UNIVERSITY
OF MIAMI
FACULTY SENATE

The John Knoblock
Faculty Senate Office
Ashe Administration Building, #325
1252 Memorial Drive
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facsen@miami.edu
web site: www.miami.edu/fs
P: 305-284-3721
F: 305-284-5515

MEMORANDUM

To: Julio Frenk
University President

From: Tomás A. Salerno
Chair, Faculty Senate

Date: February 22, 2018 *REVISED*

Subject: Faculty Senate Legislation #2017-24 (B) – Creation of New Programs 1) Master of Construction Management and 2) Executive Master of Construction Management, School of Architecture

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The Faculty Senate, at its January 31, 2018 meeting, *voted by majority with one against, and one abstention* to approve the School of Architecture's proposal to create two new masters degree programs: 1) the Master of Construction Management and the 2) Executive Master of Construction Management. These programs were developed in collaboration with the College of Engineering, Business School, and School of Law. Whereas the College of Engineering's Master of Science in Construction Management consists of existing coursework and is designed specifically for engineers, these new programs in Architecture will require new courses and are designed specifically for architects. The creation of these new programs are in response to increased market demand, and will increase the employability of students post-graduation.

This legislation is sent to you for your action.

TAS/rh

Enclosure

cc: Jeffrey Duerk, Executive Vice President and Provost
Rodolphe el-Khoury, Dean, School of Architecture
Guillermo Prado, Dean, Graduate School
Armando Montero, Assistant Professor in Practice, School of Architecture

CAPSULE: Faculty Senate Legislation #2017-24 (B) – Creation of New Programs 1) Master of Construction Management and 2) Executive Master of Construction Management, School of Architecture

PRESIDENT'S RESPONSE

APPROVED: _____ DATE: 3/21/18
(President's Signature)

OFFICE OR INDIVIDUAL TO IMPLEMENT: Dean Rodolphe el-Khoury

EFFECTIVE DATE OF LEGISLATION: IMMEDIATELY (Pending any additional required Board of Trustees approval)

NOT APPROVED AND REFERRED TO: _____

REMARKS (IF NOT APPROVED): _____

UNIVERSITY OF MIAMI

Proposal Submission Checklist

Proposals are to be submitted to the Office of Assessment and Accreditation (OAA), if applicable, the Graduate Council (for graduate programs excluding Law and Medical), if applicable, and the Faculty Senate. Refer to the Procedures for Program Changes document for information on the approvals and notifications needed for program changes and the Proposal Submissions Specifications document for an explanation of the process and a list of the materials required.

(Please note that change approvals can take 2 semesters to complete.)

Include this checklist at the beginning of each proposal.
(Complete the information below, save the form as a pdf, and insert it with the background materials that are specified, in the order listed, and send the package electronically as noted above.)

KEY CONTACT PERSONNEL INFORMATION

First Name	Last Name	Proponent's Title
Armando	Montero	AssistantProfessor in Pr

Department, if applicable	School/College
	School of Architecture

E-mail	Phone
amontero@miami.edu	305 284-5000

Title of Proposal

Proposal to create a Master of Construction Management and an Executive Master of C

(-continue to next page-)

MANDATORY MEMORANDA AND FORMAT

Please check that each item listed below is included in the proposal package of materials. The applicable title (i.e. Letter of Explanation, Memo from the Dean, etc.) must precede each section in the materials.

Only proposals conforming to this format will be accepted.

1. This completed checklist.

2. Letter of explanation. (2-3 pages only, double spaced, 12 pt font)

◉ Yes ○ No

If no, explain why.

See preface.

3. A memo from the dean(s) signifying approval of the faculty of the relevant School(s) / Colleges(s).

○ Yes ◉ No

If no, explain why.

Faculty are the same as the School Council.

4. A memo that all affected or relevant School / College Council(s) have approved.

◉ Yes ○ No

If no, explain why.

5. A memo from the department chair(s) signifying approval of the faculty of the relevant department(s).

○ Yes ◉ No

If no, explain why.

School of Architecure does not have a departmental structure

6. A memo from the Office of Accreditation and Assessment (OAA) if the proposal involves academic programs (degrees, certificates, majors, minors, concentrations, specializations, tracks, etc.) such as new programs, closing programs, or program changes (such as changes in requirements, program length, modality, name, location).

(To be submitted by OAA to the Graduate Council or the Faculty Senate, as appropriate.)

◉ Applicable ○ Not applicable.

If not, explain why.

7. A memo from the Graduate School Dean signifying approval of the Graduate Council (for graduate programs only).
(To be submitted to the Faculty Senate by the Graduate Council.)

◉ Applicable ○ Not applicable.

If not, explain why.

8. Academic Deans Policy Council (ADPC) approval, for interdisciplinary issues and as appropriate. Please consult with the Dean of the Graduate School or the Secretary of the Faculty Senate to check if this is needed.

○ Yes ◉ No

If no, explain why.

9. Additional required documents as listed on the "Proposal Submissions Specifications," i.e. market analysis, budget information, assessment of library collections, etc. as specified.

List additional documents included.

All items in the Proposal Submissions Specifications have been addressed and submitted in the proposal. Letters of Support from the Deans in the College of Engineering, and the Schools of

End form.

UNIVERSITY
OF MIAMI

MEMORANDUM

DATE: 11/8/2017

TO: Armando Montero, Assistant Professor in Practice
School of Architecture

FROM: Patty Murphy, Executive Director
Office of Assessment and Accreditation

RE: **Creation of Two New Master's Degree Programs in Construction Management: MCM and EMCM**

On November 7, 2017, the School of Architecture notified my office of its intent to create two new master's degree programs in Construction Management: Master of Construction Management and Executive Master of Construction Management. These new programs are being created for different student populations and to respond to burgeoning industry demands. They have been developed in collaboration with the College of Engineering, School of Business Administration, and School of Law. Last year, the College of Engineering created a new Master of Science in Construction Management program that used existing coursework and was designed specifically for engineers. These two new programs will involve the creation of new courses and are designed specifically for architects.

Master of Construction Management
The Master of Construction Management (MCM) program is designed for a traditional student population. The MCM degree will require completion of 36 credit hours. Students will gain knowledge of the literature in the field through 15 credit hours of required coursework. Students will have opportunities to participate in on-going professional training/practice through 12 credit hours of professional practice including a required internship, two practicums, and a capstone project.

The MCM program will not require a concentration but elective concentrations requiring a minimum of 9 credit hours within each concentration will be developed. When the program begins, it will include a concentration in Real Estate Development and Urbanism. In addition, the following concentrations are planned in the future: Resilience and Sustainability, Emerging Technologies, Health Care, and Historic Preservation—Adaptive Reuse.

Prospective students who have not earned a degree in Architecture, Engineering, or Construction related fields may be required to complete foundational coursework in addition to the degree requirements.

Executive Master of Construction Management
The Executive Master of Construction Management (EMCM) program is designed for experienced professionals in the field. The EMCM degree will require 30 credit hours. Students will gain knowledge of

the literature in the field through 15 credit hours of required coursework. Students will have opportunities to participate in on-going research or professional practice through 6 credit hours for an executive capstone project.

A minimum of five years of professional experience in the field will be required for admission into the EMCM program as well as an employer sponsorship letter.

Neither program will require completion of a master's thesis or comprehensive examination. These programs will be offered on the Coral Gables Campus. The majority of the courses for these programs will not be offered via distance education.

The programs will be overseen by a full-time faculty member in the School of Architecture, Armando Montero, who will serve as the program director. In addition, an advisory board made up of industry leaders will provide guidance on the development of the program in relation to industry needs and on internship and professional opportunities for students.

The creation of these new programs may represent a significant departure from our currently existing programs because:

- They involve the creation of new degrees to be awarded by the University rather than new majors offered within an existing degree.
- The majority of the courses to be offered in the program will be new.
- New adjunct faculty will need to be hired for the EMCM program.

Consequently, we will need to notify and perhaps get approval from SACSCOC prior to program implementation.

Please contact me if you have any questions at pattymurphy@miami.edu or (305) 284-3276.

CC: Faculty Senate
Guillermo Prado, Dean of the Graduate School
Rodolphe el-Khoury, Dean of the School of Architecture
Karen Beckett, University Registrar
Ray Nault, Executive Director of Student Financial Assistance and Employment

UNIVERSITY OF MIAMI
GRADUATE SCHOOL

1252 Memorial Drive
P.O. Box 248125
Coral Gables, FL 33124-4629

Phone: 305-284-4154
Fax: 305-284-5441
graduateschool@miami.edu

MEMORANDUM

DATE: November 27, 2017

TO: Tomas Salerno
Chair, Faculty Senate

FROM: Guillermo (Willy) Prado
Dean, The Graduate School

SUBJECT: Proposal – Master of Construction Management and Executive Master of Construction Management

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The School of Architecture submitted a proposal for a Master of Construction Management (MCM) and an Executive Master of Construction Management. The proposal was discussed at the November 14, 2017, meeting of the Graduate Council. The Council members approved the proposal with a notation that at least three women should be on the Advisory Board.

cc: Rudolphe el-Khoury, Dean, School of Architecture
Allan Shulman, Director of Graduate Programs, School of Architecture
Armando Montero, Assistant Professor, School of Architecture
Office of Planning, Institutional Research and Assessment

UNIVERSITY OF MIAMI
SCHOOL of
ARCHITECTURE

Office of the Dean
P.O. Box 249178
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November 1, 2017

Tomas Salerno
Faculty Senate

Re: Master of Construction Management

Dear Tomas,

Thank you for reviewing our proposal for the establishment of a Master of Construction Management at the School of Architecture. The initiative, which is coordinated with a parallel effort at the College of Engineering, is a key element in our plan to expand the scope of graduate education beyond the core professional programs in architecture. Our MRED+U program, launched in 2008, serves as a model with a tested capacity to engage an expanded professional community and to synergize with related programs at the University of Miami.

I am confident that we will reproduce the success of MRED+U with MCM, given the great market demand, the support of faculty and other schools at UM, and the enthusiastic endorsement of the profession, with several leaders in the field enlisted on a growing advisory board.

This is an exciting moment for U-SoA as we take a critical step in extending the reach of the school in an expanded professional field. I hope that we can count on your support in this process.

Please feel free to contact me should you have any questions.

Sincerely,

Rodolphe el-Khoury, PhD
Dean

UNIVERSITY OF MIAMI
SCHOOL OF ARCHITECTURE
MASTER of REAL ESTATE
DEVELOPMENT + URBANISM

1223 Dickinson Drive
Coral Gables, Floirida 33146

Phone: 305-284-4420
Fax: 305-284-4426
miami.edu/mredu

1-Nov-2017

To Whom It May Concern:

Subject: Memo in support of the Master of Construction Management in the School of Architecture

I am writing on behalf of the School of Architecture's School Council in support of the proposal for the establishment of a Master of Construction Management in the School of Architecture.

The proposal was reviewed through a first and second reading in School Council meetings this fall, and approved unopposed by the members of the School of Architecture's School Council on October 30, 2017.

The School of Architecture will accommodate Construction Management students in the required and elective courses as listed in the proposal.

We anticipate that the program will attract high quality students and enhance the School of Architecture offerings, complementing our existing degree programs in architecture, urban design and real estate.

Please feel free to contact me if you have any questions.

Charles C. Bohl

Dr. Charles C. Bohl
Chair, School Council
School of Architecture

Associate Professor & Director
Masters in Real Estate Development + Urbanism (MRED+U) Program
E-Mail: cbohl@miami.edu
Tel. (305) 284-4420

Cc: Dean Rodolfo El-Khoury

From: "Quelch, John A." <JQUELCH@bus.miami.edu>
Subject: Construction management program
Date: November 4, 2017 at 7:28:22 AM EDT
To: "el-Khoury, Rodolphe" <relkhoury@miami.edu>
Cc: "Mehrotra, Anuj" <amehrotra@bus.miami.edu>

Dear Rudy

I am delighted to support your proposed new program and hope that there may opportunities for some of my business school colleagues to collaborate on teaching and research as a result.

Wish the program great success

Best regards

John

rom: Bardet, Jean Pierre
Sent: Thursday, November 02, 2017 7:21 PM
To: el-Khoury, Rodolphe <relkhoury@miami.edu>
Cc: Ruiz, Odalis Agueda <odalis@miami.edu>; Nanni, Antonio <nanni@miami.edu>
Subject: Construction management program

Dear Rudy,

I understand that you need the support of the College of Engineering to have your construction program approved by the University of Miami.
The College of Engineering is delighted to give you all the support you need to get your program approved.

As you know, last year, the College of Engineering went through a similar approval process for its construction management program.
Although our programs are both about construction management, they do not compete against each other but are complementary.
They recruit students from different background. You recruit architects; we recruit engineers.

In addition, we do not duplicate and waste resources. Many of our courses are joint, and shared faculty.
Maybe in the future, our programs will get closer and eventually merge.
But for now our priority is to move fast and beat competitors so that we can establish UM as a leader in construction management.
I look forward to working with you and your faculty.

Best regards,

Jean-Pierre Bardet, PhD
Dean and Professor
McArthur Engineering Building
1251 Memorial Drive, Room 253
Coral Gables, FL 33146-0620
Phone: 305-284-6035
bardet@miami.edu |coe.miami.edu

UNIVERSITY OF MIAMI
SCHOOL of LAW

Office of the Dean
P.O. Box 248087
Coral Gables, FL 33124
Ph: 305-284-2394
Fax: 305-284-3210
pwhite@law.miami.edu

Patricia D. White
Dean and Professor of Law

November 6, 2017

Rodolphe el-Khoury
Dean
University of Miami School of Architecture
1223 Dickinson Drive
Coral Gables, FL 33146-5010

Dear Dean el-Khoury:

I am writing in support of the Construction Management program proposed by the School of Architecture. The program was developed in tandem with the College of Engineering's MS-CM that was reviewed and approved in April 2017; it offers a portal and distinct track through the School of Architecture while sharing resources with College of Engineering and potentially with the School of Law. The multiple tracks emphasize different aspects in the field and cater to different but related communities. Together they should complement the School of Law's Real Property Development LLM Program's own construction-related offering in a productive synergy.

Sincerely yours,

Patricia D. White
Dean and Professor of Law

University of Miami
School of Architecture

PROPOSAL *to create a*

Master of Construction Management *& an*

Executive Master of Construction Management

Submitted to: Faculty Senate of the University of Miami

Submital Date: November 6th 2017

Revision Submitted: January 8th 2018

Submitted by: Armando M. Montero R.A., Assistant Professor in Practice.

University of Miami School of Architecture

January 8th, 2018

Thomas Salerno, Chair Faculty Senate
General Welfare Committee

RE: Resubmittal of the School of Architecture's Proposal for the creation of a Master of Construction Management (MCM) and an Executive Master of Construction Management Program.

Dear Dr. Salerno;

The School of Architecture is pleased to resubmit our proposal to create a Master of Construction Management and an associated Executive Master of Construction Management for further consideration.

The proposal was submitted by the SoA to General Welfare Committee's of the Faculty Senate on November 6th, 2017 for the November 15th meeting. Concerns were raised by the GWC and the proposal was tabled with the recommendation it is resubmitted to the GWC after we have consulted with representatives of School Councils in Business, Engineering, and Architecture, and the faculty in the Law School LL.M in Real Estate Development Program to coordinate course offerings by the SoA and avoid duplication of courses already offered in other programs. Separately there were some inconsistencies in course numbering and degree credit totals that needed to be addressed. Also, there was a misleading reference to a concentration as required in the curriculum. The proposal has been revised to address concerns expressed by the General Welfare Committee.

The SoA has since met with the other schools, in the spirit of mutual collaboration, to determine where areas of duplicate effort can be eliminated. Courses in the Business School and Law School were identified that would meet the learning objectives in the Construction Management program at SoA, either as required or elective courses to avoid duplication. Courses were also identified in the College of Engineering that could be alternate courses for students at the SoA.

Meeting with the Law School: Armando Montero (SoA) met with Raquel Matas (Law) and Acting Director, Robert Traurig-Greenberg Traurig LL.M. in Real Estate Development to discuss areas of mutual interest and collaboration. Existing courses at the Law School were identified and included in the SoA curriculum. Future courses and collaborative efforts were discussed with positive expectations.

Collaboration with the Business School: Armando Montero also consulted with the Business School to determine which business courses would fit in the SoA MCM program. Professor Linda Neider recommended speaking with Professor Anuj Mehrotra and Patricia Abril about available courses. The new 2 credit courses in the certificate in Business Administration were suggested. The new structure of the coursework in the certificate closely aligns with the objectives of the learning outcomes of the Construction Management program at SoA and will be adopted in the program.

Meeting with College of Engineering: An Ad Hoc committee made up of the Deans form Architecture and Engineering and faculty representatives appointed by their respective Dean met to explore options for collaborative efforts. The results of the meeting have been documented by the SoA in the appendix of the proposal under School of Architecture – College of Engineering Ad Hoc Committee. Both the College of Engineering and the School of Architecture have authored Memos to File stating their position on the Construction Management programs.

The School of Architecture is looking forward to strengthening existing collaborative efforts with other academic programs and seeking new opportunities

Sincerely:

Armando M. Montero, R.A.
Assistant Professor of Practice
University of Miami School of Architecture

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Proposal to create a Master of Construction Management

and an Executive Master of Construction Management

School of Architecture

PREFACE

Over the last year, the School of Architecture (SoA) and the College of Engineering (CoE), have explored programs in Construction Management. A white paper was produced that outlined the shared goal of collaboration in establishing a construction management curricula at the University. The goal was to ultimately have two programs (see letter of support from Dean el Khoury), one in the College of Engineering and one in the School of Architecture that cater to different student populations and interests. The programs will overlap in core areas and offer shared coursework, and cross-listed classes, from the College of Engineering, School of Architecture (SOA), School of Business and School of Law.

The School of Architecture co-authored the proposal which was submitted to faculty in August 2016 and has continued to pursue the initiation of new degrees and certificate programs in Construction Management. The College of Engineering has developed a proposal for an interdisciplinary program titled the "Establishment of a Program in Construction Management within the Master of Science Degree currently offered by the College of Engineering". It was submitted on April 19, 2017, and was approved on May 15, 2017 (F.S. Legislation Number 2016-49(B)). The work of the two schools on this topic should be considered complementary rather than redundant like the successful Real Estate Development collaboration between the School of Architecture and the School of Business Administration and the School of Law. At the School of Business Administration, the Real Estate program exists within existing degrees while the School of Architecture's degree is a separate degree (MRED+U). Business, Law and Architecture students take courses in the SoA's MRED+U program. Both Real Estate programs collaborate in coursework, delivering options for the students, and hold joint conferences and symposia. Each program has an advisory board both very active and financially supportive of the schools.

In the Construction Management programs, each is distinguished by the culture of the school and the focus of the discipline, providing students options in the outcomes of their study. The architecture program will share courses in Engineering, Law, and Business and will be distinct from Engineering in a curriculum focused on building design as the background for other content.

Until the early 19th century, the architect was regarded the master builder, completely involved in all aspects of planning, design, and construction of cities, public, buildings, places of worship, in fact, the total built environment.

With advances in technology, more complex projects and delivery methods required specialization in facets of the project in order to expedite the process of design and construction. Construction Management is one of those specialties. Relatively new in the field of construction, it evolved as an extension of the architect's service. The oldest, and one of the largest Construction Management program in the US was created by the Department of Architecture in 1935 at the University of Florida, eventually becoming the M.E. Rinker, Sr. School of Construction Management within the College of Design, Construction & Planning. Today the school is considered to be among the top programs in the nation. In recent years, the industry has moved towards integrated, single point of responsibility, project delivery methods. The convention of separate design and construction responsibilities (design, bid-build) as a method of project delivery (reflected even in standard professional contracts) has evolved in a once again combined field, now commonly called Design-Build and Integrated Project Delivery.

Name of the program for the Diploma:
MASTER OF CONSTRUCTION MANAGEMENT

Name of the program on student transcripts:
MASTER OF CONSTRUCTION MANAGEMENT

EXECUTIVE MASTER OF CONSTRUCTION MANAGEMENT (EMCA)

Responsible administrative unit for the program:
SCHOOL OF ARCHITECTURE

The proposed date for implementation:
FALL OF 2018

1. RATIONALE:

The mission of the Construction Management program at SoA is (a) to broaden educational and career options for our graduates, (b) to provide an integrative, flexible, and state of the art curriculum that prepares students with the knowledge, discipline and marketable skills, to become future leaders of design and construction related organizations worldwide (c) to encourage our students, as future industry leaders, through the school's culture and resources to address the critical social, economic, and environmental challenges facing the construction industry and (d) to make meaningful contributions in the shaping of the built environment for current and future generations.

The proposal for a Construction Management program at the School of Architecture has been developed in partnership with the industry leaders serving on our Construction Management Industry Advisory Board (see Appendix). Growth in the construction industry is projected to outpace all other industries through 2030 creating a high demand for qualified professionals in the industry. The program addresses the growing demand for professionals with the advanced knowledge, discipline, and skills needed to face the challenges of the construction industry and become future leaders of design and construction related organizations worldwide. The program takes advantage of the culture and resources available at the School of Architecture as well as the College of Engineering, the School of Business and the School of Law. In subsequent years, the program is intended to become a hybrid or online program. The integrative curriculum expands the educational opportunities for existing and new students at SoA.

The goal of the program is to graduates leaders in the design and construction industry with the highest levels of professionalism, integrity, ethical practice, and performance.

a. *Level of Demand*

The level of demand for qualified construction professionals remains high and is expected to grow over the next 15 years. Undergraduate and Graduate programs in construction management have large students populations. While undergraduate education in construction management has done a reasonably fair job at teaching the technical and managerial aspects of project management, a master's degree in construction management is teaching a broader based understanding of productivity assessment, managing a portfolio of projects and keeping up with cutting-edge technology.

Industry Outlook: A recent report, from Global Construction Perspectives and Oxford Economics,- *Global Construction 2030: a global forecast for the construction industry to 2030*, forecasts that the volume of construction output will grow by 85% to $15.5 trillion worldwide by 2030. This represents a growth rate of 3.9% per year outpacing that of the global GDP by over one percent. Projected to lead the growth in the construction sector are China, US, and India. Together they will make up 57% of the total global growth.

Another report published by the Bureau of Labor Market Statistics in Florida, in July 2016, documents that construction is the fastest-growing major industry in the state (+5.9 percent over-the-year compared to 3.0 percent for all industries) as of June 2016 and it is forecasted to outpace the global growth in construction output. The overall growth rate across all other industries in Florida from 2015-2023 is projected to be 12.7 percent compared to 30.2 percent for construction.

With the global population predicted to hit 9 billion by 2050 – and two out of every three people living in cities by 2050 – the demand for construction has never been greater. Rapid population growth in both new and mature cities is creating demand in all facets of the built environment. But focusing on this strong demand obscures a more precarious reality. Underlying challenges in productivity, profitability, performance, labor, and sustainability could derail the industry's growth if not carefully managed. The rush to urbanization will undoubtedly place increasing pressure on already stressed social, economic, and environmental resources that will require professional stewardship of the highest caliber.

Job Market Outlook: The growth in the industry will continue to fuel the demand for professionals. Current trends in the construction industry point to changes in the way projects are executed. One trend that the industry hoped would fade away is, instead, raging on.The skilled labor shortage is a major concern for firms across the U.S. as employers struggle to staff· their job sites. Technology is being employed to streamline costs and increase efficiency. It has also facilitated collaboration between Architects, Engineers and Construction Managers that share the same technology platforms to perform different tasks. Another trend is the consolidation of disciplines under one roof by large firms, at one end of the spectrum, seeking to expand services and offer one-stop shops. At the other end, smaller practitioners are tapping into coworking structures to create flexible boutique practices capable of offering a full array of service. Additionally, generational dynamics and trends are also demonstrating that young professionals are often more interested in the quality of their work environment than the quantity of their pay, preferring to be involved in socially responsible work that exposes them to all aspects of their industry.

Advanced degrees usually warrant wage premiums and career advancement. When combined with a complementary undergraduate degree a master's degree will typically broaden the skills and knowledge of the graduate in the chosen field. In the construction industry, a candidate for employment with a working knowledge and skill set in the practice of Architecture, Urban Design, Construction Management and Real Estate development (all complimentary fields) is capable of defining his/her own career path at the highest levels of compensation and greatest personal satisfaction.

It is interesting to note that according to the Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2016-17 Edition - the median pay for construction managers in 2016 was $99,510 per year while the median pay for architects was $76,930 per year. Real Estate Development specialist at the corporate level earn salaries well

above $120,000 per year. Students have become aware of the differences in wages and see the value of the synergies created at the School of Architecture in diversifying their options in the industry and charting a path to higher wages.

b. *Interactions with other programs*

The curriculum of the Executive Master in Construction Administration program intertwines with numerous other programs and schools at the University of Miami. In addition to existing U SoA courses, the curriculum includes a mix of existing courses identified within the participating schools (CoE, SoA, SoL and SoB).

c. *Relationship with undergraduate and Professional Programs*

The graduate program in Construction Management is designed to augment the knowledge and skill sets of our undergraduate and graduate professional degrees.

2. RESOURCES

FACILITIES: The school's resources, including a state-of-the-art computer lab, digital fabrication laboratories, classrooms, studios, lecture hall, and model shop are enhanced by the interdisciplinary opportunities offered by the other schools and colleges of the University of Miami. New facilities that will be completed by the start of the program include.

Thomas P. Murphy Design Studio building, named for Tom P. Murphy Jr., the President, and CEO of Coastal Construction, will be LEED-certified and will include studios to accommodate about 120 students. It will include a state-of-the-art fabrications lab and modern workstations, designed to enable advanced digital production. A lounge, computer lab, presentation areas, review spaces and offices are additional amenities. The facility will occupy about 20,000 square feet, including outdoor workspace and an outdoor jury area, when completed.

The B.E & W.R. Miller BuildLab was made possible by the generous donation of the Miller Family. The BuildLab, designed by Professor Rocco Ceo, provides a home for the design/build program where students execute an architectural project from beginning to end in a safe and properly equipped environment. The groundbreaking ceremony for the BuildLab was held in June 2016 and, though the official dedication ceremony is slated for January 2018, space is currently open and being used by students. As part of the hands-on learning process, the students are tasked with completing the furnishings and interior and exterior details of the open-air building, which has a 40-foot by 40-foot concrete frame with 17.5-feet-high ceilings.

a. *Library*

LIBRARY: The University of Miami Libraries (UML) maintain and continually expand upon a comprehensive, interdisciplinary suite of resources in the fields of architecture, urban planning and design, historic preservation, geographic information systems, business, real-estate, engineering (architectural, civil, industrial), material science, and environmental studies necessary to support the research requirements of a Construction Management Program at the graduate and certificate degree levels. The proposed program in Construction Management is not expected to require any new additions to the Library holdings. The following is a selected list of essential construction management related resources (human, electronic and print form) available to students and faculty through UML.

LIBRARY HUMAN RESOURCES

Gilda Santana, Head, Architecture Library; Liason Librarian for Urban Planning & Design, Engineering (Interim), Real-Estate, Art & Art History

Doris Jui, Head, Business Library

Abraham Parrish, GIS Services Librarian

ELECTRONIC RESOURCES

Over 40 E-Book titles on the subject of construction management

DATABASES

ACSE Library (American Society of Civil Engineers)

The ASCE Library is the online home for journals, conference proceedings, ebooks, and standards. All ASCE journals are available online with full text going back to 1983, a core mission of which has always been to share information critical to civil engineers.

ASTM DIGITAL LIBRARY

ASTM (American Section of the International Association for Testing Materials) is an international standards organization that develops and publishes voluntary consensus technical standards for a wide rand of materials, products, systems, and services. The ASTM digital library also includes journal articles, conference proceedings and e-books covering a range of topics in aerospace, biomedical, chemical, civil, environmental, geological, health and safety, industrial, materials science, mechanical, nuclear, petroleum, soil science, and solar engineering.

Avery Index to Architectural Periodicals

The gold standard for articles on the built environment, emphasizing design perspectives and concerns but a good source for information on new building technologies, sustainable materials in building design, market trends, and building/development projects.

BUILDING GREEN

Premium Access through the University of Miami Libraries, BG is the trusted source for healthy and sustainable design and construction strategies. Resource categories and tools include Product Guidance, Sustainable Materials, Design Strategies, Building Science, Building & Project Types, Design Process, and Codes & Certifications.

DETAIL INSPIRATION

Detail Inspiration is the new image and reference database component of Detail Magazine. Containing over 3,000 projects from the past 30 years, it uses images to support architects in their search for construction solutions.

ENGINEERING VILLAGE (COMPENDEX)

The World's largest bibliographic database in the fields of engineering.

GreenFILE

GreenFILE offers information covering all aspects of human impact to the environment. Its collection of scholarly, government and general-interest titles includes content on global warming, green building, pollution, sustainable agriculture, renewable energy, recycling, and more.

HISTORIC AMERICAN BUILDINGS SURVEY/ Historic American Engineering Record/ Historic American Landscapes Survey

The Historic American Buildings Survey (HABS) and the Historic American Engineering Record (HAER) collections are among the largest and most heavily used in the Prints and Photographs Division of the Library of Congress. Since 2000, documentation from the Historic American Landscapes Survey (HALS) has been added to the holdings. The collections document achievements in architecture, engineering, and landscape design in the United States and its territories through a comprehensive range of building types, engineering technologies, and landscapes. It contains over 556,900 measured drawings, large-format photographs, and written histories for more than 38,600 historic structures and sites dating from Pre-Columbian times to the twentieth century.

IEEE XPLORE DIGITAL LIBRARY

Full-text access to journals, conference proceedings and active standards published by IEEE (Institute of Electrical and Electronics Engineers) and IET (Institution of Engineering and Technology)

KNOVEL

An online reference shelf including handbooks, dictionaries, case studies and datasets covering the full range of engineering disciplines.

MATERIAL CONNEXION

Encyclopedic database of over 4,500 advanced, innovative and sustainable materials. With comprehensive descriptions, usage properties, sustainability and manufacturer and distributor information, it represents an innovation resource for all design disciplines.

MOMENTUM PRESS DIGITAL LIBRARY

E-Book portal for Industrial, electrical, mechanical, civil, chemical engineering and material science.

RISK ABSTRACTS

Experts define risk as a combination of the magnitude and probability of adverse effects. Risk Abstracts indexes the interdisciplinary journal literature centered on the identification and alleviation of risk in today's world.

Published in association with the Institute for Risk Research at the University of Waterloo, Risk Abstracts encompasses risk arising from industrial, technological, environmental, and other sources, with an emphasis on assessment and management of risk.

SANBORN MAPS GEO EDITION

ProQuest® Sanborn Maps Geo Edition™ (1867-1970) provides digital access to thousands of large-scale maps of American towns and cities, searchable by address and GPS coordinates. Sanborn® fire insurance maps are the most frequently consulted maps in libraries. The maps chart the growth and development of thousands of America towns and cities across a century. Because of this scope, urban specialists, social historians, architects, geographers, genealogists, local historians, and others will find the maps a valuable tool.

ULI CASE STUDIES

ULI Case Studies showcase innovative approaches and best practices in real estate and urban development by providing a wide range of information on a variety of development project types in a searchable format. The ULI Case Studies website includes both Case Studies and Case Study Briefs. It is sponsored by The Urban Land Institute (ULI), the oldest and largest network of cross-disciplinary real estate and land use experts in the world.

b. Laboratory Facilities Equipment and Space

FAB LAB:

U-SoA's modeling and fabrication facilities provide students the opportunity to turn their design projects into 3D models, allowing them to elaborate on the techniques learned in the design studio, construction technology, materials, lighting and structure courses. General assignments and specific research projects are pursued during a regularly scheduled period under the supervision of a full-time Shop Director and student staff assistants. Immediately adjacent to the design studios, the modeling and fabrication facilities occupy approximately 1500 square feet and include both digital and analog fabrication equipment. Along with traditional woodworking tools and machinery, students have access to techs such as 3D printers, laser cutters, and CNC milling.

RAD LAB

RAD-UM, the University of Miami branch of RAD is a research unit housed at U-SoA. RAD-UM provides resources and expertise for project-based research on the spatial ramifications of embedded technology and ubiquitous computing. The research is premised on the notion that every building or landscape component can be equipped with computational power. Projects at RAD-UM develop models for such digitally enhanced environments to better handle persistent and emerging challenges in the areas of healthcare, building technology and sustainability. The projects are set up for multi-disciplinary collaboration and for potential development in partnership with industry.

Computing is migrating from dedicated static appliances to mobile devices, objects of everyday life, and physical environments thanks to increasingly proliferating microchips and ever-expanding information networks. The spatial nature of ubiquitous computing directly implicates and empowers architecture, landscape, and urban design. RAD-UM capitalizes on this potential, bringing research to bear on the built environment from a variety of fields that exploit the

spatial consequences of distributed computing: responsive and interactive systems, augmented reality, embedded/situated technology, ambient intelligence, mobile computing and locative media.

COMPUTER LAB

The Computer Laboratory is U-SoA's central resource for digital design and research. U-SoA and UMIT are committed to providing our students with the best possible environment for computer-based, collaborative teaching and research.

COMPUTER SUPPORT

UMIT at U-SoA provides limited support for a variety of configuration and application issues to students, faculty, and staff at the School of Architecture. Services provided include:

a. General troubleshooting for Windows/Mac OS computers
b. Office 365 Mailbox Configuration
c. University Wireless Configuration
d. McAfee Installation
e. Microsoft Office Installation
f. AutoCAD Installation
g. UPrint and UPlot Printer Installation

PRINTING

There are standard black and white and color multiple-function copiers available at Building 48 Computer Lab 230, Building 49 Satellite Lab 109 and Building 35 Satellite Lab 250. Copiers are part of the UPrint fleet around University campuses.

PLOTTING

All plotting is self-service using Pharos print management solution. U-SoA Computer lab is equipped with four OCE ColorWave plotters. Available media types include:

1. Bond 20 lb
2. Heavy Bond 32 lb
3. Photo Satin 7 mil
4. Vellum 20 lb
5. Mylar Contrast 4 mil

SCANNERS

The U-SoA Computer Lab is equipped with the following scanners:

a. OCE TC4 scanner capable of 36" sheet feed

b. Epson Expression 10000xl 11" x 17" flatbed scanner

SOFTWARE

School of Architecture lab computers offer a variety of software via Windows platform:

6. AutoDesk Suite
7. Rhino 5
8. Adobe CS Cloud
9. Microsoft Office Suite
10. SketchUp Pro
11. ArcGIS

c. *Other Resources*

CONSTRUCTION MANAGEMENT ADVISORY BOARD

The Construction Management Advisory Board and its members (like our MRED+U board) are poised to be a valuable resource of experience and expertise available to students in the program. Students will be mentored by the top leadership of some of the largest design and construction organization. The board will also provide practicum and internship opportunities as part of the curriculum.

3. CURRICULUM

The program Master of Construction Management (MCM) is a non-thesis program and will consist of a minimum of 36 credit hours This includes 15 credits of required core courses, 10 credits of courses in Professional Practice and 11 credits of free electives. Since this is a non-thesis program, it is contemplated that students will be required to submit a final Capstone project or case study that includes an in-depth comprehensive investigation in an area of interest.

The Executive Master of Construction Management is also a non-thesis program with a minimum of 30 credit hours required for completion. This includes 15 credits of required core courses, 6 credits of Culminating Experience and 9 credits of free electives.

With the guidance of the Program Director, students select electives to design a curriculum suited to their own interests and time constraints.

a. *Integration with architecture discipline*

Studies at the School of Architecture and its proposed graduate program in Construction Management are implicitly integrative requiring the knowledge and skill of many disciplines in translating the architectural thought into a constructed reality. Understanding the intent of the design requires knowledge of architectural theory, history, design, material and methods of construction, building systems, sustainable development and resiliency among others. Managing the design and construction process requires an understanding of Management/Leadership, Finance and Accounting, Risk and Liability, Law, and Technology. The proposed Construction Management program at SoA augments the existing body of knowledge with new coursework designed to integrate the cognates of architecture, engineering, and construction with those in business and law.

b. *adequacy of present undergraduate and graduate curricular structure*

The current undergraduate professional curriculum provides a sense of stewardship and understanding of the built environment and the sustainable process of its construction. For students graduating from the BArch or MArch program, the proposed Master Degree in Construction Management is a natural progression of their education towards a more specialized area of their career.

c. *anticipated additions, deletions, and changes in current curricular structure*

The proposed program in Construction Management will require the development of a comprehensive curriculum incorporating courses in Management, Finance, Law and Technology with emphasis on their application in the Construction Industry. Some of the learning objectives can be met with existing courses at other Colleges, Schools, or Departments within the University. Courses will be taught by a combination of SoA faculty, faculty from other schools and departments and adjunct faculty from the construction industry.

d. *anticipated, or agreed cooperative or interdisciplinary work*

The proposed program will not require any formal cooperative agreements. New courses proposed will reside within the SoA curricula and are listed herein. Interdisciplinary opportunities have been identified in existing courses of the College of Engineering, School of Business and School of Law. Collaboration between the schools of Architecture, Business, Law and the College of Engineering is already in place for the Construction Management Program in Engineering. The MCM program at SoA shares the some of the same core courses as the MS CM program in Engineering.

e. *detailed description of the proposed program*

Description of Proposed Program: The Construction Management program at SoA is designed to broaden the educational and career options for our graduates, by providing an integrative, flexible, and state of the art curriculum that prepares students with the knowledge, discipline and marketable skills to become future leaders of design and construction related organizations worldwide.

Two degrees are proposed. The Master of Construction Management is designed to enhance the educational and career opportunities for graduates of architecture, engineering and construction programs by expanding the knowledge and skills of design and construction of the built environment. For experienced industry professionals seeking to enhance their career opportunities, an Executive Master of Construction Management will be available.

I. MASTER OF CONSTRUCTION MANAGEMENT (MCM) 36 CREDITS

The program is open to graduates from Architecture, Engineering and Construction programs. The curriculum will broaden educational and career options for students. Formal knowledge and experience in project and construction management are highly sought after by, not only architectural firms but also construction companies and real estate developers. With the guidance of the Program Director, students design a curriculum suited to their own interests and time constraints. The program is a non-thesis program and will consist of a minimum of 36 credit hours. This includes 15 credits of required core courses, 10 credits of professional practice - practicums and internship and 11 credits of courses as free electives or within a selected track. Most courses will be offered in the late afternoon or evening to allow students to work and participate in required practicums or internships at leading organizations during the day.

II. EXECUTIVE MASTER IN CONSTRUCTION MANAGEMENT (EMCM) 30 CREDITS

Mid-career professionals, with a prior undergraduate degree, working in the field or seeking a mid-career change will be able to enroll in an Executive Master's Degree in Construction Management. Courses will be offered in the evenings and on weekends, to meet the needs of working professionals. The program will focus on current issues and events in construction management and address the needs of the industry by developing candidates for middle and upper management positions. The curriculum consists of 15 credits of the core course, 9 credits of free electives and 6 credits in a culminating experience (2 credits research and 4 credits capstone project) Course in the Executive program will be taught by the leaders of the construction industry as identified and recruited by the Construction Management Advisory Board. Many of the Board members have indicated their interest in being lecturers in the Executive Program

I. Degree Requirements for the Master of Construction Management (MCM)

The Master of Construction Management is a practice-oriented, career advancing degree, open to students possessing a Bachelors Degree in Architecture, Engineering, or Construction related fields. The program consists of 36 credits of coursework that include fundamental classes in project management and planning, finance and accounting, costs and project controls, legal issues, health and safety, and technology. Students participate in 2 practicums and at least one internship that builds on the knowledge gained in the classroom through field observations and management practice. Graduates emerge fully prepared to oversee the rigors of complex residential, commercial, industrial, municipal and civil building projects in the United States and abroad. Classes are taught by top industry leaders that bring to the classroom as a resource years of real-world expertise. Most classes will be held late in the afternoon and early evening to allow students to intern in partner organizations while they complete their studies. The curriculum culminates in a Capstone project that requires students to employ their gained knowledge and experience in an Integrated Design Project.

Admission Requirements

Acceptance must be granted by the Graduate School and the School of Architecture. Graduate school acceptance is based on meeting all applicable University of Miami requirements. Acceptance by the School of Architecture is based on performance in previous undergraduate studies, a satisfactory score on the Graduate Record Examination (GRE), work experience, and three letters of recommendation. Foreign students must also earn a satisfactory score on the TOEFL. Students not having earned a degree in Architecture, Engineering, or Construction related fields may apply to the program and may be required to take up to 12 credits of leveling (foundational) courses based on an assessment of their knowledge and skills in the discipline or complete the Certificate in Construction Management offered at the School of Architecture prior to admission in the program. Financial aid may not be available for leveling courses.

The minimum admission requirements for admission to the MCM are:

- GPA of 3.0 from an undergraduate degree in Architecture, Engineering or Construction related fields.
- GRE (may be waived with 3 years minimum of experience in construction related field).
- TOEFL/IELTS (for foreign students) as stated in the English Proficiency Requirements of the University of Miami
- Three letters of recommendation
- Official transcripts from undergraduate and/or graduate schools

Anticipated Launch Date: Fall 2018

Master of Construction Management (MCM)

Proposed Curriculum

CORE

CMA 601	Fundamentals of Construction Management (or ARC 586)	3
BUS 610	Critical Thinking and Persuasion for Business	2
CMA 620	Construction Project Controls	2
ACC 670	Financial Reporting and Analysis	2
CMA 630	Contract Documents (or ARC 617 - 3 credits)	2
CMA 694	Codes, Standards, and Regulations	1
LAW 257	Construction Law	3
	Total Core	**15**

PROFESSIONAL PRACTICE

CMA 670	Construction Site Practicum: Materials and Methods Health and Safety	2
CMA 671	Construction Management Practicum: Project Management	2
CMA 674	Capstone Project	3
CMA 676	Integrated Project Design	3
	Total Professional Practice	**10**
	Total Combined Core	**25**
	Electives	**11**
	Total MCM	**36**

** Master of Construction Management are required to participate in a minimum of one internship approved by Toppel Internship Program (TIP)

Proposed Schedule

Fall Semester Year 1 (12 cr)

- CMA 601: Fundamentals of Construction Management 3 credits (New Course). **or** ARC 586 /RED 670: Construction and Project Management 3 credits
- BUS 610: Critical Thinking and Persuasion for Business 2 credits
- CMA 630/ARC 617: Contract Documents 2 credits
- LAW 257: Construction Law 3 credits
- CMA 670: Construction Site Practicum 2 credits

Spring Semester Year 1 (12 cr)

- CMA 620: Construction Project Controls 2 credits
- AAC 670: Financial Reporting and Analysis 2 credits
- CMA 694: Codes Standards and Regulations 1 credit
- CMA 671: Construction Management Practicum 2 credits
- CMA 676: Integrated Project Design 3 credits
- Electives: Choose 2 credits

Summer Year 1 (12 cr)

- CMA 674/ RED 699: Capstone Project/Charrette 3 credits
- Electives 9 credits

*Master of Construction Management students are required to participate in a minimum of one internship approved by Toppel Internship Program (TIP).

II. Requirements for the Executive Master of Construction Management (EMCM)

The Executive Master's Degree in Construction Management program is designed for accomplished professionals seeking to advance their careers into senior leadership positions within the design and construction industry. The curriculum emphasizes the operational and company level management of construction-related firms. The program seeks to respond to the growing need of the construction industry for highly qualified senior management candidates. Classes are taught by top industry leaders that bring to the classroom as a resource years of real-world expertise. Most classes will be held late in the afternoon and early evening to allow students to intern in partner organizations while they complete their studies. Students will have an unprecedented access to the top leadership of the construction industry.

The program consists of 30 credits of coursework including 15 credits of core classes, 9 credits of electives, case studies and seminars and 6 credits taken in the last semester in Applied Reseach and Capstone project. Classes are taught by top industry leaders that bring to the classroom as a resource years of real-world expertise. Each 14-week term is broken into two 7 week sessions A&B. The executive program concludes over two terms that are composed of 2 credits in Aplied Research and 4 credits of a Capstone Project (Term 5 A&B) focused on the assessment of problem areas in a selected project or organization and applying knowledge gained to increase efficiency, eliminate errors and increase profitability.

Admission Requirements

Admission to the EMCM Program is based on the evaluation of academic and professional preparation and performance. Candidates should have clearly demonstrated an attitude for career advancement and leadership.

The minimum admission requirements for MCM are:

- Minimum 5 years of professional experience in the Construction field
- Employer Sponsorship Letter (if applicable)
- TOEFL/IELTS (for foreign students) as stated in the English Proficiency Requirements of the University of Miami
- Three letters of recommendation
- Official transcripts from undergraduate and/or graduate schools

Anticipated Launch Date: Fall 2018

Executive Master of Construction Management (EMCM)

Proposed Curriculum

CORE		Credits
MGT 620	Managing Through People	2
CMA 701	Operating and Managing a Construction Organization (Seminar)	3
CMA 702	Professional Leadership Seminar	1
CMA 708	Preconstruction Services	2
ACC 670	Financial Reporting and Analysis	2
CMA 722	Case Studies in Risk Management	2
CMA 724	Current Issues in Construction	1
CMA 734	Prevention and Resolution of Contract Disputes	2
	Total Core	**15**

CULMINATING EXPERIENCE		
CMA 799	Applied Research	2
CMA 801	Executive Capstone Project	4
	Total Culminating Experience	**6**
	Electives	**9**
	Total EMCM	**30**

Admission to the Executive MCM will be determined by an Admissions Committee organized by the School of Architecture. The Committee will consider the "total person" applying to the program by assessing each candidate on the following factors:

- Undergraduate Studies – School and Major
- Undergrad Grade Point Average
- Letters of Recommendation
- Sponsor Letter from current employer (if applicable)
- Years of Construction Related Work Experience.
- Years of Management Experience
- Achievements in the workplace
- Capacity to assume increased responsibility
- Leadership Skills.
- Level of current position

Executive Master of Construction Management (EMCM)

Proposed Schedule

Fall Semester Year 1 (6 cr)

- CMA 701: Operating and Managing a Construction Organization 3 credits (New Course).
- ACC 670: Financial Reporting and Analysis 2 credits
- ELECTIVES: Choose 1 credit

Spring Semester Year 1 (6 cr)

- CMA 708: Preconstruction Services 2 credits
- ELECTIVES: Choose 4 credits

Summer Year 1 (6 cr)

- MGT 620: Managing Through People 2 credits
- CMA 702: Professional Leadership Program 1 credit
- CMA 724: Current Issues in Construction 1 credit
- ELECTIVES: Choose 2 credits

Fall Semester Year 2 (6 cr)

- CMA 722 Case Studies in Risk Management 2 credits
- CMA 734 Prevention and Resolution of Contract Disputes 2 credits
- ELECTIVES: Choose 2 credits

Spring Semester Year 2 (6 cr)

- CMA 799 Applied Research 2 credits
- CMA 801 Executive Capstone Project 4 credit

Master of Construction Management

Existing and Proposed Courses

MCM LEVELING COURSES* (EXISTING)

		Credits
ARC 630	Building Technology, I: Materials & Methods.	3
ARC 617	Contract Documents.	3
ARC 631	Building Technology II: Structural Systems.	3
ARC 662	Environmental Building Systems I.	3
ARC 663	Environmental Building Systems II	3

**Up to 12 Credits of Leveling Courses may be necessary for candidates not from AEC Undergraduate programs or applicable experience in Construction.*

MCM INTERDISCIPLINARY COURSES (EXISTING)

ACC 670	Financial Reporting and Analysis	2
ARC 586	Construction and Project Management	3
ARC 617	Construction Documents	3
ARC 628	Historic Preservation	3
ARC 631	Building Technology II - Structural Systems	3
ARC 661	Material and Methods of Construction	3
ARC 662	Environmental Building Systems I	3
ARC 663	Environmental Building Systems II	3
ARC 685	Special Problems: Sustainable Construction	3
ARC 685	Special Problems: Design Building Workshop	6
ARC 696	Advanced Topics	3
BUS 610	Critical Thinking and Persuasion for Business	2
CAE 660	Sustainable Construction	3
CAE 681	Energy-Efficient Building Design	3
FIN 641	Valuation and Financial Decision Making	2
IEN 763	Project Management Techniques	3
LAW 257	Construction Law	3
MAS 631	Statistics for Managerial Decision Making	2
MGT 620	Managing Through People	2
MGT 677	Corporate Strategy and Organization	2
MKT 640	Foundations of Marketing Management	2
RED 601	Introduction to Real Estate Development + Urbanism	3
RED 610	Financing Urban Real Estate Development	3
RED 630	Market Analysis for Urban Real Estate	3
RED 660	Urban infill, Preservation & Mixed Use Development	3
RED 670	Construction and Project Management	3

MCM CORE COURSES PROPOSED (see attached descriptions)*		**Credits**
CMA 601	Fundamentals of Construction Management (or ARC 586)	3
CMA 620	Construction Project Controls	2
CMA 630	Contract Documents (or ARC 617 - 3 credits)	2
CMA 640	Virtual Design and Construction (or ARC 685 VDC/BIM - 3 cr)	3
CMA 644	Sustainable Design and Construction (or CAE 660 or CAE 681 - 3 cr)	2
CMA 670	Construction Site Practicum: Materials and Methods Health and Safety	2
CMA 671	Construction Management Practicum: Project Management	2
CMA 674	Capstone Project	3
CMA 676	Integrated Project Design	3
CMA 694	Codes, Standards, and Regulations	1

EMCM CORE COURSES PROPOSED (see attached descriptions)

CMA 701	Operating and Managing a Construction Organization (Seminar)	3
CMA 702	Professional Leadership Seminar	1
CMA 708	Preconstruction Services	2
CMA 722	Case Studies in Risk Management	2
CMA 724	Current Issues in Construction	1
CMA 734	Prevention and Resolution of Contract Disputes	2
CMA 799	Applied Research	2
CMA 801	Executive Capstone Project	4

CONSTRUCTION MANAGEMENT ELECTIVES

CMA 642	Emerging Technologies in Design and Construction	2
CMA 680	Directed Studies	1-3
CMA 681	Special Topics	1-3
CMA 682	Special Topics	2-6
CMA 690	Advanced Productivity and Lean Construction	2
CMA 691	Quality Management and Performance	2
CMA 720	Advanced Planning and Scheduling	2

**New proposed courses in CM curriculum parallel course number shown in parenthesis (if existing) and can be cross-linked or substituted.*

Proposed Schedule of Course Offerings (First three years)*

Program	Course No	Course Name		Course Type	Yr 1			Yr 2			Yr 3		
					Fall	Spr	Sum	Fall	Spr	Sum	Fall	Spr	Sum
MCM CORE	CMA 601	Fundamentals of Construction Management (or ARC 586)	3	Core									
	BUS 610	Critical Thinking and Persuasion for Business	2	Core									
	CMA 620	Construction Project Controls	2	Core									
	ACC 670	Financial Reporting and Analysis	2	Core									
	CMA 630	Contract Documents (or ARC 617 - 3 credits)	2	Core									
	CMA 694	Codes, Standards, and Regulations	1	Core									
	LAW 257	Construction Law	3	Core									
		Total Core	15										
	PROFESSIONAL PRACTICE												
	CMA 670	Construction Site Practicum: Materials and Methods Health and Saf	2										
	CMA 671	Construction Management Practicum: Project Management	2										
	CMA 674	Capstone Project	3										
	CMA 676	Integrated Project Design	3										
EMCM CORE	MGT 620	Managing Through People	2	Core									
	CMA 701	Operating and Managing a Construction Organization (Seminar)	3	Core									
	CMA 702	Professional Leadership Seminar	1	Core									
	CMA 708	Preconstruction Services	2	Core									
	ACC 670	Financial Reporting and Analysis	2	Core									
	CMA 722	Case Studies in Risk Management	2	Core									
	CMA 724	Current Issues in Construction	1	Core									
	CMA 734	Prevention and Resolution of Contract Disputes	2	Core									
		Total Core	15										
	CULMINATING EXPERIENCE												
	CMA 799	Applied Research	2										
	CMA 801	Executive Capstone Project	4										
MCM ELECTIVES	CMA 640	Virtual Design and Construction (or ARC 685 VDC/BIM - 3 cr)	3	Elective									
	CMA 642	Emerging Technologies in Design and Construction	2	Elective									
	CMA 680	Directed Studies	1-3	Elective									
	CMA 681	Special Topics	1-3	Elective									
	CMA 682	Special Topics	2-6	Elective									
	CMA 690	Advanced Productivity and Lean Construction	2	Elective									

*Course rollout will vary based on enrollment.

Executive Master of Construction Management enrollment is driven by industry participation. Top construction organizations serving on our Construction Management Advisory Board have committed to supporting the Executive program by sponsoring employees and providing industry leaders to teach in the curriculum.

PROGRAM MISSION AND LEARNING OUTCOMES

University of Miami's Mission Statement - The University of Miami's mission is to educate and nurture students, to create knowledge, and to provide service to our community and beyond. Committed to excellence and proud of the diversity of our University family, we strive to develop future leaders of our nation and the world.

School of Architecture – The School's mission is to: a) prepare students for professional leadership and lifelong learning in architecture, design, urban planning, real estate and related fields; b) Preserve and develop knowledge for the profession through research and practice; c) Share knowledge locally and internationally through community serviced) Design for environmental responsibility, social equity and economic sustainability.

Construction Management Program Mission- The mission of the program is to broaden educational and career options for our graduates and to provide an integrative, flexible, and state of the art curriculum that prepares students with the knowledge, discipline and the marketable skills to become future leaders of design and construction related organizations worldwide. Students are encouraged, as future industry leaders, address the critical social, economic, and environmental challenges facing the construction industry and to make meaningful contributions in the shaping of the built environment.

Program Objectives

1. Provide an integrative, flexible, and state of the art curriculum that prepares students with the knowledge, discipline and marketable skills, to become future leaders in design and construction-related organizations
2. Provide future construction professionals with the knowledge and quantitative skills required to understand, organize and control construction projects from conception to closeout.
3. Expose participants to technical skills and knowledge in architecture, engineering, construction, and cutting-edge technology in support of planning, analyzing, and solving construction problems.
4. To encourage our students, as future industry leaders, through the school's culture and resources to address the critical social, economic, and environmental challenges facing the construction industry.
5. To encourage participants to make meaningful contributions to the shaping of the built environment

f. Teaching

Modalities of Teaching: multiple teaching modalities are expected to be used to attain specific student learning outcomes above. The program will launch as an on-site program at the Coral Gables Campus of the University of Miami. Although the program is not intended as a distance learning degree, online courses may be developed in the future as the need arises to meet student needs. Coursework in the program will be a combination of active classroom-based learning, independent research and directed studies, seminars, and practice-based learning in Practicums and Internships.

In the Master of Construction Management (MCM) degree approximately 40% of teaching in the curriculum will be experiential and active - practice-based (practicums and internships) and 60% classroom, independent research or seminar based

In the Executive program, 75% of the curriculum will employ Seminar and discussion-based learning and 25% will be active-practice based learning.

g. expected distribution of graduate students among advisors.

At the launch of the program, the Program Director, the Assistant Director of Programs (Graduate) and the Assistant Dean of Student Support Services will advise students enrolled in the program. Students in graduate programs are currently advised by the Assistant Director of Graduate Programs, Nicole Hejazi Geb Damalts at SoA.

h. colloquia series, special seminars, or conferences.

Conferences and colloquia are planned to be held as learning opportunities for students and the construction industry. These special events will focus on current issues and forecasted trends in the industry.

Learning Outcomes Assessment Plan

Program: Construction Management

Degrees Conferred:

- Master of Construction Management (MCM) 36 cr
- Executive Master of Construction Management (EMCM) 30 cr
- Program Launch: Fall 2018

Dean of the School of Architecture: Rodolphe el Khoury, PhD

Program Director: Armando M. Montero R.A., Assistant Professor of Practice

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Program Goals:

- Provide an integrative, flexible, and state of the art curriculum that prepares students with the knowledge, discipline and marketable skills, to become future leaders in design and construction related organizations
- Provide future construction professionals with the knowledge and quantitative skills required to understand, organize and control construction projects from conception to closeout.
- Expose participants to technical skills and knowledge in architecture, engineering, construction, and cutting-edge technology in support of planning, analyzing, and solving construction problems.

- To encourage our students, as future industry leaders, through the school's culture and resources to address the critical social, economic, and environmental challenges facing the construction industry.
- To encourage participants to make meaningful contributions to the shaping of the built environment

STUDENT LEARNING OUTCOME ASSESSMENT PLAN -
MASTER OF CONSTRUCTION MANAGEMENT CORE ASSESSMENT

ASSESSMENT	OUTCOME 1	OUTCOME 2	OUTCOME 3	OUTCOME 4	OUTCOME 5
Assessed in:	CMA 601 CMA 610 CMA 670 CMA 671 CMA 674 CMA 676	CMA 640 CMA 670 CMA 674 CMA 676 CMA 671	CMA 644 CMA 670 CMA 671 CMA 674	CMA 601 CMA 630 CMA 674	CMA 601 CMA 674 CMA 676 CMA 630
Direct Assessment Methods	Exam, Projects Assignments	Projects, Assignments and Reports	Exam, Projects, Assignments and Reports		
Indirect Assessment Methods	Exit Surveys Employer Intern Evaluation	Exit Survey Employer Intern Evaluation	Exit Survey Employer intern Evaluation	Exit Survey	Exit Survey Employer intern Evaluation

Student Learning Outcomes MCM:

1. Apply various management techniques and methods to efficiently and effectively plan and control construction projects
2. Adopt and integrate emerging technologies and innovations in Construction Management practices
3. Understand the value of and apply sustainable building practices to optimize the use of available resources.
4. Apply skills to manage creative teams and project processes effectively and efficiently
5. Possesses an understanding of the contributions made by design professionals to the construction processes, and can communicate and interact with design professionals within the multidisciplinary construction team.

STUDENT LEARNING OUTCOME ASSESSMENT PLAN -
EXECUTIVE MASTER OF CONSTRUCTION MANAGEMENT CORE ASSESSMENT

ASSESSMENT	OUTCOME 1	OUTCOME 2	OUTCOME 3	OUTCOME 4	OUTCOME 5
Assessed in:	CMA 701 CMA 702 CMA 710 CMA 734	CMA 801 CMA 708 CMA 734	CMA 722 CMA 724 CMA 801	CMA 799 CMA 801	CMA 710 CMA 702
Direct Assessment Methods:	Exam, Projects Assignments	Capstone - Project Demonstration Assignments	Capstone - Project Demonstration	Report Projects Demonstration	Exam, Projects Demonstration
Indirect Assessment Methods:	Exit Survey	Exit Survey	Exit Survey	Exit Survey	Exit Survey

Student Learning Outcomes EMCM:

1. Acquire a Construction Management perspective that is informed by the linkages between Construction and Management (i.e., ethics, labor, accounting & finance, dispute resolution, negotiations) best practices.
2. Demonstrate the ability to build and lead effective teams using appropriate interpersonal skills
3. Proactively employ critical-thinking and analytical decision-making capabilities to investigate complex business problems to propose project-based solutions
4. Adopt and integrate emerging technology within Construction Management practices.
5. Demonstrate the financial, managerial, and cognitive acumen of a leader in the construction industry

Direct Program Outcomes Assessment
A direct method of assessment will be integrated and based on a sample of actual student work, including faculty-designed comprehensive or capstone examinations and assignments reports, demonstrations, and completed projects.

Indirect Program Outcomes Assessment
Indirect assessment methods that infer actual student abilities, knowledge, and values rather than observe direct evidence will be utilized regularly by the construction management program. These methods include, but are not limited to, Graduating Senior surveys, Alumni surveys, Internship surveys, Employer surveys, and external review by the discipline-based accrediting body, American Council for Construction Education (ACCE) when accredited. Employment of graduates and number of majors working as interns is also a strong measure of the program's success in producing construction industry practitioners.

Graduating Senior Exit Surveys
Graduating Senior Exit surveys will be used to provide information about student's plans after graduation, their perceptions about learning and their level of satisfaction with various aspects of their education at the University of Miami – SoA. Program specific questions will provide explicit information to the quality of teaching received in the construction management program, accessibility of construction management faculty, and satisfaction with academic advice/counseling from construction management advisors.

Educational Satisfaction Responses
The survey will query the respondents about "Educational Satisfaction" in a series of questions aimed at gauging student's overall level of satisfaction with the program. The survey will reflect student's perception and level of satisfaction in:

- Quality of teaching
- Access to faculty
- Availability and quality of courses
- Quality of Labs and Equipment
- Access to facilities and equipment
- Availability and quality of Academic and Career Advising
- Overall quality of student's education

Curriculum Map -Master of Construction Management (MCM)

CORE CURRICULUM MAP					
Courses	**Outcome 1**	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
CMA 601	I	I	I	I	I
CMA 620	R	I	R	E	R
CMA 630	E	I	R	R	R
CMA 640	R	E	E	R	R
CMA 644	R	R	E	R	R
CMA 670	E	R	R	E	E
CMA 671	E	R	R	E	E
CMA 674	E	E	E	E	E
CMA 676	E	E	E	E	E
CMA 694	E	R	I	R	R

Map Key:
I = Outcome Introduced | **R** = Outcome Reinforced | **E** = Outcome Emphasized

Outcomes:

1. Apply various management techniques and methods to efficiently and effectively plan and control construction projects.
2. Adopt and integrate emerging technologies and innovations in Construction Management practices
3. Understand the value of and apply sustainable building practices to optimize the use of available resources.
4. Apply skills to manage creative teams and project processes effectively and efficiently
5. Possesses an understanding of the contributions made by design professionals to the construction processes, and can communicate and interact with design professionals within the multidisciplinary construction team.

Curriculm Map - Executive Master of Construction Management (EMCM)

CORE CURRICULUM MAP					
Courses	**Outcome 1**	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
CMA 701	I	I	I	I	I
CMA 702	R	E	R	R	E
CMA 708	R	R	R	R	R
CMA 722	E	R	R	R	R
CMA 724	E	R	R	R	R
CMA 734	E	E	E	R	E
CMA 799	R	R	E	R	E
CMA 801	E	E	E	E	E

Map Key:

I = Outcome Introduced | **R** = Outcome Reinforced | **E** = Outcome Emphasized

Outcomes:

1. Acquire a Construction Management perspective that is informed by the linkages between Construction and Management (i.e., ethics, labor, accounting & finance, dispute resolution, negotiations) best practices.
2. Demonstrate the ability to build and lead effective teams using appropriate interpersonal skills
3. Proactively employ critical-thinking and analytical decision-making capabilities to investigate complex business problems to propose project-based solutions
4. Adopt and integrate emerging technology within Construction Management practices.
5. Demonstrate the financial, managerial, and cognitive acumen of a leader in the construction industry

4. FACULTY

The Master of Construction Management program at the SoA is a highly specialized professional studies program. Professional classes in construction management (new courses) will be taught by top industry leaders that bring to the classroom as a resource years of real-world expertise. A Program Director will oversee and coordinate the efforts of part-time faculty. Elective coursework in Architecture, Engineering, Real Estate Development, Business and other programs augment the base knowledge and will be taught by faculty currently teaching the subject at the department or school. As the program matures and enrollment increases, new full-time faculty lines will be necessary.

5. STUDENTS

Programs in Construction Management are in high demand. Some programs have enrollment well over 100 students. USC Viterbi claims over 120 students, UF has over 300 enrolled in undergrad and graduate construction-related studies and our neighbor FIU has 65 enrolled. The majority of the Construction Management programs in the U.S. are undergraduate programs. There are seventy-five Baccalaureate degree programs, four masters degree programs, and thirteen associate degree programs that are American Council Construction Education accredited in accordance with their standards and procedures.

The program is designed for students with an undergraduate degree in a construction related field who are interested in building on their undergraduate degree to master the management of the construction process and assume a leadership role in the industry. Miami is at the top of the nation's construction job market. The practice-based program is designed to provide students with the opportunity to work with and be mentored by leaders in the construction industry. Currently, there are 3 students enrolled in our MS Arch degree with a concentration in Construction Management and a waiting list of students wishing to enroll in the Master of Construction Management program once approved. Additionally, our Industry Advisory Board members have committed to supporting the Executive Master's Program (EMCM) by sponsoring candidates from their organization to enroll in the program.

Based on current student interest and demand from Architecture and Real Estate programs, we anticipate launching with 6 to 12 students in the MCM degree and 5-10 Students in the EMCM degree and quickly growing to 40+ students. Comparing similar programs in the US to the SoA program the Construction Management program, because of its location and influential Board, may eventually go as high as 120 students or greater.

6. ADMINISTRATION

The program will be initially administered by the School of Architecture with existing resources. The program's personnel structure consists of a program director appointed by the Dean of the School of Architecture, and existing Assistant Program Director of Graduate Programs and administrative staff in Academic Services.

Additional staff may be added to serve the needs of the program once established. Part time appointments and temporary staff may be used to fill the need until revenues warrant a full time possition.

The Program Director will be responsible for overseeing student admission, advisement and approval of course scheduling with the help of staff in Academic Services whose role will be that of responding to students' questions related to suitability and availability of courses and coordinating student registration.

School of Architecture Program Director: Armando M. Montero, R.A. Assistant Professor of Practice.

School o fArchitecture Academic Services Support Staff:

Ana Maria Regalado Assistant Dean of Student and Post Graduate Support Services

Nicole Hejazi Geb Damalts Assistant Director of Graduate Programs

We anticipate that the program will need adequate administrative staff and equipment commensurate with enrollment once established. Current staff and resources are adequate to launch the program in the Fall. Once approved, all direct administrative costs of the program will be funded from the revenue the program generates (see the budget for line items). The budget that follows documents the projected revenue and expenses based on enrollment including administrative staffing and capital costs.

7. PROJECTED BUDGET – CONSTRUCTION MANAGEMENT PROGRAM

8. COMPARISONS

Before designing the proposed program, Construction Management programs nationally were reviewed to survey current practices with respect to curriculum and typical student bodies. The reviewed programs included a mix of programs at both public and private universities and in architecture and engineering discipline: Listed are the most relevant programs to the this proposal

New School of Architecture, Master of Construction Management (MCM),
http://newschoolarch.edu/academics/school-of-architecture/cm-programs/master-of-construction-management/

USC Viterbi, Master of Construction Management (MCM),
https://viterbigradadmission.usc.edu/programs/masters/msprograms/civil-environmental-engineering/master-construction-mgmt/

University of Florida, College of Design and Construction, Master of Science in Construction Mgmt.
https://dcp.ufl.edu/rinker/academics/masters/construction-management/

ACCREDITED MASTERS DEGREE BY ACCE.

There are seventy-five Baccalaureate degree programs, four masters degree programs, and thirteen associate degree programs that are ACCE accredited in accordance with the standards and procedures. There are only 4 ACCE accredited Master's Degree programs in the US, listed are the Master Degree Programs that have been referenced.

Clemson University, Master's in Construction Science and Management (MCSM)
http://www.clemson.edu/caah/departments/csm/graduate/index.html

Kennesaw State University, Masters of Science in Construction Mgmt.
http://cacm.kennesaw.edu/

Texas A&M University Masters of Science in Construction Mgmt
http://cosc.arch.tamu.edu/graduate/

Wentworth Institute of Technology Masters of Science in Construction Mgmt
https://wit.edu/academics/cpce/programs/masters-degree-programs/master-science-construction-management

9. APPENDIX

Proposed New Courses (CMA)

CMA 601 Fundamentals of Construction Management 3 cr

Fundamentals of Construction Management is an introductory-level, graduate course. This course is designed to provide students with introductory knowledge and basic skills they will need to understand and apply as they progress through the program. Students receive an overview of key topics that will be covered in greater detail through core courses and electives during subsequent terms. Each class session provides a primer on a specific area of vital importance, including scheduling, cost estimating and Project Management. Upon completion students will be familiar with basic concepts, terminology, and procedures associated with the industry, and well prepared to study these subjects in greater depth

CMA 620 Construction Project Controls 2 cr

Project Planning, Scheduling & Control is the process of coordinating numerous and often complex elements to erect a structure and satisfy the needs of a sophisticated owner. Study of methods for coordinating people, equipment, materials, money, and schedule to complete a project on time and within approved cost

Each phase of the work must be monitored and measured. You cannot control if you cannot measure and you cannot measure if you cannot count. It then becomes the goal of project controls to quantify and govern costs and the goal of the scheduling process to quantify and visualize the progress of the job and make the necessary changes to deliver a successful job.

CMA 630 Contract Documents 2 cr

Students in this class will gain a basic knowledge of construction contract documents including agreements, contracts, drawings and specifications, requests for information, change orders, and other documents that make up the body of Contract Documents associated with a given project. The course focuses on understanding the relationship between, contract documents and the construction process, as influenced by Project Delivery Methods We will explore contractual relationships, legal roles and responsibilities, and contract types.

CMA 640 Virtual Design and Construction (VDC/BIM) 3 cr

The building industry is rapidly adopting Virtual Design and Construction (VDC) and Building Information Models (BIM) throughout the project process; design, construction, and facilities management. VDC and BIM are increasingly becoming an umbrella term for a variety of software tools, design methods, and construction processes that allow for more automation, communication and integration between project participants. This course reflects on emerging technologies in the context of Project Management and Integrated Delivery, and includes modeling, visualization, 3D clash detection, digital site layout, 4D modeling, as-built model generation, and digital information management. This course will first introduce basic VDC and BIM concepts and review industry examples of how these concepts play out on design and construction projects.

CMA 642 Emerging Technologies in Design and Construction 2 cr

Technologies emerge in part to address the needs of society, improve sustainability and resiliency, and increase productivity and thus profit margins. There is an undeniable need for efficiency in managing the construction process, and emerging technologies offers perhaps the best opportunities to improve the construction process through better integration and efficiency. This course surveys cutting edge technologies and their applications in the design and construction process.

CMA 644 Sustainable Design and Construction 2 cr

This course will cover the fundamental concepts of sustainable development in the built environment; the environmental / resources issues and industrial / construction metabolism with examples. Concepts such as New Urbanism, bioclimatic design principles, ecological concepts, passive design strategies will be discussed. This course will examine sustainable and green design and construction processes in the site, the climate, and high-performance projects and buildings.

CMA 670 Construction Site Practicum (Materials and Methods Health and Safety) 1 cr

This course allows students to participate in a supervised work program where they apply MCM coursework knowledge in a practical setting. Students will complete 2 rotations per term. Each rotation will be at a different job site and with a different corporate sponsor. Work is supervised by a SoA faculty member and a corporate sponsor. Students develop conceptual and professional skills related to their practice at a construction site. a minimum of 20 hours per week (140 hours per 7-week rotation). Students will also meet with their faculty supervisor 1 hour per week during the term to review progress. Satisfactory performance at the field placement and during on-campus class meetings must be demonstrated before students can proceed to the Professional Internship (CMA 674).

CMA 671 Construction Management Practicum (Project Management) 1 cr

This course allows students to participate in a supervised work program where they apply MCM coursework knowledge in a practical setting. Students will complete 2 rotations per term. Each rotation will be at a different job site and with a different corporate sponsor. Work is supervised by a SoA faculty member and a corporate sponsor. Students develop conceptual and professional skills related to their practice at a construction office a minimum of 20 hours per week (140 hours per 7-week rotation). Students will also meet with their faculty supervisor 1 hour per week during the term to review progress. Satisfactory performance at the field placement and during on-campus class meetings must be demonstrated before students can proceed to the Professional Internship (CMA 674).

CMA 674 Capstone Project 3 cr

The Construction Management Capstone Project course introduces the methods and tools necessary to analyze a set of plans and specifications for an active Miami building project (or projects) and includes a comprehensive review and analysis of documentation requirements for the selected project(s). Students are paired with appropriate industry managers and work in small teams, utilizing knowledge acquired from their core courses to develop and draft a

comprehensive, professional level project manual. Review of contract plans and documents as well as site visits and interaction with actual project team members are required. To be taken during the final term of study.

CMA 676 Integrated Project Delivery 3 cr

Integrated Project Delivery is an alternative to the traditional design-bid-build approach, It is based on enhanced collaboration among design professionals, clients and the building team. These methods can reduce risk and improve the efficiency of the design and construction delivery process. Integrated practice and integrated project delivery are a response to pressures from building owners for a more efficient and predictable process for designing and constructing buildings, and to the increasing availability of advanced digital technologies such as Building Information Modeling. This is an active learning course. Students enrolled in this course will participate in the School of Architecture Integrated Design Studio assuming the role of the Construction consultant providing guidance in the design process including; defining goals and standards, Project Costs, Project Schedule, Project Quality, Sustainability, and Performance. Prerequisite: CMA 640

CMA 680 Directed Studies1-3 cr

This course is designed to provide further study through directed readings, directed research projects or seminars, or special class work related to research in a specific subject related to the construction industry not realizable through an existing course. Students must, in consultation with a faculty member, develop a detailed project proposal indicating the rationale, readings, scope, objectives, and methods prior to beginning the course. Each Directed Studies course is usually initiated in response to student interest and is limited to five or fewer students.

CMA 682 Special Topics in Construction 1-3 cr

This course provides seminars on topics and issues relevant to the construction industry.

CMA 684 Special Problems 1-6 cr

Group or individual investigations of significant Construction Industry issues, offered by special arrangement only.

CMA 690 Advanced Productivity and Lean Construction 2 cr

The course aims to provide an understanding of the modern concepts and methods in productivity and production system to improve construction practice with lean construction, as well as other tools and techniques for designing and implementing lean construction on projects. Upon completing this course, student will be able to design and implement lean construction system on projects for performance improvement.

CMA 691 Quality Management and Performance 2 cr

Advanced construction management approaches to quality; process and productivity improvement in construction. Students use of case studies, exercises, and/or term projects to show application of management and quantitative concepts.

CMA 694 Codes, Standards and Regulations 1 cr

This course, takes a comprehensive look at building codes,standards, and regulations how they are developed and maintained, and the role they play in design and construction. The course develops the student's ability to navigate, interpret, and properly apply codes and standards during the planning, design, and construction of projects.

PROPOSED EXECUTIVE COURSES/SEMINARS (EMCM students only)

CMA 701 Operating and Managing a Construction Organization 2 cr

Successfully managing a construction company is a multifaceted undertaking that requires knowledge of common business practices, accounting principles, regional economic conditions and expertise in the building process. This course leads students through the how-to's of running a successful, large, complex construction company. It analyzes how the industry actually works, including contractual relationships with clients in all types of projects from design/build to privatization. It covers the business fundamentals of running a construction company, including issues such as surety and insurance: various types of construction organizations, domestic and international; and company culture - inner-workings of a business that can mean the differences between success and failure.

CMA 702 Professional Leadership Seminar 1 cr

This course will explore in a seminar format leaders and leadership situations. Industry leaders will share years of experience and tell their stories. It is an eclectic group who face diverse challenges. The key elements of leadership will be discussed and a framework for thinking about leadership created to provide a focus for discussions. The goal will be to enhance students' understanding of and openness to growth as leaders. It is not to teach students to lead. It is to help them think more insightfully about the subject and gain an understanding of what they can do to become more effective.

CMA 708 Preconstruction services 2 cr

Pre-construction services grew out of construction cost estimating to encompass the other activities in planning a project with the intent to help deliver a satisfactory project that meets the owner's objectives. The preconstruction team participates in design decisions, evaluations, studies, value engineering, value analysis, scheduling, constructability reviews, and more. The course covers the analysis of pre-construction services including, feasibility studies, conceptual estimating, scope definition, cost estimating & GMP, constructability & design review, value engineering, and bid review & comparison.

CMA 722 Case Studies in Risk Management -2 cr

Through case studies and discussion, this course focuses on the safety practices mandated by government regulation and required by good business practice. Exposure analysis, risk management, risk transfer and the costs associated with each will be examined.

CMA 724 Case Studies in Construction – 2 cr

This course uses case studies to discuss the variety of current issues relevant to the construction industry.

CMA 734 Prevention and Resolution of Contract Disputes 1 cr

This course covers the variety of contractual relationships in the construction industry and the actions that may result in disputes. Emphasis is given to the steps required for rapid, cost-effective resolution of disputes. Resolution techniques such as negotiating, mediation, arbitration, and litigation are examined, and case studies requiring oral and written presentations are incorporated into the class sessions.

CMA 799 Applied Research 2 cr

This course will guide students in the development of their research topic. It integrates applied classroom and current industry practice and knowledge through observation and interpretation of realistic CM issues

CMA 801 Executive Capstone Project 4 cr

The executive program concludes with a 6 credit Capstone Project focused on the assessment of problem areas in a selected project or organization and applying knowledge gained to increase efficiency, eliminate errors and increase profitability.

BUSINESS SCHOOL COURSE DESCRIPTIONS

ACC 670 – Financial Reporting and Analysis

The course focuses on the analysis and use of financial accounting information in the evaluation of corporate performance. The course initially demonstrates the accounting process and resulting generation of financial statements. Building on these core accounting concepts, the course emphasizes the understanding of financial statements prepared under U.S. and International Accounting Standards and the analysis of these financial statements including common size analysis, ratio analysis, the impact of taxes, and credit analysis. Completion of the course enhances the student's ability to read, interpret, and analyze financial statements for making investment, credit, acquisition, and other evaluation decisions. Limited to MBA students and Executive MBA students. Does not satisfy any accounting requirements needed to sit for the CPA Exam in Florida.

BUS 610 – Critical Thinking and Persuasion for Business

The modern businessperson faces a constantly evolving environment and must be able to confront and respond to an array of business issues. At the heart of an effective response is a critical, comprehensive analysis coupled with the ability to meaningfully and persuasively communicate that assessment and recommendations to a variety of constituencies. This course prepares business students for this by exposing them to a three-step process of problem solving in which they critically analyze the problem, and then communicate their analysis both in writing and orally. The critical thinking and communication elements of the course are supplemented with additional practical applications relating to career readiness, job search and job procurement.

FIN 641 – Valuation and Financial Decision Making

Basic financial valuation. This is one of the core classes in finance for our regular MBA program. Topics include the financial environment; the time value of money; capital market efficiency; basic security valuation; risk, return and asset pricing; cost of capital; and an introduction to capital budgeting.

MAS 631 – Statistics for Managerial Decision Making

This course aims to familiarize the student with statistical theory, tools, and methods required for business systems analysis and improvement. Topics include descriptive methods, elementary probability, random variables and the distributions, hypothesis testing, confidence intervals, statistical modeling, and regression

MGT 620 – Managing Through People

This core course in the MBA program introduces students to some of the key behavioral topics necessary to manage oneself and others in organizations. Specific ally, the topics covered include individual attributes (personality, perception, motivation, relationship building), group processes (norms, roles, and team basics), leadership views, and organizational culture/change. An understanding of the relationship between each of these areas and organizational outcomes is enhanced through lecture, cases, and interactive exercises.

MGT 677 – Corporate Strategy and Organization

This capstone course focuses on the perspective and skills of the general manager. Its purpose is to provide practice in diagnosing and identifying realistic solutions to complex strategic and organizational problems. Course builds on previous coursework by providing an opportunity to integrate various functional areas by providing a total business perspective. Since the course focus is on pragmatic, action-oriented general management skills, the course is taught primarily through the case method and requires both written analyses and case presentations.

MKT 640 – Foundations of Marketing Management

Course introduces students to the analytical concepts and tools of marketing management. Special emphasis is placed on the relationships between marketing and overall company strategy, the development of a customer orientation, the integration of marketing throughout the organization, and the implementation of systems for planning and controlling the marketing effort. Students consider problems of consumer analysis, product planning, integrated communication, distribution, and pricing. Data and analysis required to make effective marketing decisions are also examined. The discovery and application of marketing management skills are developed through the use of readings, case exercises, and class discussions.

ACCE Document 103MD

Standards and Criteria for Accreditation of Master's Degree Construction Education Programs

The SoA Program is anticipating seeking Accreditation from the ACCE and as such has based its curriculum of the Accreditation Criteria listed in the following document. The Document is included in the following pages for reference.

AMERICAN COUNCIL FOR CONSTRUCTION EDUCATION

DOCUMENT 103MD

STANDARDS AND CRITERIA FOR ACCREDITATION OF MASTER'S DEGREE CONSTRUCTION EDUCATION PROGRAMS

Last revised 03/11/2016

AMERICAN COUNCIL FOR CONSTRUCTION EDUCATION

DOCUMENT 103MD

STANDARDS AND CRITERIA FOR ACCREDITATION OF MASTER'S DEGREE CONSTRUCTION EDUCATION PROGRAMS

Table of Contents

I. INTRODUCTION

1.1 Purpose

The purpose of this document is to define the standards and criteria by which those construction education master's degree programs seeking accreditation or re-accreditation by ACCE shall be assessed. Assessment shall be by peer educators from other programs in concert with construction practitioners, representatives of the construction industry associations and organizations, and society at large. Assessment shall occur through an on-site visitation by a designated team following procedures specified in Document 101MD.

1.2 Institution and Program Eligibility

To be considered for accreditation, a program in construction education must:

- Be located in an institution of higher learning that is legally authorized under applicable law to provide a program of education beyond that of the secondary level. Furthermore, in the case of those institutions in the United States, be accredited by the appropriate regional accrediting agency, and in the case of other countries, be accredited by the accrediting agency appropriate for its locale, if such exists.

- Have been in operation for sufficient time to permit an objective evaluation by ACCE of its educational program and must have had at least one graduation cohort

- Offer a master's degree program with a major emphasis on professional construction education.

II. ORGANIZATION AND ADMINISTRATION

2.1 Institution

The organizational structure of the educational institution should provide a basis for establishing authority and responsibility, utilizing resources and achieving goals within the construction education administrative unit. It is expected that the master's degree program functions within the framework established for the educational institution and is consistent with the institutional mission and assessment procedures. The administrative function and responsibilities should be accepted and discharged within the context of appropriate experience, prepa-ration, and commitment.

A successful master's degree program will reflect the importance of having strong administrative leadership based firmly upon specific administrative procedures

and policies. Educational institutional support of the administration of the construction education administrative unit should accord status within the institution comparable to that of other academic units of similar size and function with regard to finances, staffing, teaching loads, promotions in rank and salary, appointment to educational institution policy-making committees, program priorities, and other academic affairs.

It is recognized that varying types of administrative structures are possible and acceptable to accomplish the goals of the educational institution. There should exist a well-defined and documented formal organizational structure. Areas of authority and responsibility must be clearly defined and adhered to. The administrative staff should be well balanced in all functional areas--e.g., student counseling and advising, budget management, academic administration, teaching effectiveness, involvement with local industry and, where appropriate, research, and extension.

For each goal there should be an area of assigned administrative responsibility indicating a commitment by the governing body to achieving that goal. In addition, it must be determined if the educational institution administration has a generally positive attitude and support for the master's degree program. This should be verified by discussion with the construction unit administrators and faculty and with all levels of administration within the educational institution.

2.2. Master's Degree Program

The master's degree program must be headed by qualified administrator who is knowledgeable and committed to the construction profession and is empowered by the educational institution with sufficient authority and given sufficient support and time to accomplish the program's goals and objectives. The institution must clearly define who the designated administrator of the master's degree program is along with his or her responsibilities and authority. In the case where more than one person has administrative responsibilities and authority, it should be clearly delineated in appropriate institutional formats. The administrator should provide sufficient leadership and supervision to develop a strong academic master's degree program. To this end the educational institution and the master's degree program administrator must insure that the total administrative workload is carefully controlled in relation to the total workload of the administrator. The organizational structure of the master's degree program should be designed to encourage communication, coordination, and interaction between administrative officers, faculty, and students within the program, other disciplines, and other educational institutions. The administrative structure must be sufficiently flexible to make the functional changes necessary to attain the program objectives. To the extent institution policies permit, the administrator should encourage professional development of faculty through such means as leaves of absence for gaining professional experience, study and research, participation in professional organizations, and attendance at professional meetings and workshops. The

administrator and the faculty must cooperate to develop a construction education master's degree program of high quality and establish a structure to facilitate planning and evaluation for continuous improvement of the total program.

It is important that the construction master's degree program have a well-defined organization in order to achieve its stated goals and objectives. The effectiveness of the leadership of the master's degree program can be ascertained from the clarity and conciseness of policies and decision-making relative to curriculum, faculty, students, and facilities. Program organization must be structured to ensure the future capacity of the program to achieve its purposes.

A construction program can benefit from closely related programs such as architecture, engineering, and business. The use of appropriate courses, the interaction of faculty, and the interaction of students are all positive indicators of a valuable and beneficial relationship with closely related programs. Experimentation and innovation are encouraged in teaching methods and curriculum.

2.3 Budget

Financing for the master's degree program is an indication of administrative support for the program. Budget allocations must be compatible with the size of the unit with respect to students, faculty, and staff. An important indication of institution support is adequate funding of the master's degree program including: competitive salaries, support for materials and supplies, laboratory facilities and equipment, and other needs of the program. Adequate budgetary support must be provided to the master's degree program by the institution to enable the program to achieve its stated purposes. In addition, projected resources must be adequate to ensure the capacity of the program to achieve its planned future goals and objectives.

Relative to the sources of funds to support the master's degree program, it is necessary to determine the extent of non-budgeted funds (soft monies, donations, etc.) that are used for faculty development, including travel. Non-budgeted funds should be used to supplement institution funds allocated by the administration rather than to replace those funds.

III. CURRICULUM

3.1 Purpose

The purpose of the curriculum is to provide an education that will lead to a leadership role in construction and to prepare the student to become a responsible member of society. The curriculum should be responsive to social, economic, and technical developments and should reflect the application of evolving advanced

knowledge in construction beyond that associated with a baccalaureate degree program in construction education.

The ACCE encourages accredited programs to regularly evaluate current curricula for and develop new curricula that reflect changing construction technologies and management trends.

The master's degree program must be consistent with the philosophy and the purposes of both the institution and construction education unit. The curricular goals of construction programs must be related to the needs of society and the construction profession.

The ACCE recognizes the autonomy of educational institutions in the matter of curriculum development, and the levels and designations of the degrees awarded upon completion of the various master's degree programs. At the same time, it is preferred that the word "Construction" be included in the name of the degree awarded just as other professional disciplines name the profession in the degree awarded.

The ACCE also recognizes the autonomy of educational institutions in establishing standards and policies pursuant to acceptance of transfer credits for educational courses from either accredited or non-accredited undergraduate institutions.

3.2 General Requirements

It is assumed that each construction unit will develop its own master's degree program goals and objectives and particular emphasis, and will prescribe the number of courses for graduation, sequencing of study, course numbers, and titles.

The curriculum should be designed to accommodate continually expanding requirements of the profession, advancements in knowledge, and the contributions of related disciplines. Master's degree programs seeking accreditation should strive to provide offerings that exceed the ACCE standards and criteria for accreditation.

To accurately assess a master's degree program's curriculum and whether it meets the ACCE master's degree program competencies syllabi must be provided for each course taught by the construction unit which includes the course objectives in relation to the program goals and objectives, instructional methods, a topical outline and method of assessment. Syllabi must be presented in a standard consistent format.

In addition, programs must provide at the time of the visit:

- Copies of textbooks, laboratory manuals and reference materials used, in order to determine appropriateness, adequacy of coverage, and currency of texts and other reference materials.

- Copies of examinations and quizzes, research and professional papers, laboratory reports, thesis and any special study assignments given which are representative of student work and not a compilation only of the best work.

- Evidence of any contact the master's degree students may have with research, community service and internship or similar professional experiences.

- Student records for compliance with master's degree program curriculum requirements and policies

3.3 Curriculum

Master's degree programs must demonstrate that there exist specific learning outcomes for applicants to the program and for students enrolled in it. For the purpose of this document the former are referred to as Preliminary Learning Outcomes and the later as Program Learning Outcomes.

3.3.1 Preliminary Learning Outcomes

Applicants to an accredited ACCE master's degree program must demonstrate a high level of knowledge and understanding of the use and application of construction principles and technology required to be successful in the program including core competencies of cost estimating, scheduling and project management. Master's degree programs seeking accreditation must:

1. Identify the minimum acceptable preliminary learning outcomes required of applicants.

2. Describe how the mastery of the preliminary learning outcomes are assessed by the master's degree program.

3. Explain what actions are taken for students who do not meet the minimum preliminary learning outcomes necessary for acceptance into the master's degree program.

3.3.2 Program Learning Outcomes

The development of professional skills and knowledge is a central requirement of an ACCE accredited master's degree program. ACCE requires that all graduates of accredited master's degree programs be able to demonstrate mastery of the following:

1. Critical thinking and creativity
2. Problem solving and decision making
3. Effective and professional oral and written communications
4. Use of information and communication technology
5. Principles of leadership in business and management
6. Current issues in construction
7. Complex project decision making and associated risk management
8. Professional ethics including application to situations and choices
9. Advanced construction management practices
10. Research methods

For each category, programs seeking accreditation by ACCE must

1. Define program learning outcomes for each category.

2. Cross reference each program learning outcome to relevant course objectives and/or other evidence.

3. Describe how each program learning outcome is assessed.

3.4 Distance Learning Courses

Distance learning courses may be incorporated in an accredited master's degree program's curriculum under the following conditions:

- The distance learning courses will be accepted for transfer credit as reviewed and accepted by the accredited university programs.

- The master's degree program standing for initial accreditation or renewal of accreditation shall display the same kind of distance learning course material for evaluation as set forth in this document for a conventionally offered classroom lecture or laboratory course.

- Construction specific courses shall be evaluated for content as set forth in this document.

IV. FACULTY AND STAFF

4.1 Qualifications

In determining the qualitative and quantitative adequacy of the master's degree program faculty and staff, various criteria are applied. Significant emphasis is placed on the qualifications and responsibilities of the construction faculty.

The faculty should possess appropriate academic qualifications, professional experience, and pursue scholarly and creative activities essential to the successful conduct of an academic program of construction. If required by the institution, faculty members will be accorded status as a member of the Graduate Faculty. To ensure that the master's degree program is competitive in seeking faculty members, the educational institution must provide the faculty with rank, status, salary, and benefits commensurate with their educational background and professional experience.

The educational preparation of each faculty member must include study in the areas for which he has teaching responsibility and include adequate background in the supporting disciplines from which his area of specialty draws major concepts and principles.

Evaluation of faculty competence must recognize appropriate professional experience as being equally as important as formal educational background. Continuing professional growth of the master's degree program faculty is a prerequisite to effective teaching. In addition, the faculty should actively participate in professional organizations and community services, and in interpreting construction education to other professions and to the general public. The size of the master's degree program faculty should be commensurate with the number of courses offered, the number of students enrolled, and the other responsibilities of the faculty. The faculty should be appropriate to the type of instruction and comparable to that of the faculty of other academic programs of the institution. The institution should recognize the total professional responsibilities and services (in addition to the teaching assignments) of each faculty member.

4.2 Faculty Work Load

It is important that the faculty workload be distributed fairly. It is recognized that workload assignment is a difficult process and requires the qualitative judgment of the administrator. The following factors should be considered in the determination of a work load: number of lecture hours, number of laboratory hours, number of separate preparations, class size, availability of teaching assistants, counseling activities, administrative activities, committee assignments, extension or continuing education commitments, and research activities.

4.3 Administrative and Technical Staff Support

Administrative and technical staff support should be adequate to sustain fulfillment of the construction master's degree program's mission and be consistent with the level of support enjoyed by other program units within the parent institution.

4.4 Employment Policies

It is recognized that salary may not be a primary motivation or reward for good teaching. However, it is important that faculty compensation be competitive with comparable positions in other institutions and industry to insure that quality faculty and high morale exist. It is expected that construction master's degree program faculty have some assurance that adequate financial security is provided.

4.5 Professional Development

A clearly defined program of professional development is required to maintain a high level of professional competence. Caution should be exercised to prevent any faculty member with a strong area of expertise from being given teaching assignments that limit opportunity to develop other areas of expertise.

Consulting work is desirable and encouraged, provided such activities do not conflict with normal assigned duties and responsibilities of the faculty member. Administrative policy should insure that opportunities for professional development are made available and used by the entire faculty.

4.6 Faculty Evaluation

A clearly defined program of faculty evaluation is required in order to assure the maintenance of high quality instruction. These evaluations should be made annually, and may include student, peer, and/or administrator evaluations.

V. STUDENTS

5.1 Admissions and Enrollment

It is important that attention be given to the capabilities and professional motivation of students entering the construction master's degree program. It is recognized that no single criterion for the admission of students can predict the potential for success of the individual. However, it is generally accepted that established national norms of standardized tests are of value in predicting academic achievement. Qualifications of students admitted to a program in construction education should be comparable with those of students in other areas of the institution and appropriate to the requirements for construction education.

Entering students should have academic abilities appropriate to the respective institution, motivation, and career orientation. Recruitment should be directed

toward those individuals with high academic achievement as well as those with defined career goals in construction. Admissions policies should be directed toward students with the ability and credentials for successful completion of the curriculum.

If constraints on construction program enrollment exist, such constraints should be the result of a broad institution policy rather than from the desire for convenient administration of the program. Recruitment and publicity for the construction master's degree program should be comparable to other master's degree programs of the institution including opportunities for financial assistance.

5.2 Academic Progress

There must be an organized system of counseling and professional guidance available to all students in the master's degree program so that their needs, interests, and abilities are considered in preparing and implementing a plan of study. The academic advising and counseling procedures should include a close relationship between the individual student and the construction faculty. A record system should exist that keeps both the student and advisor informed regarding the student's progress toward completion of master's degree requirements.

It is important that academic performance be monitored. High academic achievement should be recognized and rewarded. Low academic achievement should be detected and appropriate actions taken. This is especially important if the admissions process does not provide for initial screening of students.

5.3 Extracurricular Activities

It is recognized that not every master's degree program is able to provide the opportunity for student participation in extracurricular activities. Extracurricular activities provide valuable interpersonal and leadership experience. Thus, where applicable, students should be encouraged to participate in activities in addition to their academic studies. Such activities should include involvement with industry-based professional and trade organizations. The extent of participation by students in extracurricular activities is an indication of the unity of the student body and promotes interest in citizenship and professional societies after graduation.

VI. FACILITIES AND SERVICES

6.1 Physical Facilities.

Appropriate and well-maintained facilities need to exist that are appropriate to the type of instructional delivery taking place. It is desirable that facilities exist solely for the master's degree program as a means of enhancing its unique identity within the institution.

6.2 Library

The library is a critical resource of any educational system. Adequacy of the library facilities must be shown in the scope and depth of library holdings as related to the general and professional components in the field of construction. Adequacy should also be reflected in the acquisition of current publications relative to construction. There should be evidence of both adequacy and use in the selection of library materials, and of responsibility for their effective use.

6.3 Services

Appropriate services on campus should be used effectively by the master's degree program. These include the computer center, audiovisual, placement and student services, and financial aid.

VII. RELATIONS WITH INDUSTRY

7.1 Support from Industry

Construction is a practice-oriented profession. Therefore, it is imperative that an advisory committee, consisting of representatives from the construction industry, be actively involved in an advisory role for the construction master's degree program.

The committee should meet at least once a year for the purpose of advising and assisting the development and enhancement of the master degree program. Although the composition of the committee should change periodically, there should be provisions to ensure continuity. The composition of the committee should be representative of the potential employers of the graduates of the master's degree program.

7.2 Support for Industry

There should be an active program of continuing education and research (where required by the institution) directly applicable to and in support of the construction industry. The master's degree program should maintain continuous liaison with the various constituencies it serves for the purpose of establishing educational and professional development activities for the construction industry.

7.3 Student-Industry Relations

Communication and participation among faculty, students and the construction industry should be well documented through industry involvement such as field trips, speakers and active participation in activities of construction related organizations. They should also consider opportunities to obtain construction related experience through participation in construction industry internships.

VIII. RELATIONS WITH THE GENERAL PUBLIC

Accredited programs shall manifest accountable behavior in providing information for release in any manner to the general public.

- Institutions should broadly and accurately publish the objectives of the master's degree program, admission requirements, program assessment measures employed and the information obtained through these assessment measures, student achievement, the rate and types of employment of graduates, and any data supporting the qualitative claims made by the program.
- No release is authorized of a master's degree program's term or period of accreditation.
- No ranking is to be implied through linkage to ACCE accreditation.
- Indication of accreditation status is authorized during any defined term of accreditation.

IX. PROGRAM QUALITY AND OUTCOME ASSESSMENT

9.1 Academic Quality Plan

The master's degree program must have an Academic Quality Plan identifying the process used for the continuous improvement of the program. This plan will serve as a tool for continual assessment and improvement of the program and be available in the administrative office for review by the visiting team.

A significant part of any assessment plan is identifying the indicators of academic quality in the master's degree program. Indicators are the measures used directly related to the constructions master's degree program's goals and are designed to provide reliable data measuring progress towards meeting those goals. The indicators and respective metrics shall be clearly stated.

The master's degree program's Academic Quality Plan will form the basis of empirically assessing the stated outcomes of the program. Assessment input should be obtained from the unit's constituencies, including students, graduates, employers, benefactors, the construction industry, and the program planners (faculty, staff, and administrators). The plans should define the quality assessment cyclic process.

Accredited master's degree programs are encouraged to utilize a certification or competency examination as a component of its Academic Quality Plan. .

9.2 Planning and Evaluation

The planning and evaluation process of the Academic Quality Plan must contain measurable outcomes; a systematic means of collecting, quantifying, and

analyzing data relevant to those outcomes; development of conclusions based on the data collected; and program modifications, when deemed appropriate to improve the master's degree program.

9.3 Application

The conclusions and inferences drawn from the quality assessment process must then be incorporated into the Academic Quality Plan. The process will generate a data profile (composite report of data) to be used in such a manner, as to foster enhancement of student achievement with respect to the master's degree program. After each comprehensive quality assessment period, the entire process should be reviewed and updated with plans for implementation for improvement recorded and cited.

9.4 Resources

Adequate resources must be available to the master's degree program so that it may structure a mission statement, goals, and outcomes, which will serve to ensure continual improvement of the program. In addition, the available resources must support a systematic means for collecting, quantifying, and analyzing data relative to the master's degree program's outcome; the formulation of conclusions based on this data; and the making of appropriate program modifications. A record of revisions identified and incorporated into the program must be kept and available.

The master's degree program planning and assessment schedule must be defined by each institution, and be consistent with the program's ACCE accreditation schedule.

April 1, 2011

Construction Management Industry Advisory Board

A very active, highly motivated Industry Advisory Board is participating in the development of this Proposal. The individuals serving on the Board bring years of experience in education and practical knowledge in the construction industry and see the program being of mutual benefit to both the School and the Industry. (see member biographies)

Chairman of the Board
Dan Whiteman Ph.D., Vice Chairman- Coastal Construction

Vice Chairman
"Bob" William R. Miller, President Emeritus – First Florida

Current Members at Large
Jean Baptiste Baudin de la Valette, Regional Director at Bouygues Construction

James Beauchamp, Beauchamp Construction

Jon Cardello, Stantec

Rick Crooks, President of EAC Consulting, Inc. – Civil Engineering

William "Bill" O'Donnell, Partner/Managing Principal at Desimone

John Forbes, Owner, Forbes Architect and Construction

John Leete, Executive Vice President of Florida Division- J.M.A. Construction

Trisha Litzau, Stantec Construction

C.J. Nielson, Nielson Hoover, and Company

Brad Meltzer, President- Plaza Construction Group Florida

Tom C. Murphy, Co-President – Coastal Construction

Stephen H. Reisman, Vice Chairman of Peckar & Ambramson, P.C

Natalie Soto, Partner - Ferguson Glasgow Schuster Soto, Inc

Jose Suarez, Vice President of Sieger Suarez Architects

Jim Werbelow, Senior Vice President of Construction at The Related Group

Greg West, Chief Development Officer- ZOM USA

School of Architecture – College of Engineering Ad Hoc Committee

Construction Management Program Meeting Synopsis

To explore collaborative efforts between the School of Architecture and the College of Engineering in the creation of new programs in construction management, an ad hoc committee was created with faculty representatives nominated by their respective Deans.

Meeting Date: December 8th, 2017 Meeting Time: 4:00 PM

Meeting Location: School of Architecture

THE COMMITTEE

School of Architecture: Dean Rodolphe el-Khoury

Elizabeth Platter Zyberk, Professor

Charles Bohl, Associate Professor

Katherine Wheeler, Associate Professor in Practice

Armando Montero, Assistant Professor in Practice

College of Engineering: Dean Jean Pierre Bardet

Antonio Nanni, Professor, Chair Department of Civil, Architectural and Environmental Engineering

Wimal Suaris, Associate Professor

Esber Andiroglu, Associate Professor in Practice

A meeting of the committee together with Deans Bardet and el-Khoury was held at the School of Architecture to review the School's proposal for the Master in Construction Management.

The College of Engineering recently established a concentration in Construction Management within its existing Master of Science degree.

From the discussions, it was evident that there were two modalities of collaboration: one joint program or two distinct programs.

- The joint program offers one degree with courses from both units, merging existing advisory boards or committees. The directorship of the program rotates on a two-year basis between the two units. The program director reports to both Deans and the program revenues are distributed based on the work performed. The CoE faculty maintain the M.S. can be such a degree, as it includes SoA courses, although it is not currently administered by both units. The M.S. curriculum is comprised of existing courses, acknowledged being an initiative to accelerate its implementation with a minimum of resources.
- Two separate programs with individual curriculums and distinct degrees and admission requirements. Each program develops a curriculum and courses as needed to meet the needs of their student populations, target markets, industry needs and academic objectives. Each is also guided by their own industry advisory boards, develops fund-raising and endowment opportunities, and community outreach efforts. The Deans, Chair, and Program Director, at each school,

are responsible for the administration of their respective program. Opportunities for collaboration are encouraged, including sharing courses. A memorandum of understanding would establish the areas of collaboration and how these would be administered. A successful separate program precedent exists in the collaborating real estate programs of the SoA and the Business School, and Law School, each program building on unit strengths and offering students a learning environment that aligns with their needs.

Collaboration may include;

a) identifying courses in each unit that fulfill program requirements

b) developing joint courses

c) sponsoring joint conferences or symposia

d) joint participation in community outreach

e) the creation of a joint center for sustainable development to include other schools and programs.

The School of Architecture would like to continue its effort to mount a Master in Construction Management (MCM) with an associated executive degree for experienced professionals, based on the advice of industry leaders and the industry advisory board members who are fully committed to supporting the program. The SoA is open to collaboration between the programs, including sharing and cross-listing courses, convinced that two programs (two paths) that co-exist offer more variety and diversity than a single program. The curriculum at each unit will appeal to students according to the prerequisites needed for admission. The MCM curriculum consists of 36 credits of focused construction management courses, and at entrance requires a minimum level of competency in design, materials and methods of construction, and building systems. These are competencies that graduates of an accredited bachelor of architecture program generally have. Students applying to the program without these core competencies are required to take up to 12 additional credits in leveling courses before admission to the program.

The College of Engineering CAE favors the joint program with the proposal to dismantle its current approved program to create a joint program. The CoE is concerned that a separate construction management degree at the SoA will compete with their program. The SoA maintains that the two programs will appeal to two constituencies and thus enrich the Universities graduate and executive education offerings.

The Coe Position on the Master of Construction Management (MCM) at SoA

MEMO FOLLOWS ON THE NEXT PAGE

MEMO to the File

Date: 01/05/2018
To: General Welfare Committee of the Faculty Senate
From: College of Engineering (COE)
Ref.: COE position on the Master of Construction Management (MCM) and Executive MCM (EMCM) proposals from the School of Architecture (SOA)

The proposal under review from the school of Architecture is for the establishment for **two** separate degrees, a Master of Construction Management (MCM) and Executive MCM (EMCM). The two proposed programs are entirely different with distinct curricula and credit requirements. They should therefore be considered separately from each other.

The MCM program proposed by the SOA and the existing MS program with concentration in Construction Management (MS-CM) in the COE have several similarities. Both programs have an emphasis on buildings, have a similar core curriculum and draw from the same pool of applicants with backgrounds in Architecture and Engineering or related disciplines.

As recommended by the General Welfare Committee of the Faculty Senate, representatives of the SOA and the COE met to discuss potential collaboration between the programs. The COE noted that their preference is to have a **joint degree program** between the SOA and the COE as it would be a unique feature and would avoid duplication of resources. This concept is supported by the current Industrial Advisory Board associated with the COE program. The SOA position is that their program was primarily developed with significant input from their Industrial Advisory Board, which does not wish to have a joint program. However, SOA faculty believes that in the future a joint offering may be possible.

The COE proposes the following actions:

MCM proposal

- The MCM program should be approved and offered as a concentration of an existing MS program in SOA, similarly to what is currently offered by the COE. The primary reason for this arrangement is to allow for a re-consideration of distinct programs and facilitate in the near future the creation of a single, interdisciplinary, and stand-alone MSCM.
- The SOA proposal states that the program will have shared coursework with the COE, SOB and the SOL. However, the proposal indicates that an entirely new set of courses will be developed under the acronym CMA. These proposed courses duplicate similar courses currently offered by the COE and the SOB. This will result in various programs competing for student enrollment and waste of resources. The course offerings for the two programs should be streamlined to avoid duplication and an equitable distribution of courses among the SOA, COE and the SOB should be established. There is no need/justification for the new acronym CMA.
- Program faculty associated with the existing MS program offered by COE in collaboration with SOB and SOL are listed in the SOA proposal as collaborating faculty. Discussions among relevant

faculty are necessary in order to outline and formulate such collaboration between the four (4) schools.

EMCM Proposal

The SOA proposal also includes an Executive Master in Construction Management Degree (EMCM), which has lesser credit requirement than the proposed MCM degree (30 vs. 36). The major admission requirement for the EMCM program is stated to be five years of professional experience in the "field" without specifying the nature and quality of this experience. The type of undergraduate degree, GPA etc. is also not specified as in the MCM program. The proposed EMCM curriculum allocates six credits for a capstone project, four credits for seminars and nine credits for electives. The remaining 11 credits consist of a series of 1- or 2-credit courses leaving little room to develop competency in key areas of construction management.

The **COE objects to the proposed EMCM** program in its current proposed form because of a clear lack of academic rigor. This program would have a negative reflection on the regular MS programs offered by both SOA and COE.

SoA MEMO TO FILE

Date: 01/08/2018
To: General Welfare Committee of the Faculty Senate
From: School of Architecture
Ref.: School Of Architecture's Response To The Coe Position the Master of Construction Management (MCM) and Executive MCM (EMCM) proposals from the School of Architecture.

1. *CoE: "The MCM and the Executive MCM are two separate degrees that should be considered separately from each other".*

As confirmed by the Registrar's office "Executive" degree programs are transcripted as regular degrees. Students graduating from either the MCM or the EMCM will receive the same degree (Diploma) even though program academic codes and curriculums are different.

The proposed Master of Construction Management (MCM) at the SoA, a single degree, offers two distinct paths responding to the demand and the needs of our student populations, target markets, industry needs, and academic objectives. The programs use different course modalities to achieve stated goals and learning objectives.

The MCM is an advanced practice-based degree, with an emphasis on professional construction education designed to expand the knowledge gained from undergraduate coursework in the fields of design, construction, and development of the built environment. Applicants to the MCM program must demonstrate core competencies and understanding of the use and application of construction principles and technology required to be successful in the program.

2. *CoE*: Similar programs with similar core curriculum, draw from the same pool of applicants with A&E Backgrounds

The Construction Management program at the School of Architecture differs from the MS – CM program in Engineering. The MCM curriculum at the SoA conforms with the American Council for Construction Education Document 103MD, "Standards and Criteria for Accreditation of Master's Degree Construction Education Programs" in anticipation of seeking accreditation from the ACCE in the future. The MCM curriculum consists of 36 credits of focused construction management courses, and at entrance requires a minimum level of competency (as per ACCE) in design, materials, and methods of construction, and building systems. These are competencies that graduates of an accredited bachelor of architecture program generally have. Students applying to the program without these core competencies are required to take up to 12 additional credits in leveling courses before admission to the program. The College of Engineering's MS-CM program has less restrictive admission requirements and would not qualify for accreditation by the ACCE. The College of Engineering's approved proposal (pg 3) states *"The proposed program does not necessarily require a pre-acquired knowledge of engineering subjects and is of interdisciplinary nature. Students with bachelor degrees in disciplines other than engineering can be admitted to the program as described in Section 3 of the proposal."* The benefit to less restrictive admission requirements is the broader audience the program can serve.

Although there may be overlap in the background of candidates interested in Construction Management at UM, the curriculum, goals, objectives, and target markets are different in each school. The SoA is convinced that if each academic unit builds on its strength, two or more programs can co-exist, offering more variety and diversity for students than a single program. An example of such diversity for students can be seen in Real Estate. Currently, there are three programs offering degrees or concentrations in Real Estate or Real

Estate Development at UM. Architecture, Business, and Law, all have programs in Real Estate that are examples of collaboration between distinct program at each school. Students benefit from joint conferences workshops and events and available course offerings in each school. Each program, through their respective strengths, offers a different perspective on Real Estate.

3. *MCM proposal*
   a. *• The MCM program should be approved and offered as a concentration of an existing MS program in SOA, similarly to what is currently offered by the COE. The primary reason for this arrangement is to allow for a re-consideration of distinct programs and facilitate in the near future the creation of a single, interdisciplinary, and stand-alone MSCM.*

The School of Architecture has invested over a year of time and resources in developing the proposal for a construction management program to meet the criteria of the ACCE. During that time, the School has explored options and participated in meetings with the College of Engineering for the purpose of creating a construction management presence at UM. Originally a joint effort, differences in the needs of student populations, target market, academic objectives, and accrediting boards opened the path to separate programs that could potentially collaborate in joint ventures.

SoA Dean Rodolphe el-Khoury has appointed world-class industry leaders to the Construction Management Industry Advisory Board, who also have invested time and resources in benefit of the program. The SoA Faculty, represented by the School Council and the SoA members of the joint SoA/CoE Ad Hoc Committee have made clear their desire to proceed as a distinct Master of Construction Management program. The SoA is open to establishing productive avenues of mutual collaboration with the CoE but does not see a merger of the programs as suggested by the CoE as beneficial to our faculty, students, and our partners in the industry. The School of Architecture does see a potential for an independent Center for Sustainable Development that is research-based (non- academic) with participation from the College of Engineering, the Business School, the Law School, and the School of Architecture.

   b. *• The SOA proposal states that the program will have shared coursework with the COE, SOB and the SOL. However, the proposal indicates that an entirely new set of courses will be developed under the acronym CMA. These proposed courses duplicate similar courses currently offered by the COE and the SOB. This will result in various programs competing for student enrollment and waste of resources. The course offerings for the two programs should be streamlined to avoid duplication and an equitable distribution of courses among the SOA, COE and the SOB should be established. There is no need/justification for the new acronym CMA.*

The School of Architecture has revisited the proposed curriculum and has removed courses that may duplicate courses offered in other academic units. Armando Montero (CM program director at SoA) has conferred with the Patricia Abril and Anuj Mehrota of the Business School, who have together identified new two-credit courses as part of the Graduate Business Certificate that are better suited for the needs of Construction Management students. These courses have been added to the curriculum as either required or acceptable elective courses in Construction Management. Other avenues of collaboration will be explored. A meeting with Associate Dean Raquel Matas of the School of Law also took place to re-establish collaboration efforts. It was agreed that students in Construction Management may take LAW 257 – Construction Law as an elective. There may be interest from students in LAW and BUS to enroll in new CMA courses, an idea that SoA is open to and is willing to collaborate on.

Courses developed under the acronym CMA address the specific necessary learning outcomes outlined in the ACCE accreditation guidelines and deliver focused topics specific to the construction industry and current issues in Construction Management. We have found in comparing course descriptions that similar courses at other schools may have too broad a scope for student learning objectives in construction management.

c. • *Program faculty associated with the existing MS program offered by COE in collaboration with SOB and SOL are listed in the SOA proposal as collaborating faculty. Discussions among relevant faculty are necessary in order to outline and formulate such collaboration between the four (4) schools*

Each academic unit will identify point contact persons for the purpose of collaboration. It is anticipated that program directors at the SoA and CoE will collaborate on curriculum, administrative issues, and special events in the construction management programs.

4. *EMCM Proposal*

a. *The SOA proposal also includes an Executive Master in Construction Management Degree (EMCM), which has lesser credit requirement than the proposed MCM degree (30 vs. 36).*

The Executive MCM is designed to meet the needs of high potential, mid-level managers, and executives who have documented experience in Construction. The curriculum supplements knowledge gained in the field and challenges the executive students to become leaders in the industry. The thirty-credit curriculum takes into account the experience and knowledge possessed by the candidate as partial satisfaction of required learning objectives. Courses will be taught mostly by adjunct faculty recognized as experts in the field.

b. *The major admission requirement for the EMCM program is stated to be five years of professional experience in the "field" without specifying the nature and quality of this experience. The type of undergraduate degree, GPA etc. is also not specified as in the MCM program.*

Admission to the Executive MCM will be determined by an Admissions Committee organized by the School of Architecture. The Committee will consider the "total person" applying to the program by assessing each candidate on the following factors:

Undergraduate Studies – School and Major
Undergrad Grade Point Average
Letters of Recommendation
Sponsor Letter from current employer (if applicable)
Years of Construction Related Work Experience.
Years of Management Experience
Achievements in the workplace
Capacity to assume increased responsibility
Leadership Skills.
Level of current position

c. *The proposed EMCM curriculum allocates six credits for a capstone project, four credits for seminars and nine credits for electives. The remaining 11 credits consist of a series of 1- or 2-credit courses leaving little room to develop competency in key areas of construction management.*

Individual course credits in the Executive MCM vary according to the subject, in order to provide students with the flexibility to define their curriculum based on their interests. Traditional 3 and 4-credit comprehensive courses have been divided into smaller focused 1 and 2-credit learning units on a particular subject. The total amount of credit hours still is the same and follows SACS Credit Hour Policy and the Federal Definition of the Credit Hour. In the Executive program demonstrated attainment of Learning Objectives required by ACCE are via a combination of prior experience and knowledge in the industry and coursework in the program.

d. COE objects to the proposed EMCM program in its current proposed form because of a clear lack of academic rigor. This program would have a negative reflection on the regular MS programs offered by both SOA and COE.

The SoA and the Construction Management Advisory Board see the Executive Program as a unique program in Construction Management. The Executive MCM directly responds to the growing need in the construction industry for highly qualified senior management candidates and opens learning opportunities for professionals in the field. Classes will be taught by top industry leaders that bring to the classroom a resource years of real-world expertise. With this program, students at the SoA will have an unprecedented access to the top leadership of the construction industry. The caliber of the faculty teaching in the Executive MCM and the students enrolled in the program will be unprecedented and is clearly seen as an asset by the School of Architecture.

MEMO TO FILE

Date: 01/24/2018

TO: Faculty Senate

FROM: School of Architecture

RE: Response to Concerns from College of Engineering on SoA proposal for a Master of Construction Management Program as submitted.

The School of Architecture, has invested great time and effort in the development of their proposal for a Master of Construction Management degree and has diligently, without rushing, over the last two years, designed an advanced, professional, practice-based program with set minimum standards for admission that addresses the needs of its student population and the industry.

On January 17, the General Welfare Committee approved, by majority vote, the School of Architecture's proposal for a Master of Construction Management (MCM) degree and an executive program (EMCM) under that degree. Questions were raised by the College of Engineering regarding our proposal. Their Concerns are documented in the CoE's Position Memo to file attached to the proposal. The School of Architecture response to their memo was also attached. An additional concern was expressed about the support initially provided by the CoE Dean's Letter of Support that was latter is refuted by the CoE position memo. Answers to these questions follow.

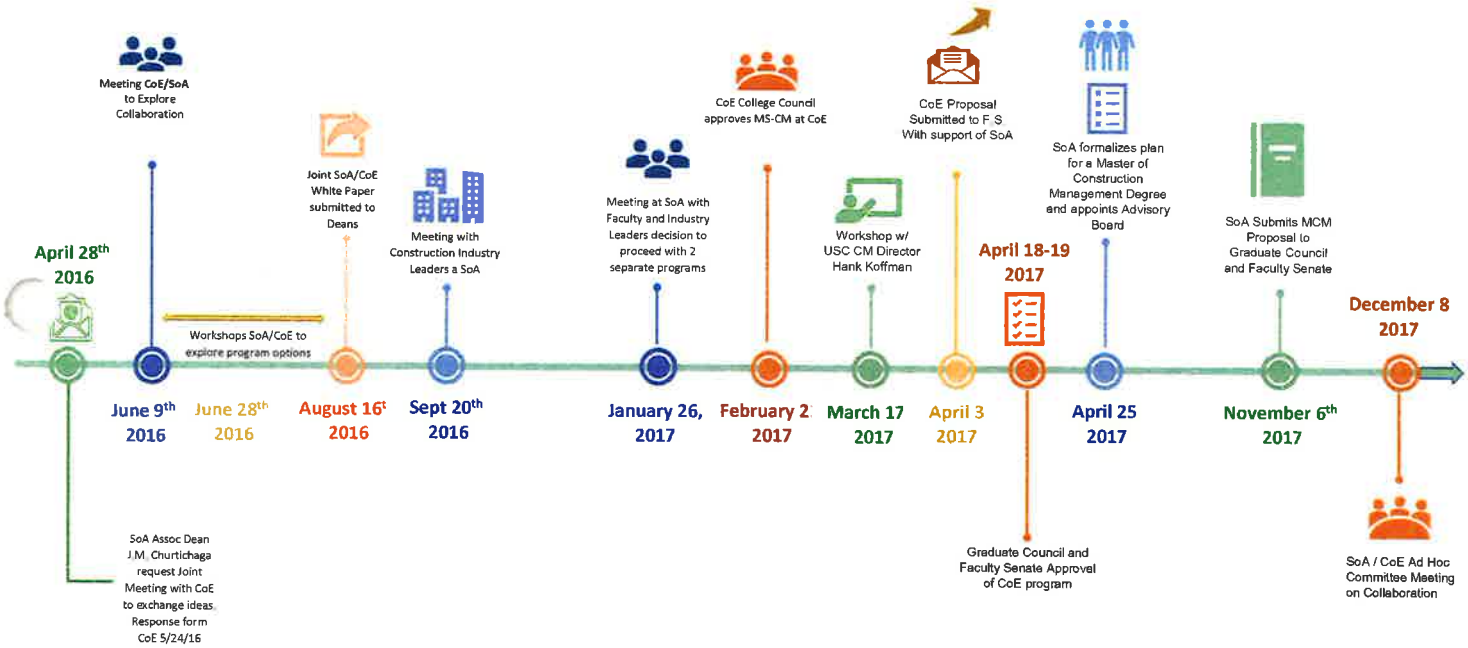
1. Collaboration in exploring Construction Management between the Coe and the SoA existed since April of 2016. The first Joint meeting was on June 9th, 2016 at CoE. Numerous iterations of formats for the program(s) were explored eventually leading to the conclusion that no one program would suit the needs of all potential student populations.

2. the idea presented at a meeting at SoA Dean's office on January 26th, 2017 that two programs (two doors) could co-exist that cater to the different needs of each School, enhancing offerings at the University.

3. A conditional letter of support was provided by the Dean of the SoA reiterating the understanding that each school will offer a degree. The letter was accepted and used by CoE in their submittal. There has been no objection to the terms of the letter until SoA move forward as planned on their degree program.

4. The program curriculums differ and cater to different markets and student populations. The SoA program is designed for students with prior knowledge of construction, materials and methods of construction, building systems and design and a general ability and knowledge in the integration of building and environmental systems into a project as demonstrated in the architectural curriculum.

5. See attach timeline for milestones referenced.



School of Architecture Proposal for a New Master of Construction Management Degree Timeline