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MEMORANDUM

To: Julio Frenk
University President

From: Tomás A. Salerno
Chair, Faculty Senate

Date: May 5, 2017 REVISED

Subject: Faculty Senate Legislation #2016-49(B) –Establishment of a Program in Construction Management within the Master of Science Degree Currently Offered by the College of Engineering

The Faculty Senate, at its April 19, 2017 meeting, had no objections to the proposal to establish a program in Construction Management within the Master of Science degree that is currently offered by the College of Engineering with a proposed starting date of fall 2017.

The new interdisciplinary program will be created by repackaging existing courses in the College of Engineering, School of Architecture, School of Business Administration, and School of Law. The program requires completion of 30 credit hours. Students will be required to submit a final project or case study.

This legislation is now forwarded to you for your action.

TAS/rh

Enclosure

cc: Thomas LeBlanc, Executive Vice President and Provost
Jean-Pierre Bardet, Dean, College of Engineering
Guillermo Prado, Dean, Graduate School
Antonio Nanni, Professor and Chair, Department of Civil, Architectural and Environmental Engineering

CAPSULE: Faculty Senate Legislation #2016-49(B) –Establishment of a Program in Construction Management within the Master of Science Degree Currently Offered by the College of Engineering

PRESIDENT'S RESPONSE



APPROVED: _____ DATE: 5/15/17
(President's Signature)

OFFICE OR INDIVIDUAL TO IMPLEMENT: Dean Jean-Pierre Bardet

EFFECTIVE DATE OF LEGISLATION: IMMEDIATELY
(if other than June 1 next following)

NOT APPROVED AND REFERRED TO: _____

REMARKS (IF NOT APPROVED): _____

**Proposal for the Establishment of a Program in
Construction Management within the
Master of Science Degree Currently Offered by the
College of Engineering**

April 19, 2017



UNIVERSITY OF MIAMI

College of Engineering

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PREFACE

This proposal is not for the creation of a new graduate degree. This proposal is for the establishment of a new program within the existing Master of Science (MS) degree in the College of Engineering (CoE).

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.

Other programs of interdisciplinary nature for the MS degree offered in CoE are already available and described in the UM Academic Bulletin (e.g., MS Environmental Health & Safety: an interdepartmental program offered through a cooperative arrangement between the Department of Epidemiology and Public Health and the Department of Industrial Engineering.)

1. INTRODUCTION

Four UM academic units, namely: School of Architecture (SoA), School of Business (SoB), School of Law (SoL) and CoE, are interested and have expertise in the educational and research fields related to construction. The four schools are committed to working together to develop a truly interdisciplinary program/curriculum and related academic activities. They will be doing so in the coming months in order to advance multiple interdisciplinary goals while leveraging their strengths and specificities. Thus, this proposal can be considered an initial step in that effort which will immediately respond to a market demand.

The overall goal of faculty and administrators in the four schools is to develop a robust and effective collaboration to advance quality of education and relevance of the University of Miami. Among the possible outcomes would be the creation of a Real Estate Research Center as the intersection locus.

CoE currently offers an MS degree with different programs. The Civil, Architectural and Environmental (CAE) and Industrial Engineering (IE) Departments with the collaboration of other UM units wish to create a new program in Construction Management (MS CM) to be implemented and officially launched in Fall 2017. The MS CM degree will be awarded by the CoE.

Construction is likely to be one of the most dynamic industrial sectors both nationally and globally in the next 15 years. The US Department of Commerce estimates the total national spending for construction (public and private) at \$1,333.5 Billion for 2016. According to a report by Global Construction Perspectives and Oxford Economics, national construction spending is projected to increase and the global construction

market is expected to grow to a total size of \$17.5 trillion, accounting for 14.7% of the global GDP by 2030.

According to Global Construction 2030 projections, based on studies documented by prominent global business leaders in construction and engineering industries from North America, Latin America, Europe, MENA and Asia Pacific, there will be a significant impact on demand for policy makers and construction industry professionals from key construction markets. Therefore, the MS CM program will target local and international working professionals with one to five years of experience who are interested in building upon their undergraduate degree with practical construction related knowledge and business fundamentals in tune with current technological advancements.

The emergence of challenges associated with climate change and sea level rise, along with technological advancements for smart city infrastructures has rapidly captured the imagination of the mass construction and development markets.

Therefore, growth in the construction industry together with rapid advances in technology will result in a demand for construction professionals to take on the challenges of construction projects throughout the world.

2. PROGRAM OVERVIEW

The vision of the MS CM program is to provide an *interdisciplinary, flexible* and *state-of-the-art* curriculum that provides students with knowledge and marketable skills to become future leaders of construction related organizations worldwide, by utilizing existing infrastructure resources at University of Miami, with program-generated additional resources as necessary.

The proposed MS CM program will help to fulfill the industry need for construction professionals in domestic and international sectors, in response to many of the technological advances. The program will help the University of Miami to not only stay competitive with other world-class universities, but also surpass some of the already offered programs in construction management by other regional universities without similar resources. In addition, undergraduate students have expressed an interest in construction management and this program will help to retain these students.

The program will start with existing courses in CoE, SoA, SoB and SoL. New courses in Engineering will be added as the program grows based on the dynamic composition of the applicant pool in response to industry needs. It is the intent of the proposed program to self-generate additional resources based on its growth and success. Local industry professionals with expertise in specific topic areas will be the primary source

for faculty teaching new courses. Courses for the program are identified in the MS CM Curriculum and a detailed listing of courses is located at the end of this report.

It is envisioned that the program will provide an industry focused alternative to other professional graduate degrees. The program will be offered at the Coral Gables Campus of the University of Miami. In order to accommodate working professionals, whenever possible, courses will be scheduled in the late afternoon and evening. As the program grows, it is envisioned that courses may be offered on- line and with compressed schedules.

Interdisciplinary

Construction Management is an interdisciplinary field, in addition to technical know-how, construction professionals need business acumen and knowledge of laws governing the industry. Likewise, the MS CM program is an interdisciplinary program. In addition to the CoE, the students may take courses from three other schools, namely: SoA, SoB and SoL. As shown in Figure 1, the proposed curriculum includes a blend of existing core and elective courses, specifically selected from each of these schools, for students to expand technical knowledge while also gaining knowledge in construction law and business fundamentals.

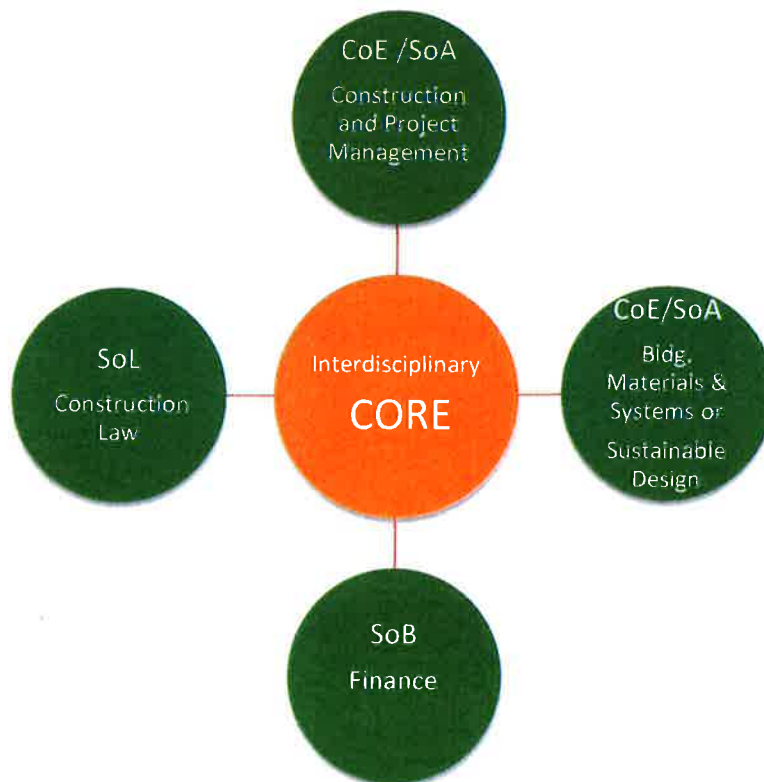


Fig 1. Interdisciplinary Core Curriculum

State-of-the-Art

The program includes cutting-edge focus topics that resonate with industry including:

- **Sustainable Construction;** (green building design, resilient design, smart cities, and issues relating to sea level rise)
- **Global Awareness**
- **Innovative Project Delivery and Financing Methods** such as Public Private Partnerships

Many of the concepts referenced above are currently under study as part of multiple research projects at the College of Engineering and other UM units including Sustainable Engineering and Resiliency of Coastal Cities, Advanced Material and Techniques for Reinforced Concrete Structures, and Smart Energy for Smart Cities. Such active research projects along with their associated existing faculty and related course offerings, demonstrate the presence of a well-established infrastructure, which can support the proposed program.

Flexible

The MS CM program will initially offer one study area or track (see Figure 2). In addition, students have a flexible choice of electives from a wide variety of existing courses including those with a focus on global awareness to suit their individual needs.

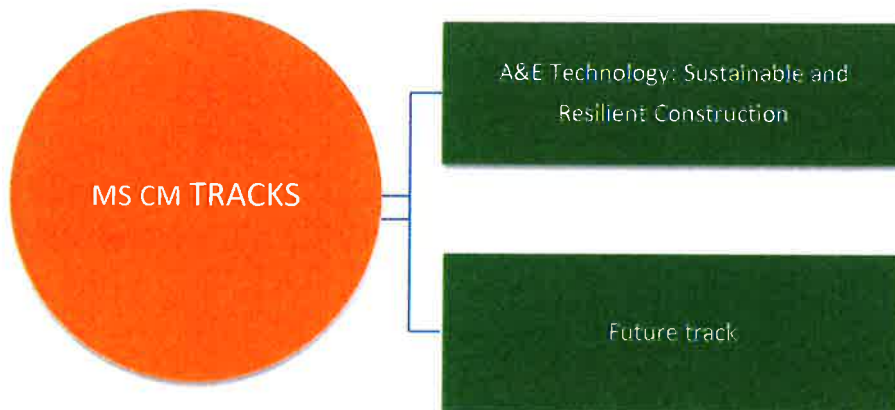


Fig 2. MS CM Initial Track

As a future development and in addition to more tracks, it is envisioned that certificates may be offered to professionals who are not ready to commit to a degree program, but would like to expand their knowledge in a particular focus area and receive formal recognition. The certificate program may serve as an introduction to the MS CM and certificate credits may be later applied toward the degree. Certificates are envisioned to be available in the future for each track. Three courses in a given track would be required for a certificate.

3. MS CM PROGRAM DETAILS

3.1 Implementation Date and Location

The program is to be implemented and officially launched Fall 2017 on the UM main campus in Coral Gables. No online and off-campus courses will be offered at this time.

3.2 Admission Requirements

To be eligible for admission, a student must hold a bachelor's degree in engineering, architecture, science, business or construction management. Other admission requirements will be consistent with those of UM Graduate School.

3.3 Program Personnel

The program's personnel structure consists of a program director appointed by the Dean of the College of Engineering, and faculty advisors assigned from each of the participating schools as identified below.

The Program Director will be responsible for student admission, advisement and approval of course schedule. The role of the faculty advisors will be that of responding to students' questions related to suitability and availability of courses.

Program Director

- Dr. Wimal Suaris, Associate Professor

Faculty Advisors

- College of Engineering: Mary Benitez, Adjunct Professor and Dr. Esber Andiroglu, lecturer
- School of Architecture: Armando Montero, Program Coordinator
- School of Business : Lori Pryor, Director Graduate Business Programs
- School of Law : Sandy Abraham, Executive Liaison, Interdisciplinary Program and Initiatives

3.4 Existing Infrastructure Resources

At present, there are no requirements to augment or modify the existing educational infrastructure at UM main campus. In fact, the delivery of the courses selected for the MS CM program is already part of the current offerings.

3.5 Curriculum Consisting of Existing Courses

The program is a non-thesis program and will consist of a minimum of 30 credit hours. This includes 12 credits of required core courses, 12 credits of courses within the selected track and 6 credits of free electives. With the guidance of the Program Director, students design a curriculum suited to their own interests and time constraints. Since this is a non-thesis program, it is contemplated that students will be required to submit a final project or case study that includes an in depth investigation in an area of interest.

The curriculum includes a mix of existing courses identified within the participating schools (CoE, SoA, SoL and SoB). It is anticipated that the program can start in Fall 2017 with the existing courses already being offered. New courses may be introduced in future years as needed and based on enrollment. It is anticipated that any future new course in CoE will be taught primarily by experienced professionals as adjunct instructors.

A detailed listing of the courses included in the program curriculum, grouped by Core and Track is given at the end of this report.

3.6 Core Courses

All students are required to take a required core curriculum consisting of 12 credit hours. The core curriculum is a blend of courses and includes the ones listed below. The choice of a required core course also depends on the student background.

1. **Project and Construction Management**, 3 credit hours
(Select one course from: IEN 763 or CAE 762¹)
2. Select 3 credit hours from:
 - A. **Sustainable Construction**, 3 credit hours (CAE 660), option for Architecture & Engineering Technology (A&E) students
 - B. **Introduction to Building Materials and Systems**, 3 credit hours (ARC 630) option for non A&E students
 - C. **Sustainable Design in Context**, 3 credit hours (ARC 685) option for A&E students
3. **Fundamentals of Finance**, 4 credit hours (BUS 630)
4. **Building Information Modeling (BIM) and Building Performance Analysis (BPA)**, 3 credit hours (CAE 661)

3.7 Track

Initially, one track or study area has been identified. In the future as more tracks become available, students are required to select a track or study focus and take a minimum of 12 credit hours from their selected track.

Track 1: Architecture & Engineering Technology: *Sustainable and Resilient Construction*

3.8 Near Peer Programs

Locally and within Florida, the following state universities have programs that may be considered as near peer programs:

- Florida International University (FIU)
- University of Florida (UF)

¹ This course has been taught in Fall 2016 as CAE 795 and has been submitted for approval as a regular course

4. ADVISORY BOARD

The following prominent individuals have been contacted and have expressed a strong interest in serving in the Industry Advisory Board (IAB). IAB members will have the function of guiding the program, assess its relevance and help recruiting potential sponsors and students.

- Ari Pearl - South Florida Developer
- Henry E. Adams – Kiewit Corporation
- Jaime S. Saavedra - Turner Construction
- John L. Murphy - DLA Piper LLP (US)
- Kobi Karp - Kobi Karp Architecture and Interior Design
- Rodney Barreto - Floridian Partners, LLC; Chairman - Fish & Wildlife Foundation of Florida
- Scott Desharnais - Moss Construction
- Thomas Koulouris - AECOM / Jackson Health Systems
- Victor Sanchez - Goldman Properties

5. OTHER ISSUES

5.1 Marketing of Program

An effective marketing plan is necessary to attract candidates to the MS CM program and is a critical factor to ensure success of the MS CM program. It is anticipated that enrollment will be a challenge, especially at the onset of the program. Assistance from the CoE Communication staff will be needed to promote the program and should begin as soon as the MS CM program is approved. Advertisements through publications of professional organizations such as the American Society of Civil Engineers (ASCE), the Florida Engineering Society (FES) and in local business newspapers such as the *Miami Today* should also be explored. CoE will provide the resources needed for this marketing effort.

5.2 Accreditation

The American Council for Construction Education (ACCE) accredits Construction Management programs. Only four Master Programs in Construction Management are accredited through ACCE in the US. Accreditation of the program is not foreseen at this time; however, the ACCE accreditation guidelines list Student Learning Objectives and Competencies that can be used to benchmark the program.

MS-CM PROGRAM CURRICULUM

CORE COURSES (12 credit hours required)

1. PROJECT and CONSTRUCTION MANAGEMENT (select one of three):

IEN 763. Project Management Techniques. 3 credit hours

Techniques and Tools in Project Management. Use of network flow techniques including PERT/CPM, planning, systems concepts, time management, conflicts, cost and resource control, tradeoff analysis. Typically Offered: FALL

OR **CAE 762 Project Management for Civil Engineers².** 3 credit hours

Fundamentals of project management principles and methodology covering the life cycle of the design project; planning, executing, monitoring, controlling, and close-out. Some topics include; funding, delivery options, contracts, project plan, estimating and managing project time and costs, and quality management. Typically Offered: FALL

2. SUSTAINABLE CONSTRUCTION (select one of three):

A. **CAE 660. Sustainable Construction.** 3 credit hours

Drivers and foundations of sustainable construction. Principles of sustainable construction: integrated planning and design, life-cycle view of projects, resource selection and optimization, protection of the natural environment, toxics and pollutants elimination, durability and quality. Green building assessment initiatives, green building policies, and code impacts. Evaluation of the environmental impacts of construction operations. Innovative design and construction practices. Economic viability. Subtropical and coastal issue and opportunities. Case studies. Typically Offered: SPRING.

B. **ARC 630. Building Technology: Materials & Methods.** 3 Credit Hours.

Material characteristics of enclosure and structural systems, case studies in traditional and modern building construction; Topics include properties of building materials: wood, masonry concrete, steel and glass construction techniques; on-site and off-site processes; exterior finishes, assemblies, detailing and basic building code concepts. Typically Offered: FALL & SPRING.

C. **ARC 685. Sustainable Design in Context.** 3 Credit Hours.

This course reviews principles of sustainable design in context, green building initiatives, rating systems (LEED, BREAM, Living Building Challenge, Estidama Pearl). A comprehensive investigation of ecological, environmental and economic factors coupled with building construction materials, mechanical systems and electrical systems when developing sustainable architecture. Typically Offered: SPRING.

3. FUNDAMENTALS OF ECONOMICS, ACCOUNTING AND FINANCE:

BUS 630 Fundamentals of Economics, Accounting and Finance. 4 credit hours

This course covers fundamentals of business economics, accounting, and finance. Economic themes primarily focus on microeconomic topics such as demand, supply, elasticity, and forms of competition. Accounting concepts include corporate financial statements, cost-volume-profit analysis, and traditional and activity-based cost accounting. Finance topics include time value of money, capital budgeting basics, foreign exchange, risk and return, modern portfolio theory, and financial markets. The course includes an integration of many of these concepts in areas necessary to develop a business plan. Typically Offered: Offered by Announcement Only

² This course has been taught in Fall 2016 as CAE 795 and has been submitted for approval as a regular course

4. BUILDING INFORMATION MODELING (BIM) AND BUILDING PERFORMANCE ANALYSIS (BPA):

CAE 661. Computer Aided Architectural Engineering Design. 3 Credit Hours.

The course prepares students to utilize Building Information Modeling (BIM) and Building Performance Analysis (BPA) in a coordinated, integrated and consistent approach in the Architecture, Engineering and Construction (AEC) Industry. The basics of high-quality 5 dimensional BIM modeling are covering including 3D modeling of buildings and building components, imbedded cost-estimating and the phasing the construction process. Basics of REVIT Structure and MEP are also covered. BPAC components covered include climate analysis, daylighting, wind and airflow analysis, solar radiation analysis and whole building energy analysis. Upon completion student will receive a PBA certification from Autodesk. Typically Offered: FALL.

TRACK 1: A&E TECHNOLOGY, SUSTAINABLE AND RESILIENT CONSTRUCTION (12 credits required)

IEN 612. Statistical Quality Control and Quality Management. 3 credit hours

This course addresses the concepts, theories, tools and methodologies employed in the management and improvement of quality. The course examines many of the advance topics in statistical quality control including control charts and process capability studies, acceptance sampling, as well as Quality Function Deployment (QFD) and introduction to reliability. Also covered in the course are Lean Six Sigma methodology, tools and concepts. Prerequisite: IEN 311 or MAS 311 or IEN 312 or MAS 312. Typically Offered: SPRING.

IEN 670. Engineering Management. 3 credit hours

Integrating engineering discipline into the social and economic considerations of managing systems. Tools and techniques used by engineering managers including engineering project life cycle, role playing, communication, decision-making in engineering management, and managing change in engineering organizations are discussed. Prerequisite: IEN 311 or MAS 311 or IEN 312 or MAS 312 or Permission of Instructor. Typically Offered: SPRING.

IEN 672. Management of Technological Innovation. 3 credit hours

Engineering, Science and Management Principles contributing to the development of a successful framework for managing technology with an organization, nationally or internationally. The process of technological innovations, technological, planning and forecasting, and socio-economic changes. Prerequisite: Senior or graduate standing. Typically Offered: FALL & SUMMER.

IEN 761. Engineering Cost Management. 3 credit hours

Issues of cost management, including activity based costing of engineering projects. A detailed study of how to separate, identify, understand and manage the major activities performed, and how these activities relate to customer needs. Overall view of costs associated with products, processes, and customers. Typically Offered: FALL.

CAE 680. Hospital and Health Care Facility Design. 3 Credit Hours.

Planning, design, and construction of modern hospital and health care facilities. Design criteria for functional services, and required structural and patient safety. Design standards. Discussion of construction related topics and problems. Typically Offered: SUMMER.

CAE 681 Energy Efficient Building Design. 3 credit hour

Concepts and methods of energy-efficient and environmentally friendly building design. Topics include energy and sustainable design strategies, climate, passive and active solar design, passive cooling systems, day lighting, and computer simulation of energy flows in buildings. A quantitative understanding of energy fundamentals, examples from practice, and design exercises using computer simulation programs are emphasized. Typically Offered: SPRING.

CAE 695. Special Problems. 1-4 Credit Hours.

Project course introducing methods of research through an individual investigation of current problems. Offered by special arrangement only. Typically Offered: Offered by Announcement Only.

CAE 781. Advanced Building Energy Modeling and Simulation. 3 Credit Hours.

Equation-based object-oriented building energy modeling. Coupling of different building simulation tools. Applications in rapid prototyping of new building systems, model-based design and evaluation of building control, and building performance evaluation. Pre-requisite: CAE 682. Typically Offered: FALL.

CAE 790. Special Problems. 1-3 Credit Hours.

Research and/or design projects. Individual investigation of current problems. Offered by special arrangement only. Typically Offered: Offered by Announcement Only.

ARC 617. Construction Documents. 3 credit hours

Working drawings and specifications. Form, content and role of constituent parts of working drawings and specifications by using case studies. Typically Offered: FALL.

ARC 628. Historic Preservation. 3 credit hours

Basic design principles for the rehabilitation of historic buildings. Evaluating character-defining details; significance analysis; context of setting issues within historic districts; applying the Secretary of the Interior's Standards for rehabilitation. Typically Offered: SPRING.

ARC 650. Professional Lecture Series. 3 credit hours

Real estate transactions and deal structuring from the development perspective using the case study method, the course explores the key components and the disciplines needed for successful real estate transactions and projects. Typically Offered: FALL & SPRING.

ARC 652: Professional Practice. 3 credit hours. T 6:25-9:05 pm

Overview of the practice and the profession, legal and ethical concerns, business types and management practices, traditional and non-traditional practices and services, contracts and contractual relationships. Typically Offered: FALL.

ARC 662. Environmental Building Systems I. 3 credit hours

Environmental and Safety Systems. Topics include mechanical - HVAC and conveyors; plumbing - fixtures and pipes; electrical - equipment and wiring design; safety systems - fire safety and emergency and signal systems. Typically Offered: FALL & SUMMER.

ARC 663. Environmental Building Systems II. 3 credit hours

Principles and applications of light and acoustics. Topics include natural and artificial light - planning for sunlight, problems and solutions for interior and exterior illumination; sound - properties, problems and solutions in new and existing spaces electrical equipment and wiring design. Typically Offered: SPRING.

ARC 683: Special Problems: Resiliency.

Group or individual investigations of significant architectural issues related to resiliency. Typically Offered: SPRING.

ARC 686. Zoning and the Shaping of Cities. 3 credit hours; M 6:25-9:05 pm

Group or individual investigations of significant architectural issues related to zoning. Typically Offered: FALL.

Electives with a Focus on GLOBAL AWARENESS (6 credits required)

FIN 641 Valuation and Financial Decision Making. 2 credit hours

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. (FTMBA Core Class, Spring Term 1).

FIN 644 Real Estate Investment and Appraisal. 2 credit hours

This course will introduce students to the theoretical concepts and analytical techniques used to make a decision to purchase an ownership interest in a commercial real estate project. There is heavy reliance on Excel applications and the use of the Argus database that is a standard resource in the commercial real estate market. Prerequisite FIN 641 (FTMBA Elective, Spring Term 1).

FIN 645 Real Estate Finance. 3 credit hours

This course will introduce students to the theoretical concepts and analytical techniques used to make a decision to loan money for the purchase or development of a commercial real estate project. Students will complete projects that require them to evaluate the financing and investment potential of a small commercial site of their choice and to evaluate a lease vs. buy decision using a plot of land in Miami-Dade County from the perspective of a publicly traded corporation. Prerequisite FIN 644 (FTMBA Elective, Spring Full Semester).

FIN 646 Real Estate Market Analysis 2 credit hours

This is a course for those interested in pursuing a career in real estate or understanding the analysis of real property. The course begins with identifying the various uses for a market analysis. Various land uses including residential, office, retail and industrial are then analyzed. Analytical techniques for the determination of supply and demand are then examined. The course will give the student the ability to determine if new construction is market supportable, should a property be converted from its present use and the price points at which the market would accept these developments. Guest lectures from sector experts will be incorporated into the class. Pre-requisite: FIN 644.

FIN 647 Introduction to ARGUS. 1 credit hour

ARGUS software is used extensively in the development, financing and management of commercial real estate, especially in the office, industrial and retail sectors. The introduction to ARGUS class exposes the student to the basic concepts and terminology in the commercial real estate market and to the typical inflows and outflows an owner who invests in real estate faces over the life of the investment. (FTMBA Elective, Spring Term 1 and Fall Term 2).

FIN 648 Advanced ARGUS. 1 credit hour

At the end of the Advanced ARGUS class the student will be able to assess the viability of detailed rent and operating expense assumptions, make decisions about the impact of financing on investor returns and critically evaluate the investment potential of leveraged office and retail property. Prerequisite: FIN 647. (FTMBA Elective, Spring Term 2).

FIN 650 Financial Investments. 2 credit hours. Prerequisites: FIN 641 and 642

This course builds on FIN 641 and FIN 642 to provide a more advanced knowledge of the field of investments, particularly the fixed income markets, portfolio construction, asset pricing, and behavioral biases affecting financial decisions. Typically Offered: FALL & SPRING.

FIN 660 International Finance. 2 credit hours

Finance 660 builds on Finance 641 and 642 and introduces students to the concepts that are important in today's dramatically changing global economy. The course covers the international monetary system; the

interrelationship between national economies through the balance of payments; the economic relationships that determine a currency's value relative to other currencies and real goods; the markets and instruments of international finance; currency crises and contagion; the hedging of international risk exposure; and international portfolio investment. Prerequisites: FIN 641 and 642. Typically Offered: FALL & SPRING.

FIN 670 Corporate Finance. 2 credit hours

Finance 670 builds on Finance 641 and 642 and focuses on financial decision making from a corporation's perspective. Issues addressed include capital structure, management of corporate liabilities, leasing and other asset-based financing techniques, advanced treatment of capital budgeting and some of the complex issues involved, and corporate mergers and acquisitions. Prerequisites: FIN 641 and 642. Typically Offered: SPRING.

LAW 257 Construction Law. 3 credit hours

This course is an intensive study of the various aspects of construction law, including construction contracting, claims and litigation. The course considers the rights and duties of developers, contractors, subcontractors, design professionals, bonding companies and lenders. It emphasizes pitfalls to avoid in construction contracting, the bidding process, government work, construction scheduling and delays, warranties, arbitration or litigation, damages, remedies, waivers and defenses.

MAS 633 Introduction to Quality Management. 2 credit hours

Introduction to the major elements of Dr. Deming's theory of management, including Dr. Deming's System of Profound Knowledge and Fourteen Points for Management. Additionally, participants are introduced to "Six Sigma" tools and methods. These tools and methods have been adopted with great success by many of the largest organizations in the world, for example, General Electric, Allied Signal, DuPont, American Express, and J.P. Morgan. Additionally, the course is a prerequisite for the "Six Sigma" Green Belt certification examination. Prerequisite: MAS 631. Typically Offered: FALL.

MAS 634 Administrative Systems for Quality Management 2 credit hours

This course presents a model to pursue quality management (QM). It features administrative systems and structures necessary for Quality Management. The administrative systems and structures presented in this course are required to sit for the six Sigma Management "Green Belt" certification examination. Prerequisite: MAS 633. Typically Offered: FALL.

MAS 663 Project Management and Modeling 2 credit hours

This course considers the various methods, techniques, and software tools of project management and modeling with special emphasis on real estate projects and development. Topics include: Project selection and strategy, risk assessment, conflict and negotiation, budgets, costs, and resource allocation, monitoring and information systems, project control and auditing, and project closure. The course is designed to show the integration of the various roles of owners, developers, builders, architects, and engineers in the project management process. Prerequisites: MAS 631 and 632. Typically Offered: SPRING.

MGT 617 Leading Across Cultures. 2 credit hours Prerequisite: BUS 632

This course examines what constitutes "effective" leadership across cultures. Skills and behaviors that are perceived as effective leadership in one culture are not necessarily those that will be effective in a different culture. By exploring the ways in which specific cultural values and leadership prototypes are seen across different cultures, students will be prepared for cross-cultural adjustment and effective leadership. These skills may be applied to work assignments in a culture that is not their own or to leading diverse followers in their home country. The goal of the course is to help prepare students for leadership in multicultural environments. (FTMBA Elective, Spring Term 2).

MGT 624 Negotiation Strategies 2 credit hours Prerequisite: BUS 632

This course is a skills-based approach to learning the art and science of negotiation. Negotiation is a core management competency; these skills are increasingly necessary for leaders in business, non-profits, small businesses and other organizations. This course will cover preparation, and negotiation skills such as establishing trust and relationship-building. Topics covered include power, persuasion, creativity and problem-solving, ethics and cross-cultural negotiation. Skills and self-insight will be acquired through self-assessment, role-play negotiation exercises and case studies. Typically Offered: FALL & SPRING.

MGT 691 International Management. 2 credit hours

Course is designed to provide an overview of management problems and issues for organizations and executives operating internationally. Students learn how multinational enterprises are different, why they behave as they do, and how to apply management principles to problem - solving in such contexts. (FTMBA Elective, Fall Term 1).



MEMORANDUM

February 23, 2017

TO: Faculty Senate

FROM: Elected Members of the College of Engineering College Council:
Ghahremaninezhad, Ali (CAE), Speaker of the Council; Celik, Nurcin (IEN);
Jackson, Alicia Renee (BME); Kim, Sung Jin (ECE); Kubat, Miroslav (ECE); Prasad,
Abhishek (BME); Shaikh, Nazrul I (IEN); Wang, Gang (CAE); Yang, Qingda (MAE);
Zha, GeCheng (MAE)

SUBJECT: Approval of the Master of Science Degree with Concentration in Construction
Management

The voting faculty of the College of Engineering delegates to the College Council the authority to approve changes in the Master's Program. After soliciting comments from all of our colleagues within the college; we met and unanimously approved the proposal for a new Master of Science Degree with Concentration in Construction Management. It is our belief that such program will provide students with knowledge and marketable skills to become future leaders in construction.

/apr

Letters of Support from Deans

School of Architecture

From: Costa, Chanelle **On Behalf Of** el-Khoury, Rodolphe

Sent: Monday, April 03, 2017 4:35 PM

To: Prado, Guillermo J, Ph.D. <GPrado@med.miami.edu>

Cc: Nanni, Antonio <nanni@miami.edu>; Bardet, Jean Pierre <bardet@miami.edu>; el-Khoury, Rodolphe <relkhoury@miami.edu>; Montero, Armando M. <amontero@miami.edu>; Regalado, Ana Maria <anaregalado@miami.edu>

Subject: Construction Management Program

Dear Dean Prado,

We have received the proposal from the College of Engineering dated February 26, 2017 pertaining to the creation of a multidisciplinary Construction Management Program. The degree will include courses from the College of Engineering, School of Architecture (SOA), School of Business and School of Law. The shared goal is to ultimately have two programs, one in the College of Engineering and one in the School of Architecture that caters to different student populations and interests, but will overlap in areas by offering shared coursework. We support the College of Engineering efforts in mounting this degree program as part of our mutual agreement to build construction management curricula in the University of Miami.

The name of the contact person to advise MS-CM students about courses they may take at the School of Architecture is Ana Regalado.

For more information on the Construction Management program currently under development at the SOA, please contact Professor Armando Montero.

Cheers,

Rodolphe el-Khoury, Dean

+1 305 284 5000

<http://arc.miami.edu/>

UNIVERSITY OF MIAMI

SCHOOL OF
ARCHITECTURE



School of Business Administration

From: "Mehrotra, Anuj" <amehrotra@bus.miami.edu>

Date: April 3, 2017 at 11:48:48 AM EDT

To: "Bardet, Jean Pierre" <bardet@miami.edu>

Subject: RE: Letter of support for MS-Construction Management

Dear JP,

I am writing in support of the MS-CM program. This will fit well with our plans for Construction Industry MBA. Please let me know if this email is sufficient or you would like to receive a formal memo. Thanks,

Anuj

Anuj Mehrotra

Dean


School of Business Administration, University of Miami



MEMORANDUM

DATE: April 4, 2017

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

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

RE: **New MS Degree in Construction Management**

On April 4, 2017, the College of Engineering submitted a proposal notifying our office of its intent to offer a Master of Science (MS) degree in Construction Management effective Fall 2017.

The new interdisciplinary program will be created by repackaging existing courses in the College of Engineering, School of Architecture, School of Business Administration and School of Law. More courses may be developed as the program grows. Dr. Wimal Suaris, Associate Professor in Civil, Architectural and Environmental Engineering, will serve as the program director. The MS program requires successful completion of 30 credit hours. While a thesis will not be required, students will be required to submit a final project or case study.

Since this is a repackaging of existing courses into a new program, it does not constitute a substantive change. Although a letter of notification will be submitted to the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), formal approval will not be required in order to proceed with implementation.

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

cc: Faculty Senate
Guillermo Prado, Dean, Graduate School
Jean-Pierre Bardet, Dean, College of Engineering
Karen Beckett, University Registrar


**UNIVERSITY
OF MIAMI**



MEMORANDUM

DATE: April 27, 2017

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

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

RE: **ADDENDUM to April 4th Memo re: New MS Degree in Construction Management**

This memorandum is to follow up on the College of Engineering's proposal to offer a Master of Science (MS) degree in Construction Management effective Fall 2017. In my previous memo dated April 4th, I stated that this new program did not constitute a substantive change but that a letter of notification would be sent to our accrediting agency, SACSCOC.

However, after reviewing the SACSCOC Substantive Change Policy and your proposal, I do not believe that notification is even required for this change. It does not "represent a significant departure, either in content or method of delivery" from what we are currently approved by SACSCOC to offer due to the following:

- The program length meets the SACSCOC requirement of a minimum of 30 credit hours.
- The program will require students to complete a final project or case study.
- The curriculum for the program simply involves a repackaging of existing courses.
- The majority of the program will not be offered via distance education. However, even if this were to change, the University is currently approved to offer 100% distance education programs so it would not represent a substantive change.

SACSCOC only requires notifications of new programs that represent a significant departure from our current programs. Therefore, no notification letter will be sent. Since this represents a change from my previous memorandum, I wanted to inform you so that you have this for your records.

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

cc: Faculty Senate
Guillermo Prado, Dean, Graduate School
Jean-Pierre Bardet, Dean, College of Engineering
Karen Beckett, University Registrar

From: [Salerno, Tomas, M.D.](#)
To: [Faculty Senate Office](#)
Subject: Fwd: Revised proposal
Date: Monday, April 17, 2017 8:26:01 AM

Sent from my iPhone

Begin forwarded message:

From: "White, Patricia" <pwhite@law.miami.edu>
Date: April 17, 2017 at 8:25:01 AM EDT
To: "bardet@miami.edu" <bardet@miami.edu>
Cc: "Matas, Raquel" <rmatas@law.miami.edu>, "Abraham, Sandy" <sabraham@law.miami.edu>, "Newman, JoNel" <jnewman@law.miami.edu>, "Oxman, Bernard H." <bhoxman@law.miami.edu>, "Schnably, Stephen J." <schnably@law.miami.edu>, "TSalerno@med.miami.edu" <TSalerno@med.miami.edu>
Subject: Revised proposal

Dear JP,

I am on board with Nanni's revised proposal. Thanks for being so responsive!
Best, Trish

Patricia D. White
Dean and Professor of Law
University of Miami School of Law
O. (305) 284-9327


Sent from my iPhone



MEMORANDUM

DATE: April 18, 2017

TO: Tomas Salerno
Chair, Faculty Senate

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

SUBJECT: Proposal – Master of Science degree program in Construction
Management

The College of Engineering submitted a proposal for a Master of Science degree program in Construction Management. The proposal was discussed at the April 18, 2017, meeting of the Graduate Council, and was unanimously approved by those present.

cc: Jean-Pierre Bardet, Dean, College of Engineering
Antonio Nanni, Chair and Professor, Department of Civil, Architectural, and
Environmental Engineering
Office of Planning, Institutional Research and Assessment