

## Concept Paper for a New Degree Program

I. **Master of Science in Construction Management**/Department of Civil Engineering Technology, Environmental Management and Safety/College of Applied Science and Technology

### II. Abstract

“Construction managers plan, coordinate, budget, and supervise construction projects from early development to completion;” employment opportunities in this field are predicted to grow and employers are placing more importance on specialized education.<sup>1</sup>

The proposed online MS degree program in construction management has been designed to provide such specialized education for both experienced construction professionals and recent graduates of baccalaureate degree programs in construction management and related disciplines. The goals of the proposed program are to provide graduates with the requisite strategic skills to lead and advance the construction industry. To accommodate the working professional, the program will be available online.

At both the graduate and undergraduate (separately proposed) levels, construction management will mesh well and provide synergy with existing RIT programs in engineering, engineering technology and architecture.

### III. Description of the New Program

#### a. *Overview and Justification of the New Program*

According to the Bureau of Labor Statistics, “construction managers plan, coordinate, budget, and supervise construction projects from early development to completion,” the median annual wage of construction managers exceeds \$80,000, employment opportunities in this field are predicted to grow in the US by 17% between 2010 and 2020, and employers are placing more importance on specialized education.<sup>2</sup>

The proposed online Master of Science degree program in Construction Management is designed to provide specialized education, primarily for experienced construction professionals interested in advancing into leadership positions, but also for recent graduates of undergraduate programs in construction management, engineering, engineering technology, business management, architecture and related disciplines. As mentioned above, demand is high for these professionals, hence RIT will be filling this need. Graduates will develop competencies in leadership, construction cost analysis and control, construction operations management and productivity, and construction business development and growth. Core construction management courses in the program will be taught by faculty with five or more years’ experience in the discipline. To accommodate the working professional, the MS program will be available online.

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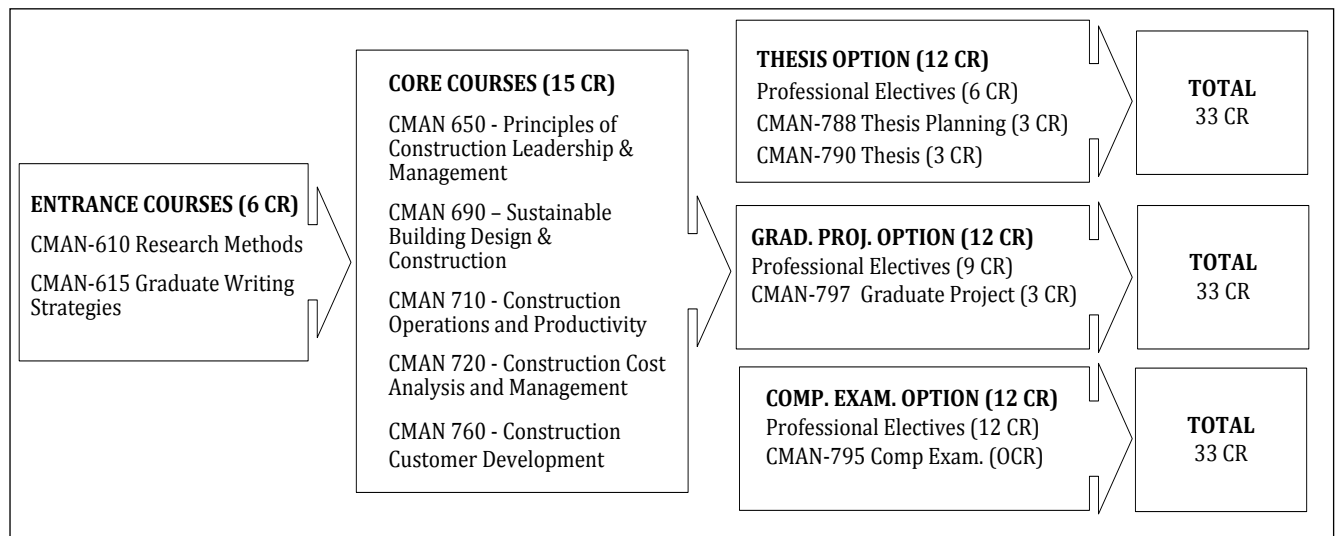
<sup>1</sup> “Construction Managers,” *Occupational Outlook Handbook*, Bureau of Labor Statistics, USDOL, <http://www.bls.gov/ooh/management/construction-managers.htm>, - accessed Aug. 22, 2012.

<sup>2</sup> “Construction Managers”

The goals of the proposed program are to provide graduates with the requisite strategic skills to lead and advance the construction industry, including the abilities to: strategically plan and lead a construction operation; analyze and effectively manage construction project costs, including determination of cost-to-completion; design and implement construction productivity improvement strategies; develop and evaluate an array of value engineering alternatives, including “green” alternatives; and develop and implement effective strategies for construction customer development and retention.

*b. Summary of New Program Curriculum*

The proposed MS degree in construction management is a 33 semester credit hour program. The curriculum layout parallels that of other MS degree programs in the College of Applied Science and Technology and includes common entrance and exit strategies (6 SCH), a program core (15 SCH), and a thesis, project or comprehensive exam option (12 SCH) as depicted below:



**IV. Fit with RIT Mission and Strategy**

This program is consistent with RIT’s mission to provide a broad range of career-oriented educational programs with the goal of producing innovative, creative graduates who are well-prepared for their chosen careers in a global society. Within the core courses, globally relevant and necessary topics such as safety, risk management, human resources development, sustainable design and construction are emphasized. Additionally, given this nation’s need to address aging infrastructure, energy efficiency in buildings (buildings account for almost 40% percent of overall energy usage in the US<sup>3</sup>), and the need to construct new energy production facilities, the program’s focus on leadership, modeling, analysis, productivity and providing good service will keep RIT’s construction management MS graduates in demand as the need for qualified construction managers continues into the foreseeable future.

<sup>3</sup> "Building on Success: Policies to Reduce Energy Waste in Buildings," Alliance to Save Energy, July 2005.

Construction management is intended to be a program that will “sit on top” of several existing baccalaureate degree programs including those in engineering, engineering technology and possibly business. The program content was crafted by partnering CETEMS faculty with an external construction management advisory board consisting of officers and senior managers from 13 local construction companies. These internal and external partnerships provide opportunities for our student to expand their experiential learning.

**V. Synergy with Other Programs**

The Department of Civil Engineering Technology, Environmental Management and Safety (CETEMS) currently offers four academic programs: a BS in civil engineering technology, a BS in environmental sustainability health and safety, an MS in environmental, health and safety management, and an MS in facility management. Both undergraduate programs are offered in the traditional on-campus setting and both graduate programs are offered online and primarily serve working professionals. In similar fashion, CETEMS is proposing an on-campus BS and online MS program in construction management. These new programs mesh well with the other programs in the department, and provide a variety of paths for students interested in pursuing BS/MS combinations. It will be especially valuable in providing a graduate program path for students in the undergraduate civil engineering technology program and a path for students in the proposed construction management BS at RIT .

Additionally, the Construction Manager Certification Institute identifies six academic program areas beyond construction management as providing appropriate preparation for the discipline. These include civil, chemical, electrical, and mechanical engineering as well as architecture.<sup>4</sup> These represent potential feeders for the MS in construction management.

**VI. Administrative Structure for the New Program**

The online MS degree program in construction management will be administered by CETEMS in a manner similar to that of its other online graduate programs. The program curriculum committee will consist of CETEMS faculty directly involved in teaching in either the MS or proposed BS degree programs. Oversight will be provided by the CETEMS Graduate Program Director and Department Chair.

**VII. Enrollment Management Expectations and Sustainment**

Since development of this program began before the recent moratorium, it was permitted to continue over the last couple of years and an enrollment management projection was prepared by Assistant VP Diane Ellison on November 10, 2011. It is included below:

	Year 1	Year 2	Year 3	Year 4	Year 5
New part time	15	15	20	20	20
Continuing PT	0	12	22	28	28
Total PT	15	27	42	48	48

<sup>4</sup> “Becoming a Certified Construction Manager,” Qualifying Degrees, Construction Management Association of North America, Website <http://cmaanet.org/certification/ccm/certification-process#Eligibility>. Accessed 9/28/2012.

New full time	3	3	5	5	5
Continuing FT	0	2	2	4	4
Head count	18	32	49	57	57
FTE (PT=0.33 head)	8	14	21	25	25

**VIII. Impact on Resources**

**Faculty/Staff Requirements**

	2014	2015	2016	2017	2018
Faculty 1 - Tenure Track Asst. Prof	1.0	1.0	1.0	1.0	1.0
Faculty 2 - Tenure Track Asst. Prof			1.0	1.0	1.0
Staff 1 - Admin. Support	0.25	0.25	0.5	0.5	0.5
Staff 2 - Acad. Advisor	0.25	0.25	0.25	0.25	0.25

**Facility Requirements**

Faculty Offices	1	1	2	2	2
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**Equipment Requirements**

None	\$0				
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**IX. Conclusion**

Creation of a new MS degree program in construction management at RIT, housed in the Department of Civil Engineering Technology, Environmental Management and Safety within the College of Applied Science and Technology, will be a desirable and viable initiative. The proposed program will be consistent with the mission and strategy of the University; it will enhance existing programs, provide graduates with requisite and valuable skills in a growing market, be nationally competitive in its online format, increase research opportunities in CETEMS, and offer a financially attractive addition to the RIT portfolio.

**X. Summary of Community Input and Response to Input** (to be added following the public vetting of this program and prior review by the Provost)

Respectfully submitted,

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