manage" people, they inspire and guide them. Leaders are visionary and strategists.

### Q3: What will graduates with a BEA (Management Engineering) do after graduation? What kind of jobs can they do?

They will have acquired an understanding of the technical elements, in combination with management proficiency and socio-technical skills. Students who have completed the program will acquire a strong foundation in management engineering that would qualify them for the pursuit of several graduate programs (i.e., MEng, MBA) and/or certifications issued by professional associations and organizations. Graduates will be prepared to be leaders and deal with the challenges facing both industry and society. Managers and leaders occupy a unique position as they combine their management expertise with engineering knowledge to lead teams of specialists in highly technical tasks: e.g. addressing sustainability issues, project management, improving health care delivery, formulating public policy as well as numerous growing service industries and businesses.

### Q4: What are the program specific admission requirements? Credit transfers?

OSS Diploma Admission Criteria: All programs require a minimum admission average which may change, depending on the number of applicants. The minimum average is 70%. The admission requirements for this program are equivalent to the Engineering or Business + Economics programs, in that ENG4U and one Grade 12 "U" Mathematics is required. MHF4U, SPH4U and MCV4U are strongly recommended, but is not necessary. The expected average of all the math and science courses, except for biology is (74%).

A number of spaces will be available for students who would be coming into the University of Windsor if admitted on an international study permit (Student Visa). Transfer credits will be considered for students transferring from other universities or if you are applying from an Ontario College of Applied Arts and Technology (CAAT). For students who would be coming into the University of Windsor if admitted on an international study permit (Student Visa).

### Q5: Is this program preparing students to become Licensed Professional Engineers?

Yes. However the path to Professional Engineers Ontario (PEO) licensing is different from that of the graduate from the CEAB (Canadian Engineering Accreditation Board) accredited engineering programs.

### Q6: What are the paths to PEng. licensing for graduates of the BEA Program?

There are 2 possibilities: 1) Students would apply to PEO after graduation and pass the required technical examinations; or 2) The Faculty of Engineering will work with PEO to develop and maintain a standard program that students can take at any time (before or after graduation). This standard technical program may be packaged as a special "Certificate Program".

### What did leaders in education, engineering practice and in the community say about this Program?

*"This program will provide the University of Windsor (and its students) a competitive advantage"*

*"This will produce the leaders of the future that are capable to address the global challenges of the 21<sup>st</sup> Century"*

*"What is needed now is to produce graduates that can deal with the socio-technical problems facing the world"*

*"Change is constant in our society and well trained engineers will help drive change as well as be driven by it"*


*"The graduates from this program will be great communicators, and leaders in engineering as well as in public service"*

*"Best wishes and success on your vision to combine humanities, and art with engineering.."*

If you have more questions, please write to: Professor Waguhi ElMaraghy, Ph.D., P.Eng.  
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#### Science & Engineering

- Math, Physics, Chemistry
- Product Design
- Systems Engineering
- Materials, Manufacturing Systems
- Built Environment, Artifacts
- Statistics and simulation
- Risk Assessment & Management
- Facilities Design & Logistics
- Socio-Technical Systems
- Design for Sustainability
- Capstone Design Project



#### Natural Environment

- Sustainability
- Earth / Climate
- Ecology / Resources
- Human Environment
- Society, Human Networks
- Human Values & Environment
- Health, Safety
- Human Factors



#### Humanities & Arts

- Critical Thinking, Creative thinking
- Philosophy, Sociology
- Psychology, Human Networks
- Languages, Artistic Expression
- Painting, Sculpture
- Aesthetics, Visual Arts
- Theatre & Drama
- Collaborative Innovative Design



#### Business, Economics and Law

- Business Globalization
- Enterprise Management
- Project Management
- Principles of Marketing
- Economics, Supply Chains
- Public Service, Communication
- Professionalism, Ethics
- Patents and Labour Law
- Human Resource Management



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