

UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: __Kathleen Werrel__ email: werrel@udel.edu phone number 831-4863/2401

Action: __create new Dual degree programs-Master of Applied Science: Civil Engineering/MBA and Master of Civil Engineering/MBA¹__

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term __08F__
(use format 04F, 05W)

Current degree _____
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: __Master of Applied Science: Civil Engineering/MBA or Master of Civil Engineering/MBA²__ (Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: Dual degree Master of Applied Science: Civil Engineering/Master of Business Administration *or* Master of Civil Engineering/Master of Business Administration
Proposed new name for revised or new major / minor / concentration / academic unit (if applicable)

Revising or Deleting:

Undergraduate major / Concentration: _____
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: _____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: _____
(Attach your Graduate Program Policy Statement)

Graduate Program of Study: _____
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: _____

¹The engineering portion of these dual degrees will bear the name of the respective civil engineering master's degree: Master of Civil Engineering (MCE) or Master of Applied Sciences: Civil Engineering (MAS:CE). Any changes to the respective engineering master's degree will automatically apply to the dual MAS:CE/MBA and MCE/MBA degree programs.

² Course requirements for the Master of Civil Engineering and the Master of Applied Science: Civil Engineering are the same. However, students who pursue the requirements for either master's degree in civil engineering but do not hold an *engineering* undergraduate degree are awarded the Master of Applied Science.

List program changes for curriculum revisions:

none

List new courses required for the new or revised curriculum:

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

none

Other affected units:

(List other departments affected by this new or revised curriculum. Attach permission from the affected units. If no other unit is affected, enter "None")

none

Rationale:

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

a. Rationale for creation, revision, or deletion:

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 MAS:CE /MBA and MCE/MBA programs 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 MAS:CE/MBA and MCE/MBA programs 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.

Target population

Students in this program are expected to be either 1) highly motivated master's level engineering students who wish to gain an understanding of the dynamic business environment or 2) highly motivated MBA students who have an academic background in engineering and who wish to further pursue an engineering education while gaining an understanding of the business environment. Such students would be preparing themselves as either entrepreneurs or for careers in industry.

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:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the present curriculum.)

**Master of Applied Science: Civil Engineering/ OR
Master of Civil Engineering/
Master of Business Administration
Dual Degree Proposal**

Part I. Program History

Beginning with chemical engineering in the early 1940's, the University has offered graduate engineering degrees, training engineers to independently seek new knowledge through research. By 1995, each of the engineering disciplines also offered a non-thesis master's degree option, enabling engineering professionals to broaden their engineering knowledge through a coursework only program. The Alfred Lerner College of Business and Economics has offered the Master of Business Administration (MBA) degree since 1954 to prepare students for the business world. Since many students pursuing master's level engineering degrees are interested in pursuing careers in industry or are already doing so, the College of Engineering and The Alfred Lerner College of Business and Economics have developed joint MAS:CE/MBA and MCE/MBA degree programs. These programs are jointly administered by the College of Engineering and the Alfred Lerner College of Business and Economics.

Part II. Admission

Students desiring to pursue the joint MAS:CE/MBA or MCE/MBA program may initially apply directly to either the desired engineering 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 MAS:CE/MBA and MCE/MBA programs are joint degree programs. As such, the joint programs must be completed and the dual degree is conferred, simultaneously recognizing completion of both graduate programs. Students admitted to either the MAS:CE/MBA or 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 MAS:CE/MBA or MCE/MBA programs dual degree prior to receiving the first degree and must complete the requirements for the dual degree prior to any degree being granted.

Part III. Academic

The MAS:CE/MBA and MCE/MBA programs combine 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

MBA/Master of (*Engineering Discipline*) 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	<u>3</u>	
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 MAS:CE/MBA or 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>.

Part IV. Financial Assistance

Students in the MAS:CE/MBA and MCE/MBA programs 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 MAS:CE/MBA and MCE/MBA programs is limited to those students who choose to pursue an engineering master's degree with thesis.³ 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.

Other Financial Aid Opportunities

Other Fellowships and Internship opportunities are occasionally available through the University. Interested students should check the Office of Graduate Studies website at www.udel.edu/gradoffice/applicants for the most current opportunities.

Residence Hall Directorships

In addition, the University hires Residence Hall Directors from among the ranks of its graduate students. Candidates are chosen for their superior leadership and communication skills, as well as the capability to provide guidance to undergraduates. Hall Directors are eligible for room and board, and full tuition waivers. Contact the Office of Housing and Residence Life at (302) 831-8423 for additional information as soon as possible. Applicants are usually interviewed around mid-April.

Part V. 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.

³ 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.

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)

Department Chairperson _____ Date _____

Dean of College _____ Date _____

Chairperson, College Curriculum Committee _____ Date _____

Chairperson, Senate Com. on UG or GR Studies _____ Date _____

Chairperson, Senate Coordinating Com. _____ Date _____

Secretary, Faculty Senate _____ Date _____

Date of Senate Resolution _____ Date to be Effective _____

Registrar _____ Program Code _____ Date _____

Vice Provost for Academic Programs & Planning _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____

Revised 04/20/07 – gzd & kcw

ATTACHMENT A
Requirements for Master's Degrees in Civil Engineering⁴

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 <i>(courses chosen with advisor approval)</i>	Total Credits
Master of Civil Engineering or Master of Applied Science⁵ www.ce.udel.edu	Environmental Eng'g: <u>CIEG632</u> (3 crs): Chemical Aspects of Env'l Engg. <u>CIEG634</u> (3 crs): Contaminant Transport & Separation in Env'l Systems <u>CIEG636</u> (3 crs): Biological Aspects of Env'l Engg. Structural Eng'g:⁶ <u>CIEG601</u> (3 crs): Intro to Finite Element Method <u>CIEG611</u> (3 crs): Structural Dynamics Design <u>CIEG612</u> (3 crs): Adv'd Mechanics of Materials <u>CIEG802</u> or <u>CIEG803</u> (3 crs): Adv'd Steel or Concrete Design	<ul style="list-style-type: none"> • 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 <p><u>Suggested Core Course Options for CIEG Areas of Interest:</u></p> <p>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</p> <p>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</p> <p>Transportation Materials Interest: CIEG667: Pavement Analysis & Design CIEG667: Civil Infrastructure Systems CIEG621: Soil Mechanics CIEG652: Transportation Facilities Design</p> <p>Intelligent Transportation Systems Interest: CIEG652: Transportation Facilities Planning CIEG667: Intelligent Transportation Systems CIEG667: Advanced Traffic Engineering MATH630 or 631: Probability Theory</p>	30

⁴ This table represents Master of Applied Science: Civil Engineering and Master of Civil Engineering degree programs as they currently stand (2006-07). As the respective programs are modified within the College of Engineering, they would translate exactly to the dual MBA/MAS: CE and MBA/MCE.

⁵ Course requirements for the Master of Civil Engineering and the Master of Applied Science: Civil Engineering are the same. However, students who pursue the requirements for the master's degree in civil engineering but do not hold an engineering undergraduate degree are awarded the Master of Applied Science.

⁶ 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.