Master of Civil Engineering/Master of Business Administration (MCE/MBA)

Rationale:

The College of Engineering offers master's level degree programs (both thesis and non-thesis) in each of the engineering disciplines (chemical, civil, environmental, electrical/computer, mechanical, and materials science/engineering). An engineering master's degree with thesis is designed to train engineers to independently seek new knowledge in their respective engineering discipline, frequently crossing disciplines in the search for that new knowledge. The non-thesis master's degrees in engineering are intended to meet the continuing education needed by engineers in industry in order to broaden their engineering foundation and achieve career advancement. That advancement generally involves assuming project management and other leadership roles, and may involve the founding of new businesses.

The Alfred Lerner College of Business and Economics since 1954 has offered the Master of Business Administration (MBA) degree, providing students with the knowledge necessary to navigate in the business setting. Since its inception, many of our MBA students have had an academic background in engineering and are pursuing careers in engineering related fields in industry. Over the last several years, we have had many inquiries from individuals with engineering backgrounds who are interested in continuing their engineering education while complementing it with core business knowledge. While the MBA program allows students to take up to 15 credits in their subject of specialization to complement the business curriculum, the current structure of two separate degree programs does not allow the field specific courses required for the master's level engineering programs to fulfill this requirement in the MBA program. The creation of dual MCE/MBA program will allow 15 credits of coursework applicable to the engineering master's degree to also fulfill the elective requirements for the MBA program.

b. Summary of program:

The dual MCE/MBA program will provide students with the necessary skills to broaden their engineering knowledge while gaining a detailed understanding of the business environment. Although it does not preclude the possibility of engineering research (when the student chooses to pursue the engineering master's degree with thesis), the dual degree can be achieved with a non-thesis master's degree in engineering.

Structure of the program

- Total of 63 credits
- The MBA core and required courses (30 credits) plus international MBA elective (3 credits) combined with the requirements for any Master's level engineering degree (30 credits).

Program Requirements:

Master of Civil Engineering/
Master of Business Administration
Dual Degree Proposal

Admission:

Students desiring to pursue the joint MCE/MBA program may initially apply directly to either the MCE program or the MBA program. Applicants must be qualified for admission by both programs. The MBA will allow for a substitution of the GRE for the GMAT, but the GMAT will not be an acceptable substitution for the GRE. Prospective students are encouraged to see the admissions policies for both programs in the graduate catalog, noting some variation between engineering disciplines, particularly with respect to the minimum GRE requirements. Applications and letters of recommendation are to be submitted to:

Office of Graduate Studies
www.udel.edu/gradoffice/applicants or via mail at:
234 Hullihen Hall
University of Delaware
Newark, Delaware 19716

The MCE/MBA program is a joint degree program. As such, the joint programs must be completed and the dual degree is conferred, simultaneously recognizing completion of both graduate programs. Students admitted to the MCE/MBA joint degree program who later decide they want to complete only one of the degrees (MBA or civil engineering master's) must petition the graduate school to re-enter either the master's level engineering program or the MBA. Students who complete the single degree program (MBA or master's level engineering) may not be re-admitted at a later date to the dual degree program. Instead, the student would be required to complete all requirements for the second degree; i.e., losing the benefit of a 15-credit reduction in total credits allowed those pursuing the dual degree program. A student who decides to pursue the dual degree must apply for change of degree to the MCE/MBA dual degree program prior to receiving the first degree and must complete the requirements for the dual degree prior to any degree being granted.

Academics:

The MCE/MBA program combines the courses required by the civil engineering discipline with the core and required courses of the MBA program, plus an international MBA elective. The minimum credit requirements for the master's level engineering degree is 30 credits, these credits being defined and certified by the appropriate department within the College of Engineering, see Attachment A. The MBA core, required and international elective courses make up 33 credits of the program. The following table identifies the MBA portion of the dual degree curriculum. The engineering portion of the dual degree is based on the individual student's engineering discipline and will be determined by the appropriate authority within the College of Engineering. The column labeled "sequence" indicates the approximate sequence in which courses should be taken

MCE/MBA Dual Degree Curriculum

REQUIRED COURSES	CREDITS	SEQUENCE*
MBA CORE & REQUIRED COURSES		
ECON 503 - Economic Analysis for Business Policy	3	First
ACCT 800 - Financial Reporting and Analysis	3	First
BUAD 820 - Data Analysis and Quality Management	3	First
BUAD 870 - Understanding People in Organizations	3	First
FINC 850 - Financial Management	3	Second
BUAD 880 - Marketing Management	3	Second
BUAD 831 - Operations Management and Management Science	3	Second
BUAD 840 - Ethical Issues in Domestic & Global Environments	3	Third
ACCT 801 - Management Control Systems	3	Third
BUAD 890 - Corporate Strategy	3	Third
International business elective	3	
Total MBA credits required	33	
Engineering Requirements See Attached Schedule	30	
TOTAL REQUIRED CREDITS	**63**	

Transfers of coursework earned elsewhere (a maximum of nine graduate credits), and waivers of courses are allowable with faculty approval in their respective programs. Dual degree students must complete a minimum of 63 credits of coursework at the graduate level. If financial assistance for students in the joint MCE/MBA program is provided from the same sources as students in the respective engineering graduate program (see below), continued enrollment in MBA courses is dependent on the student making satisfactory progress toward the master's level engineering degree. This is certified by the student's advisor in the College of Engineering and should be reviewed at regular committee intervals, even every semester.

Students must maintain continuous enrollment in every regular semester (fall and spring) throughout their program unless by approved leave of absence. See the catalog for the university policy on sustaining status at **http://www.udel.edu/gradoffice/current/policysustaining.html**, and regarding leave of absence at **http://udcatalog.udel.edu/general/grad/gradregs.html#leave**.

Financial Assistance:

Students in the MCE/MBA program may compete for the same sources of financial assistance as available to master level engineering students or MBA students. The same criteria for financial assistance apply. Financial assistance provided through the College of Engineering for students in the joint MCE/MBA program is limited to those students who choose to pursue an

engineering master's degree with thesis.[1] Therefore, continued enrollment in MBA courses is dependent on the student making satisfactory progress toward the master level engineering degree, as reviewed and certified by the student's advisor in the College of Engineering.

Departmental Operations

Occasionally a student's graduate assistantship or other assignments may require the use of departmental laboratories or other facilities. Keys to laboratories, etc., are maintained in the Department office and will be issued based on faculty and Department Chair approval.

Any assignments that require the expenditure of departmental funds (e.g. data collection activities) require departmental approval in advance and are processed through the department in which the work is to be done.

[1] Engineering master's students pursuing non-thesis engineering graduate programs are typically part-time students paying for their own education or, more often, funded by their employer, and not through research grants or college funding.

ATTACHMENT A

Requirements for Master's Degrees in Civil Engineering[2]

NOTE: Due to the significant overlapping of the subdisciplines within civil/environmental engineering, core courses addressing "areas of interest" are *suggested*, but, except in the environmental and structural engineering areas of interest, they are not *mandated*. In other areas, *core course options* are *suggested*, so that students can choose their courses to meet a broad career goal that may cross-over several areas of interest.

	Required Courses	**Criteria for Electives** *(courses chosen with advisor approval)*	**Total Credits**
Master of Civil Engineering (www.ce.udel.edu)	**Environmental Eng'g:** CIEG632 (3 crs): Chemical Aspects of Env'l Engg. CIEG634 (3 crs): Contaminant Transport & Separation in Env'l Systems CIEG636 (3 crs): Biological Aspects of Env'l Engg. **Structural Eng'g:**[3] CIEG601 (3 crs): Intro to Finite Element Method CIEG611 (3 crs): Structural Dynamics Design CIEG612 (3 crs): Adv'd Mechanics of Materials CIEG802 or CIEG803 (3 crs): Adv'd Steel or Concrete Design	• Electives should be taken to meet the student's area of interest and are selected in discussion with an advisor. Total program credits ≥ 30 • 6 credits may be taken as a research/ thesis option, CIEG869 **Suggested Core Course Options for CIEG Areas of Interest:** **Geotechnical Engineering Interest:** CIEG601: Intro to Finite Element Method CIEG620: Soil Mechanics CIEG621: Foundation Engineering CIEG622: Earth Structures Engineering CIEG623: Soil Mechanics Lab CIEG624: Soil Dynamics **Transportation Planning Interest:** CIEG652: Transportation Facilities Design CIEG654: Urban Transportation Planning ORES601 or 602: Survey of Operations Research UAPP601: Measuring & Defining Problems UAPP877: Program and Project Evaluation **Transportation Materials Interest:** CIEG667: Pavement Analysis & Design CIEG667: Civil Infrastructure Systems CIEG621: Soil Mechanics CIEG652: Transportation Facilities Design **Intelligent Transportation Systems Interest:** CIEG652: Transportation Facilities Planning CIEG667: Intelligent Transportation Systems CIEG667: Advanced Traffic Engineering MATH630 or 631: Probability Theory	30

[2] This table represents the Master of Civil Engineering degree program as it currently stands (2006-07). As the MCE program is modified within the College of Engineering, the changes would translate exactly to the dual MCE/MBA.

[3] Students intending to pursue the non-thesis structural engineering area of interest on a part-time basis must satisfactorily complete either CIEG611 or 612 before the graduate application will be considered for admission.