

# **BUSINESS ENTERPRISE CERTIFICATE FOR ENGINEERS**

Robert R. McCormick School of Engineering and Applied Sciences

**Purpose:** This Certificate program has been developed to give McCormick undergraduate students a solid core of business-related courses and work experiences that will supplement their engineering programs and better prepare them for successful careers. The Certificate also represents official Northwestern University recognition of a student's participation in the Professional Engineering Internship Program.

**Requirements:** The Business Enterprise Certificate involves a combination of business courses and work experience that will augment any McCormick degree program.

	<u>CO-OPS</u>	<u>NON CO-OPS</u>
Courses*:	4	6
Work Experience:	Minimum of 4 Co-op terms	2 internships**
Total Credits:	50	52

Students completing a dual degree must have 56 total credits with Co-op or 58 total credits for Non-Co-ops. Courses used towards the Business Enterprise Certificate may not be taken P/N.

\*From the Approved Courses list (below), and including at least one accounting course.

ECON 260, Accounting 201-CN, or an approved Accounting course from another institution (via petition) are the current options to fulfill the accounting requirement.

A Faculty Steering Committee determines which courses qualify as Approved Courses.

## **\*\* Internships:**

**Students who file a declaration of Intent to Pursue the Business Enterprise Certificate must complete the Orientation Seminar for the Co-op/Internship Programs offered by the Walter P. Murphy Cooperative Engineering Education Program prior to beginning the first internship.** All students interested in obtaining an internship are eligible to do so with the assistance of the Co-op staff. Students are also allowed to obtain internships on their own, but must have these internships approved by the Co-op Office in order for them to qualify for enrollment in the Internship Program.

Each internship must consist of 12 weeks of **industry** experience of a technical nature in a small, mid-size or large corporation. The internships may take place in different companies. Students who have obtained an internship will be registered for the appropriate internship course (CRDV 311- x), which carries no academic credit and for which students pay no tuition. During each internship, the students will participate in an evaluation process with their supervisors. Completion of all required evaluations will result in a grade of "S," while missing evaluations will result in a grade of "U." While these grades do not impact a student's GPA, they will be on the transcript and will reflect on the student's level of success during the internship.

Revised November 29, 2007

### Approved Elective Courses for the Business Enterprise Certificate

Courses not on this list may be used, though only with prior approval of the Faculty Steering Committee.

COURSE	TITLE	PREREQUISITES	NOTES
BUS_INST 239	Marketing Management	None	
CHEM_ENG 390	Personal and Organizational Effectiveness	Pre-Senior or Senior Standing	
CIV_ENG 302	Engineering Law	Junior standing	
COMM ST 363	Bargaining and Negotiations	COMM_ST 201, 205, and 260	
COMM ST 364	Collective Decision Making and Communication in Organizations	COMM_ST 260	
COMM ST 365	Solving Problems in Applied Organizational Communities	COMM_ST 201 and 260	
ECON 250	Business and Government	ECON 281, 310-1, and 311	
ECON 308	Money and Banking	ECON 281, 310-1, and 311	
ECON 339	Labor Economics	ECON 281, 310-1,2, and 311	
ECON 349	Industrial Economics	ECON 281, 310-1, and 310-2	
ECON 350	Monopoly, Competition and Public Policy	ECON 281, 310-1, and 310-2	
ECON 351	Law and Economics	ECON 281, 310-1,2	
ECON 360	Foundations of Corporate Finance Theory	ECON 281, 310-1, and 311	ECON 360 and IEMS 326 are considered equivalent courses. Credit for both courses is not allowed by MEAS or WCAS.
ECON 361	International Trade	ECON 281, 310-1,2, and 311	
ECON 362	International Finance	ECON 281, 310-1, and 311	
GEN CMN 204	Paradigms and Strategies of Leadership	Confirm with Undergraduate Leadership Program	
IDEA 395	Special Topics in Manufacturing	Accepted by petition	
IE 373	Introduction to Financial Engineering	Accepted by petition	
IEMS 325	Engineering Entrepreneurship	One accounting course or IEMS 326; BUS_INST 239 recommended	
IEMS 326	Economics and Finance for Engineers	MATH 215	See ECON 360 Notes
IEMS 340	Field Project Methods	Consent of instructor for non-majors	
IEMS 342	Organizational Behavior	Industry work experience recommended	
IEMS 344	Information Technology for Manufacturing	Industry work experience recommended	
IEMS 345	Negotiations and Conflict Resolution for Engineers	IEMS 303 and 342 recommended	
IMC 303	Advertising	Junior standing	
IMC 304	Direct Marketing	Junior standing	
LOC 211	Introduction to Organizational Theory and Practice	None	
LOC 306	Studies in Organizational Change	None	
LOC 310	Learning Organizations for Complex Environments	None	
POLI_SCI 375	Comparative Politics of Business-Government Relations	None	
SOCIOL 315	Industrialism and Industrialization	None	
SOCIOL 316	Economic Sociology	SOCIOL 215 and ECON 202	