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Bulletin #: \_\_\_\_\_  
 Academic Year: \_\_\_\_\_

# FLORIDA INTERNATIONAL UNIVERSITY UNDERGRADUATE PROGRAM PROPOSAL

## New Undergraduate Degree Program

**INSTRUCTIONS:** Please Type. Fill out this form **completely**.

School/College Engineering and Computing

Div./Dept. OHL: School of Construction

Degree Program Title: Concrete Industry Management

B.A.  B.S.  Other Bachelor's \_\_\_\_\_

Proposed Implementation Date: 08/2017

**PROPOSAL REQUESTED BY:**

Faculty Contact	Jose A. Faria		04 / 14 / 2016
	(Type Name)	(Signature)	
	fariaj@fiu.edu	305-348-3541	
	(Email address)	(Phone Number)	
Chair (Dept./Div.)	Irtishad Ahmad		4 / 14 / 20
	(Type Name)	(Signature)	
Chair (Curr. Comm.)	Dr. Bilal El-Zahab		/ / 20
	(Type Name)	(Signature)	
College/School Dean	Dr. Ranu Jung		/ / 20
	(Type Name)	(Signature)	

JOINT HEARING REQUIRED. PLEASE SUBMIT ORIGINAL FORM.

<b>DO NOT TYPE IN THIS BOX</b>
Bulletin #: _____
Academic Year: _____

**NEW UNDERGRADUATE DEGREE**  
PLEASE SUBMIT THIS FORM WITH YOUR PROPOSAL

**Please fill out the coversheet in its entirety.**

A new program must first be added by the Office of the Provost to the 5-year Master Plan for the University and must follow the process flow chart. The first step in this process is a Feasibility Study. After the program Feasibility Study is approved, the program proposal must adhere to the strict Proposal Format for a New Graduate Degree Program and must include the appropriate Tables. You may access these documents by visiting the Office of the Provost website [here](#).

**The proposal must include the following elements.** All of these element topics, along with their details, are described in the proposal format document also available at the above link.

- I. Degree Description - The structure of the New Degree must follow the Board of Governors Policy for New Degree Program Authorization.
- II. Institutional Mission and Strength
- III. Program Quality- Reviews and Accreditation
- IV. Curriculum
- V. Assessment of Current and Anticipated Faculty
- VI. Assessment of Current and Anticipated Resources
- VII. Assessment of Need and Demand
- VIII. Budget
- IX. Productivity
- X. Access

**CHECK LIST**

	<b>Yes</b>	<b>No</b>
1. Has a Feasibility Study been approved by the Office of the Provost?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Have all the elements in I-X above been addressed along with tables?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Do all courses exist in the current catalog?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. If courses are not in the current catalog, are they proposed in the same Curriculum Committee Bulletin as this proposal?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. If courses are not in the current catalog or proposed in this same Bulletin, were they approved in a previous curriculum bulletin?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, attach a separate sheet indicating each course number, name, Bulletin number and Bulletin date.		
If the answers to 1, 2, and 3 are no, do not submit the proposal. Address the course issues first.		
6. Do courses listed have the correct course prefixes, official titles, course numbers and number of credits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Do course descriptions match the existing catalog or proposed course descriptions?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Are all courses to be added taught in the same proposing department?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If the answer to #8 is no, do you have the written approval/ acknowledgement of the other department(s)? (You must have written approval before submitting this document.)	<input type="checkbox"/>	<input type="checkbox"/>
9. The written approval(s)/acknowledgment(s) must be attached.		

## Board of Governors, State University System of Florida Request to Offer a New Degree Program

(Please do not revise this proposal format without prior approval from Board staff)

Florida International University  
University Submitting Proposal

Fall 2017  
Proposed Implementation Term

School of Engineering and Computing  
Name of College(s) or School(s)

OHL School of Construction  
Name of Department(s)/ Division(s)

Construction  
Academic Specialty or Field

Concrete Industry Management  
Complete Name of Degree

15.1599  
Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

\_\_\_\_\_  
Date Approved by the University Board of Trustees      \_\_\_\_\_  
President      \_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Chair, Board of Trustees      \_\_\_\_\_  
Date      \_\_\_\_\_  
Vice President for Academic Affairs      \_\_\_\_\_  
Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

Implementation Timeframe	Projected Enrollment (From Table 1)	
	HC	FTE
Year 1	10	7.5
Year 2	20	15

Projected Program Costs (From Table 2)				
E&G Cost per FTE	E&G Funds	Contract & Grants Funds	Auxiliary Funds	Total Cost

<b>Year 3</b>	30	22.5					
<b>Year 4</b>	40	30					
<b>Year 5</b>	50	37.5					

*Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.*

## INTRODUCTION

### **I. Program Description and Relationship to System-Level Goals**

- A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.**

The goal of the Concrete Industry Management (CIM) program is to produce broadly educated, articulate graduates grounded in basic construction management, who are knowledgeable in concrete technology and techniques and who are able to manage people and systems to promote products or services related to the concrete industry. The program is an undergraduate level degree without any concentration, track or specialization. The curriculum consists of 120 credit hours, students are required to successfully complete a Minor in Business, and a mandatory internship with one of the local industry patrons. The graduates of the program can seek employment in any area related to the concrete industry. Their skills will allow them to work in the business aspect of the company, marketing, sales, or in a more technical position dealing with concrete mix design, quality control, estimating, scheduling or safety. Currently, given the market conditions in South Florida and the high level of construction there are positions available in many firms. Concrete is also a widely used material in South America and the Caribbean, graduates who are interested in living on those areas can also seek job opportunities in the concrete industry in those places.

- B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide a brief narrative explaining how each of these concerns has been or is being addressed.**

The pre-proposal was presented to CAVP on December 11, 2015

B.1. The group asked why this cannot just be a major within the OHL School of Construction. The reason is that the program is sponsored by the concrete industry and the sponsors have a vision of the program growing into a department at some point in the future. The sponsors believed that to allow for future growth it would be better to start a separate degree program. This was a suggestion, not a requirement.

B.2. The suggested CIP 15.1001 was rejected since it is being used by the Construction Management degree. We propose the use of 15.1599 or 15.1199. None of those are currently in use.

- C. If this is a doctoral level program please include the external consultant's report at the end of the proposal as Appendix D. Please provide a few highlights from the report and**

**describe ways in which the report affected the approval process at the university.**

This is not a doctoral level program

**D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on [the resource page for new program proposal](#)).**

SUS Goal: Strengthen Quality and Reputation of Academic Programs and Universities

CIM support: The CIM degree will increase the reputation of the SUS by incorporating a new degree that has proven to be successful in other parts of the country.

SUS Goal: Increase Degree Productivity and Program Efficiency

CIM Support: In Florida there is a large number of underrepresented groups that are naturally drawn to the construction industry because there are not many requirements to work in construction. We see the need for these groups to get better education in order to raise to managerial positions in the industry.

SUS Goal: Increase the Number of Degrees Awarded in STEM and Other Areas of Strategic Emphasis

CIM Support: CIM is a STEM degree, by incorporating this new degree program the SUS will be increasing the number of STEM degrees awarded.

SUS Goal: Strengthen the Quality and Reputation of Scholarship, Research, and Innovation

CIM Support: Students and faculty will have the opportunity to research and publish in journals, such as Elsevier's Cement and Concrete Research Journal and the American Concrete Institute's Materials and Structural journals.

SUS Goal: Increase Research and Commercialization Activity

CIM Support: The CIM program is receiving support from the industry, one of the institutes that are deeply involved with the program is the Ready Mixed Concrete (RMC) Research & Education Foundation that provides resources by funding high quality, high value, non-proprietary research and education programs. Likewise, the Portland Cement Association through their Education Foundation provides funds for a wide variety of educational activities. The field of concrete is continuously evolving and researchers are looking into more environmentally friendly solutions such as the pervious concrete that allows water to seep through concrete slabs. In addition, other innovative products can be developed and commercialized as a result of research in this area.

SUS Goal: Increase Collaboration and External Support for Research Activity

CIM Support: This is one of the CIM's greater support potentials, since the entire program is supported by at the national, state and local levels by the industry. Through the local Educational Committee of the Florida Concrete and Products Association we will have guaranteed support for collaboration and research opportunities with all members of the concrete industry.

SUS Goal: Strengthen the Quality and Recognition of Commitment to Community and Business Engagement

CIM Support: This is another area where the CIM program will partner with local businesses to provide community services. As an example, the Florida Concrete and Products Association provided materials to pour a porous concrete slab in a local homeless shelter in Miami. They also partnered with UM students

and invited FIU faculty to participate as well.

SUS Goal: Increase Community and Business Workforce

CIM Support: By partnering with local industry FIU will offer internship opportunities to our students in many of the different concrete related businesses in Florida. It is expected that these internships will evolve into full time positions and the student/employee will remain in the Florida workforce.

SUS Planning goal: Expand need-based financial aid to undergraduate students to improve access and affordability

CIM Support: By requesting local concrete industry donors to provide scholarships, the CIM program will help students that are struggling with financial difficulties to achieve their degree.

SUS Planning goal: Ensure that students have access to a high-quality undergraduate education, comparable to that available at peer institutions nationally.

CIM Support: FIU's CIM program will be comparable to the programs offered at California State University-Chico, Middle Tennessee State University, New Jersey Institute of Technology and Texas State University-San Marcos. The concrete industry supports all of these degree programs.

SUS Mission: The mission of the State University System of Florida is to provide undergraduate, graduate and professional education, research, and public service of the highest quality through a coordinated system of institutions of higher learning, each with its own mission and collectively dedicated to serving the needs of a diverse state and global society.

CIM Support: CIM is uniquely posed to help achieve this mission due to the innovative nature of this field and the proximity to Latin America and the Caribbean.

SUS Vision: By 2025, the State University System of Florida will be internationally recognized as a premier public university system, noted for the distinctive and collective strengths of its member institutions.

CIM Support: CIM will help the SUS to achieve their vision by creating an opportunity in a new undergraduate program that has local and international need of graduates.

- E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion. Enter "Not Applicable" if proposed degree CIP code is not identified by BOG to meet one of these areas.**

The Programs of Strategic Emphasis Categories:

1. Critical Workforce:
  - Education
  - Health
  - Gap Analysis
2. Economic Development:
  - Global Competitiveness
3. Science, Technology, Engineering, and Math (STEM)

**Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations on program inclusion criteria at [the resource page for new program proposal](#).**

CIM is a STEM program since it is based on science and technology for concrete and construction with an

emphasis in engineering and business education.

**F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.**

We expect the CIM program to be offered at the Engineering Center and the FIU @I75 campuses. Some of the prerequisites will be offered at the Biscayne Bay and Modesto Maidique campuses.

**INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY**

**II. Need and Demand**

**A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.**

CIM, as a degree program, was developed through the support of leading companies and trade associations in the concrete industry that required a significant increase in the number of qualified workers in the field. These industry stakeholders initially partnered with four academic institutions to offer the B.S. in CIM. Graduates of these programs were able to fulfill the industry's urgent need for educated and properly qualified individuals who could oversee their production plants, verify concrete quality and compliance specifications, and manage related businesses in the concrete industry.

In Florida, there is a large number of Spanish-speaking construction workers. FIU, with its predominantly Hispanic student population, could also address an underserved population in the field, by producing Spanish-speaking concrete industry professionals who could effectively communicate with these workers.

The 2060 Florida Transportation Plan report from the Florida Department of Transportation cites "Florida will likely continue to exceed national growth due to retirement and migration of the baby boomers and strong international immigration and domestic migration of workers in search of economic opportunities and livable communities. State forecasts anticipate a near doubling of both population and employment by 2060, to perhaps 34 million residents and 14 million jobs." In order to support this expected growth the state must invest in infrastructure capable to accommodate such large needs, almost all infrastructure projects will require the use of concrete, and we anticipate our graduates to be ready to satisfy the human requirements to manage those projects.

In an article published by Engineering News Record the author states that "All three of Florida's construction categories improved in April (2015), combining for a 17% overall gain in the value of new contracts, compared to a year ago, according to McGraw-Hill Construction." We see a clear upward tendency in the market for construction in Florida.

The bureau of labor and statistics listed "Helpers--brickmasons, blockmasons, stonemasons, and tile and marble setters" as the 7<sup>th</sup> fastest growing occupations in their Occupational Outlook Handbook for 2012-22. Construction laborers are listed 10<sup>th</sup> in number of new jobs projected for 2012-22. The growth on those areas are indicative of a healthy construction industry that is growing at a very fast pace. Since concrete is one of the largest construction materials employed in Florida, we expect that our graduates will fill the managerial positions required to produce, sell, install and maintain the concrete products that will be

installed by those masons and construction laborers.

**B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.**

A recent keyword search on [www.my.jobs](http://www.my.jobs) revealed 1,284 job offerings in Florida related to concrete. This robust job listing is of positions that would be supervised by the graduates of the proposed program. A recent survey by the OHL School of Construction with 47 answers showed a positive overall interest in the CIM program, where 47% of the respondents said that given the chance they would pursue a career in Concrete Industry Management, and 77% said they perceive the need for CIM graduates to be medium to high demand. 77% responded that they would pursue a career in CIM, recommend it to someone they know or just take some classes to maintain or update their skills. 71% believe their companies would hire people with CIM knowledge

Enrollment in CIM programs at other universities are trending upwards and have shown a steady increase in enrollment since they opened. Given the success of the current construction management degree, offered in the OHL School, the publicity and recognition from the CIM National Steering committee will generate more interest and a broader recruitment within the state and Latin America.

**C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.**

The CIM program will have a new CIP code. The program will have similar lower level courses as compared with the current Construction Management program, but will then become different on the upper level courses. We will have cross-listed courses between CIM and CM, between CIM and CE, and between CIM and business. No concerns about duplication were voiced on the CAVP call December 11, 2015 as this is different from existing construction degrees at FIU, FAMU, UF, and UNF.

**D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalent (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.**

We anticipate to start the program with 10 students. Some will come from within FIU and some from outside colleges as transfer students. In later years, we will increase our marketing and recruiting efforts to increase the enrollment. We will also use the industry patrons group to advertise the new program.

**E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in**



**consultation with the affected university), an analysis of how the program might have an impact upon that university's ability to attract students of races different from that which is predominant on their campus in the subject program. The university's Equal Opportunity Officer shall review this section of the proposal and then sign and date Appendix B to indicate that the analysis required by this subsection has been completed.**

The CIM program director will work with a recruiter and the patrons of the program, to reach out to high schools, community colleges, and members of the industry, to promote the program. We will also take advantage of our relationship with other industry associations such as National Association of Women in Construction, National Association of Black Women in Construction, Latin Builders, Associated Builders and Contractors, and other local organizations to promote the program among different audiences targeting a diverse enrollment.

### **III. Budget**

- A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)**

We are anticipating a funding of \$200,000 per year from the patrons group, to sustain the first five years of operation. We anticipate the largest cost to be associated with faculty salaries. We show an increase in revenue explained by the increase in enrollment and industry support. There are assistantships and fellowships included that might be limited so they are constant across the years.

We do not anticipate significant shifting of funds from our current Construction Management program, there is a cost associated with faculty who is currently teaching courses for the BSCM that will be teaching courses associated with the new BSCIM.

- B. Please explain whether the university intends to operate the program through continuing education on a cost-recovery basis, seek approval for market tuition rate, or establish differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors' approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.**

The program will be operated on regular tuition with an E&G budget base.

- C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program**

**might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).**

This is a completely new program that will be using the materials and processes lab owned by the OHL School of Construction. Rather than being a negative impact, we see this interaction rather positive since the lab has idle time and enough space to accommodate the current and immediate future materials and equipment needs. The CIM will bring funds to acquire new equipment, tools and materials needed to teach concrete-related lab courses. This lab will become an important research tool for our future faculty and students, with the funds provided by the patrons of the program, we anticipate the successful operation of the lab.

**D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).**

Since there will be a large number of common courses as pre-requisites for courses in both Construction Management and Concrete Industry Management programs we expect the enrollment of these courses to increase. Some of the upper level courses will also be cross listed with Construction Management courses, so we also expect an increase in enrollment in those courses.

There are some upper level courses that are going to be selected from the Business School to provide the CIM students with the business skills necessary for their future careers in management of concrete businesses. We expect to increase the enrollment in those courses as well. We have confirmed the requirements to obtain a minor in business and have contacted the School of Business to inform them of our plans.

There will be a new set of classroom and lab courses that are going to be created just for this program. We expect to hire new faculty and adjuncts to teach those courses, we have already initiated preliminary contacts with industry patrons to identify individuals who are both capable and willing to teach courses in the program.

**E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.**

The Concrete Industry Management Steering Committee and the local concrete industry patrons have agreed to support the program for a minimum of 5 years by providing funds at a minimum of \$200,000 per year from the Steering Committee and the local patrons committee. In addition we anticipate additional funds and scholarships will be provided by the local patrons. The local patrons have also agreed to provide internships to students during their time in the CIM program. These commitments have been submitted to FIU in writing in the form of a Memorandum of Understanding that is currently being reviewed by FIU's administration. We have attached letters of support in Appendix D.

**IV. Projected Benefit of the Program to the University, Local Community, and State**

**Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for "Need and Demand" to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear**

**distinction made between the two in the narrative.**

The level of commitment shown by the industry will benefit the university by bringing at least one million dollars in funds over 5 years. The local community will benefit from having a new option for undergraduate studies that guarantees internships during the studies and the state will also benefit from graduates that will stay locally working in a very vibrant industry. The university will also have an opportunity to showcase a program that can bring students from South America and the Caribbean since those regions have also a strong consumption of concrete products.

**V. Access and Articulation – Bachelor’s Degrees Only**

- A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)**

The CIM program will not exceed 120 credit hours.

- B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the Common Prerequisite Manual on [the resource page for new program proposal](#)). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”**

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

The program pre-requisites for the CIM degree are the University’s Core Curriculum. To be admitted into the program the student needs a high school degree from an accredited institution, official SAT/ACT scores, and transcripts from all other colleges attended. Students transferring from a public university or college in Florida, must submit passing scores from the College Level Academic Test (CLAST). Admission into the undergraduate program requires a minimum 2.5 grade point average.

- C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a**

**designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.**

Not applicable.

- D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see link to the Statewide Articulation Manual on [the resource page for new program proposal](#)). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.**

Not applicable.

## INSTITUTIONAL READINESS

### VI. Related Institutional Mission and Strength

- A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on [the resource page for new program proposal](#)).**

FIU Mission: Florida International University is an urban, multi-campus, public research university serving its students and the diverse population of South Florida. We are committed to high-quality teaching, state-of-the-art research and creative activity, and collaborative engagement with our local and global communities.

CIM Support: CIM is uniquely posed to help achieve the mission of FIU due to the innovative nature of this field and the proximity to Latin America and the Caribbean. The CIM program will provide undergraduate education and research performed by dedicated faculty in collaboration with the concrete industry. This partnership will lead to excellence, local growth, and global impact.

- B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.**

FIU's Construction Management program is a highly recognized program both locally and nationally. Its graduates are seen as highly desirable individuals who are consistently hired by the local industry. The CIM program will bring a strong support from a related field providing the students with a choice in their career selection supplemented by a mandatory internship in the industry. The OHL School of Construction's process and materials lab can be utilized to prepare concrete mixes, perform research projects and teach hands-on activities using the existing facilities with some additions in terms of equipment and materials. Some of the courses can take advantage of civil engineering labs for concrete strength testing purposes. The business aspect of the program can be accomplished in collaboration with the College of Business to maximize the use of an outstanding program.

- C. Provide a narrative of the planning process leading up to submission of this proposal.**

**Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.**

On April 20<sup>th</sup> 2015 a group of executives from the Concrete Industry Management and the Florida Concrete and Products Association visited FIU to meet with President Rosenberg and Provost Furton to discuss the potential launch of a Concrete Industry Management program at FIU. After the meeting, the executives met with Dean Mirmiran, Director Ahmad, and a selected group of faculty and staff from the College of Engineering to devise a timetable and set in motion the process required to launch the CIM program. After the meeting the parties worked on their own tasks to prepare this proposal, set up in motion the financing of the program and convert the plan into a reality.

### Planning Process

Date	Participants	Planning Activity
04/20/2015	Dr. Mark Rosenberg - FIU Dr. Kenneth Furton - FIU Mike Schneider - Baker Concrete Nicole Maher - National Ready Mix Concrete Association Gene Martineau - CIM	Meeting to determine FIU's commitment to the new degree concept. Based on the meeting, the Provost approved moving forward with feasibility study.
April 2015 - to January 2015	Dr. Irtishad Ahmad Dr. Jose Faria	Preparation of pre-proposal Preparation of feasibility study Preparation of Budget
12/11/15	CAVP	Pre-proposal presented and no concerns about duplication were raised.
11/02/15 - to Date	Dr. Irtishad Ahmad Dr. Jose Faria Dr. Susan Himgurg	Review of pre-proposal and feasibility study
01/10/2016 - 02/15/2016	Dr. Irtishad Ahmad Dr. Jose Faria Prof. Gene Farmer	Meetings to review the proposed curriculum internally.
01/10/2016 - 02/15/2016	Dr. Irtishad Ahmad Dr. Jose Faria Mr. Tim Kuebler - Titan America Mr. Jeff Bishop - Maschmeyer Concrete Robert Cardone - Cemex Jorge Armenteros - Lehigh Cement	Meetings to review the proposed curriculum with the CIM patrons group.
02/02/2016 - 02/03/2016	Dr. Jose Faria - FIU Dr. Heather Brown - MTSU Dr. Andy Dr. Tanya Komars - CSUC Dr. Mohamed Mahgoub - NJIT Dr. John Schemmel - TSU Mike Schneider - Baker Concrete Construction Alan Nedza, - BASF Corporation	Meetings to review the proposed curriculum with the CIM directors group and the CIM National Steering Committee during the 2016 World of Concrete Expo in Las Vegas, NV.

	Nicole R. Maher - National Ready Mixed Concrete Association. Eugene Martineau - CIM	
02/23/2016	Dr. Mark Rosenberg - FIU Mr. Tim Kuebler - Titan America Robert Cardone - Cemex Jorge Armenteros - Lehigh Cement	Meeting to review the progress of the CIM program and discuss status of MOU.
02/23/2016	Dr. Ranu Jung - FIU Dr. Anthony J. McGoron - FIU Dr. Susan Jay - FIU Dr. Irtishad Ahmad - FIU Dr. Jose A. Faria - FIU Mr. Tim Kuebler - Titan America Robert Cardone - Cemex Jorge Armenteros - Lehigh Cement	Meeting to review the progress of the CIM program, specific steps in the near future, and discuss status of MOU.

#### Events Leading to Implementation

Date	Implementation Activity
01/15/2016	Feasibility study review
01/28/2016	Feasibility study approved by Academic Planning and Accountability
02/15/2016	Full proposal review
02/22/2016 - 04/14/2016	College of Engineering and Computing curriculum review. The Department of Civil Engineering reviewed the proposal and list of new courses proposed.
04/20/16	Submission to Faculty Senate
??	FIU curriculum hearing
??	Faculty senate approval
06/??/2016	June BOT (FIU Board of Trustees) approval
summer 2016	BOG (Board of Governors) for review.
08/30/2016	Added to Degree Inventory
09/01/2016	Start advertisement and recruiting
Spring 2017	Start registration
Fall 2017	First classes

#### VII. Program Quality Indicators - Reviews and Accreditation

**Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.**

The program was developed using the input from the Concrete Industry Management which is sponsoring this degree and four others at universities across the country. The group has a document outlining the criteria for approval, there are eleven (11) areas that will be evaluated at the time of the approval. We are implementing a proven curriculum with input from the CIM National Steering Committee and the industry, so we are taking the necessary precautions to cover all necessary components of the discipline.

## VIII. Curriculum

### A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

CIM students should demonstrate that they have knowledge when evaluated under the following outcomes:

- (a) Explain how concrete materials and products are produced, used, and tested;
- (b) Describe of contemporary concrete blending, mixing, transport, placement, and finishing processes;
- (c) Evaluate fundamental behavior of materials and hold a rigorous experience in testing material properties;
- (d) Explain how project, quality, and safety management methods impact the financial and economic aspects of concrete materials, products, and services;
- (e) Demonstrate ability to utilize and understand contemporary computer applications, information systems, and software packages common-place to the industry;
- (f) Demonstrate ability to effectively communicate ideas in oral, written, and graphical form;
- (g) Demonstrate ability to, and experience in, collaboratively working with teams and small group settings;
- (h) Explain the legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.
- (i) Demonstrate ability to apply basic concepts in accounting, economics, finance, management, information systems, ethical understanding, business law, and marketing in a senior project.

### B. Describe the admission standards and graduation requirements for the program.

To be admitted into the program the student needs a high school degree from an accredited institution, official SAT/ACT scores, and transcripts from all other colleges attended. Students transferring from a public university or college in Florida, must submit passing scores from the College Level Academic Test (CLAST). Admission into the undergraduate program requires a minimum 2.5 grade point average. Students transferring from another university or community college should review the Florida International University Undergraduate Catalog for university policies, application procedures, and financial aid information. Prior to or upon admission, transfer students should also contact an advisor to review transcripts and determine allowable transfer credits.

The students are expected to complete 120 credit hours for graduation. The program lower level courses for the CIM degree are the University's Core Curriculum. Within the curriculum the students are required to register for a minor in business and take five business courses required to obtain a minor in business, also the students are required to take an internship position with one of the patron companies that support the CIM program. The program has 48 credits considered core courses and allows the student 21 credits for electives between the Construction Management and Business programs. Finally students are required to complete a senior project course and obtain a 2.5 GPA or above for graduation.

### C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The program consists in 120 credit hours exposing the students to four major areas: 1. General knowledge and global exposure, 2. Construction methods and techniques, 3. Business skills, and 4. Concrete Industry specific knowledge. These four major areas are then complemented with a mandatory internship course facilitated by the local concrete industry in coordination with an advisor. Currently the students can choose between one of three business minors, these are the electives for the program. The students are required to complete a proposal for a concrete specific business and present a realistic proposal in their senior project. In a capstone course the student has to present a problem and the solution for a concrete related case to a panel of industry experts under the supervision of a faculty.

**D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.**

Bachelors of Science in Concrete Industry Management. 120 credits

**FIRST SEMESTER: 16 credits**

ENC 1101	Writing and Rhetoric I	3
SLS 1501	First Year Experience	1
	(1) Humanities from Group 1	3
	(1) Mathematics from Group 1	3
	(1) Social Science from Group 1	3
BCN1272	Plans Interpretation	3

**SECOND SEMESTER: 16 credits**

ENC 1102	Writing and Rhetoric II	3
	(1) Humanities from Group 2	3
	(1) Mathematics from Group 2	3
	(1) Social Science from Group 2	3
	(1) Natural Science + Lab from Group 1	4

**THIRD SEMESTER: 16 Credits**

	(1) Natural Science + Lab from Group 2	4
	(1) Arts from approved list	3
BCN 3XXX	Introduction to the Concrete Industry	3
ACG 3024	Accounting for Managers and Investors	3
BUL 4320	Business Law	3

**FOURTH SEMESTER: 15 Credits**

BCN 3XXX	Fundamentals of Concrete	4
BCN 3949	Industry Internship	2
BCN 2280	Construction Surveying	3
BCN 3730	Construction Safety	3
FIN 3005	Introduction to Business Finance	3

**FIFTH SEMESTER: 15 Credits**

BCN 3611	Construction Cost Estimating I	3
BCN 3762	Building Codes and Quality Control	3
BCN 3740	Legal Aspects of Construction	3
BCN 3XXX	Applications of Concrete in Construction	3
ISM 3012	Introduction to Decision Sciences and Information Systems	3



**SIXTH SEMESTER: 15 Credits**

BCN 3720	Construction Scheduling I	3
	(1) Elective **	3
	(1) Elective **	3
MAN 3022	Introduction to Management	3
BCN 3XXX	Concrete Construction Methods	3

**SEVENTH SEMESTER: 15 Credits**

BCN 3XXX	Management of Concrete Products: Ordering and Delivering	3
	(1) Elective **	3
	(1) Elective **	3
	(1) Elective **	3
MAR 3024	Principles of Marketing	3

**EIGHTH SEMESTER: 12 Credits**

BCN 3XXX	Management of Concrete Products: Production Facilities	3
BCN 3XXX	Concrete Problems: Diagnosis, Prevention, and Dispute Resolution	3
	(1) Elective **	3
BCN 4910	Senior Project	3

\*\* Electives must be a minimum of 9 credits from BCN 3000 and above, the remainder can be electives from BCN or any Business minor.

**E. Provide a one- or two-sentence description of each required or elective course.****ENC 1101 Writing and Rhetoric I**

ENC 1101, the first of FIU's two-course writing sequence, introduces students to the writing, reading, and critical thinking skills required for college writing. Course materials and writing projects introduce rhetorical concepts and invite students to consider themselves as writers inside and outside the classroom. Students will read and analyze professional nonfiction texts to understand how experienced writers develop and present ideas through writing. They will complete four major writing projects for a variety of audiences and purposes.

**SLS 1501 First Year Experience**

FIU recognizes that a university education takes place both inside and outside of the classroom. SLS 1501 introduces students to the university and promotes and supports academic, intellectual, personal, and social growth and success. The course reviews the skills and competencies necessary for first-year students' transition to the university, including developing effective study skills; understanding University Core Curriculum, major, and career choices; managing time, finances, responsibilities, health, and wellness; developing social relationships and appreciating the diversity of our campuses and communities; and preparing for global citizenship.

**(1) Humanities from group 1**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Humanities in Group 1. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Mathematics from group 1**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Mathematics in Group 1. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Social Science from group 1**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Social Science in Group 1. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**ENC 1102 Writing and Rhetoric II**

ENC 1102 expands upon the writing and rhetorical skills learned in ENC 1101 by placing additional emphasis on argument and researched writing. Through a deeper focus on research, writers will hone their abilities to locate, evaluate, and document sources, and to incorporate them smoothly and responsibly into their own writing. Students will learn about primary and secondary research, employing the research methods that best fit their chosen rhetorical purpose and audience. The course reviews rhetorical concepts covered in ENC 1101 to ensure that students leave first-year writing with a rhetorical understanding and vocabulary that will assist them in other writing contexts. It then takes students through an extended research process.

**(1) Humanities from group 2**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Humanities in Group 2. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Mathematics from group 2**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Mathematics in Group 2. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Social Science from group 2**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Social Science in Group 2. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Natural Science and lab from group 1**

One three credit course, and one one credit lab course from the FIU University Core Curriculum (UCC) set identified as Social Science in Group 1. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Natural Science and lab from group 2**

One three credit course, and one one credit lab course from the FIU University Core Curriculum (UCC) set identified as Social Science in Group 2. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**(1) Arts from approved list**

One three credit course from the FIU University Core Curriculum (UCC) set identified as Arts. The course set can be found at:

<http://undergrad.fiu.edu/advising/university-core-curriculum.html>

**BUL 4320 Business Law**

Substantive issues and principles of business law, including: the American legal system, torts, contracts, Uniform Commercial Code sales, property law, credit and secured transactions, and ethical issues in business law.

**BCN 1272 Plans Interpretation**

Building construction plans interpretation of working drawings for residential, commercial building, and civil construction.

**BCN 2280 Construction Surveying**

Principles and practices of surveying as it applies to building construction.

**BCN 3611 Construction Cost Estimating I**

Principles and practices of estimating providing application and drill in surveying quantities of labor and materials for general construction projects: excavation, concrete and formwork, carpentry, masonry, structural steel, lath and plaster, interior finishes. Prerequisites: BCN 1272 and BCN 2210.

**BCN 3720 Construction Scheduling I**

Critical Path and Precedence Diagram Methods in construction planning and scheduling, including: resource management, cashflow, PERT, time compression and scheduling updating. Prerequisite: BCN 3611.

**BCN 3730 Construction Safety**

Introduces occupational safety hazards associated with the construction industry. Emphasis placed on recognition, evaluation, and control of safety hazards particularly as they relate to the Occupational Safety and Health Act.

**BCN 3740 Legal Aspects in Construction**

Legal and business aspects of engineering contracts and specifications in the construction industry. Analysis, study of precedents, and application of contract clauses, including changes, changed conditions, termination, disputes, payments, risk and insurance, inspection, liquidated damages, and technical requirements. Prerequisites: BUL 4320 and BCN 1013.

**BCN 3762 Building Codes and Quality Control**

Study of building codes required by local, county, and state levels and their relation to quality control. Prerequisite: BCN 1013, BCN 2210.

**BCN 3XXX Introduction to the Concrete Industry**

This course provides an overview of the history, career opportunities, job functions, and professional organizations in the concrete industry. Students will be introduced to the Concrete Industry Management curriculum, its instructional expectations and methodologies. Topics include: objectives of the Concrete Industry Management program, overview of the concrete industry, history of the concrete industry, overview of concrete, cement, aggregate and admixture properties and uses, concrete production and uses, concrete construction and contracting, professionalism and opportunities for CIM students and graduates as well as in the industry.

**BCN 3XXX Fundamentals of Concrete**

These courses examine effects of concrete-making materials (aggregates, cements, admixtures, etc.) on the properties of fresh and hardened concrete. Concrete mixture proportioning calculations and statistical analysis of strength tests are also studied. Topics include: aggregate properties and testing (grading, specific gravity, absorption, moisture content, abrasion resistance, soundness, harmful substances); cement properties and testing (chemical composition, fineness, setting time, soundness, strength); supplementary cementing materials (fly ash, silica fume, blast-furnace slag); admixtures (air-entraining agents, water reducers, accelerators, retarders); fresh concrete properties and testing (workability, slump, air content, unit weight); hardened concrete properties and testing (strength, durability, volume changes, permeability); concrete mix proportioning (normal strength, high strength, and special mixes); statistical analysis of concrete strength tests. **ACI Level I Field Testing Certification is required to pass the course.**

### **BCN 3XXX Concrete Construction Methods**

This course takes a detailed look at how the concrete construction industry works. The course includes a review of model building codes, building officials and their function, concrete industry codes and standards, concrete construction processes, quality assurance systems, contract documents, estimating, construction scheduling and concrete construction markets.

### **BCN 3XXX Applications of Concrete Construction**

This is a detailed study of the many uses of concrete in the construction of buildings, pavements and other facilities. Emphasis will be placed on the advantages, disadvantages, and unique problems faced by materials suppliers, contractors and design professionals when concrete is chosen for specific applications. Topics include: pavements (construction methods, repair, rehabilitation, life-cycle costing), residential construction (decorative flatwork, basements, foundations, block, ICF's), commercial construction (block, cast-in-place, pre-cast, pre-stressed, and architectural concrete), underground systems (septic, pipe, culverts, etc.), concrete estimating methods and software (project), concrete repair methods and materials, special topics (mass work, underwater placements, etc.)

### **BCN 3XXX Management of Concrete Products - Ordering & Delivering**

This course is designed to provide the student with a basic understanding of managing the ordering and delivery process common to all concrete products. Emphasis will be in planning, organizing and controlling at both the first-line supervisory and managerial levels.

### **BCN 3XXX Management of Concrete Products: Production Facilities**

This course provides basic understanding of managing the manufacturing process common to all concrete products production facilities including planning, organizing, and controlling production.

### **BCN 3XXX Concrete Problems: Diagnosis, Prevention, and Dispute Resolution**

This course teaches students how to diagnose and prevent problems related to concrete production, testing, construction, and performance. Students identify causes of fresh and hardened concrete problems such as fast and slow setting, air content variations, low strength, cracking, and scaling. Pre-job conferences and dispute resolution methods are emphasized.

### **BCN 3949 Industry Internship**

This course provides an opportunity for students to gain supervised, practical work experience in their particular field of interest within the concrete industry. The student will be evaluated by his/her supervisor, and a final report will be submitted by the student detailing the internship experience. Possible experiences may include: concrete production management in ready mix, block, pipe, or precast/prestressed facilities, a sales internship for a concrete company or concrete materials or equipment supplier, construction management internship for a specialty concrete or general contractor,

or other opportunities at the discretion of the supervising faculty and advisor.

### **BCN 4910 Senior Project**

Intensive study of a problem(s) appropriate to the major and the student's career interest. Solution(s) for problem(s) presented to a committee of concrete industry representatives. Presentation must emphasize depth of analysis, completeness and effectiveness of solution, and presentation skills.

### **Introduction to Management**

Introduction to management processes: planning, organizing, directing and controlling for nonbusiness majors. Individual/team responses to various environment and technologies are described as techniques of employee management.

Prerequisite: This course cannot be taken by students enrolled in the College of Business Administration.

### **Financial Management of Construction Organizations**

Accounting for construction operations; labor, materials, equipment, and overhead costs. Money management, depreciation, taxes, loans, profit/losses analysis. Prerequisites: ACG 3024 or equivalent.

### **Electives from BCN-Construction.**

Electives must be a minimum of 9 credits from BCN 3000 and above, the remainder can be electives from BCN or any Business minor.

### **Construction Equipment**

Methods, procedures, and equipment used in residential, commercial, and heavy construction. Equipping the construction plant. Production value analysis. Work effectiveness studies.

### **Construction Cost Estimating II**

Quantity take-offs and pricing, and the application of computing techniques in construction estimating. Prerequisites: BCN 3611 and BCN 3727.

### **BCN 4703 Management of Construction Projects (3).**

Management of construction project field operations and procedures as they relate to contract management, planning, control, coordination, quality, safety, documentation, and resource management. Prerequisites: BCN 3762, BCN 3740, BCN 3730.

### **BCN 3240 Construction Equipment (3).**

Methods, procedures, and equipment used in residential, commercial, and heavy construction. Equipping the construction plant. Production value analysis. Work effectiveness studies.

### **BCN 3640 Economic Planning for Construction (3).**

Nature of construction costs, funding sources and arrangements, capital requirements, bonding, insurance, risk and contingency evaluation, general office operations, and bidding procedures.

### **BCN 3727 Construction Sitework and Equipment (3).**

Exposition and critical analysis of practical and sequential aspects of converting raw land to finished product. Course will define various steps and discuss equipment and techniques of accomplishment. Prerequisites: GLY 1010, GLY 1010L, BCN 1272.

### **BCN 3753 Financial Management of Construction Organizations (3).**

Accounting for construction operations; labor, materials, equipment, and overhead costs. Money

management, depreciation, taxes, loans, profit/losses analysis. Prerequisites: ACG 3024 or equivalent.

**BCN 3761 Construction Documentation and Communication - GL (3).**

Writing and transmitting construction documentation for technical and legal requirements for construction projects in a global context. Stresses development of verbal and written communication skills.

**BCN 4431 Structural Design II (3).**

Basic strength of materials and introduction to the material properties, allowable stresses, applicable codes and standards for the design of metal structures. Prerequisites: BCN 2210, BCN 2402, PHY 2053, PHY 2048L.

**BCN 4462 Structural Design III (3).**

Introduction to the material properties, allowable stresses, applicable codes and standards for the design of reinforced concrete, prestressed concrete and reinforced masonry structures. Prerequisites: BCN 4431.

**BCN 4465 Temporary Structures in Construction (3).**

Material properties, allowable stresses, applicable codes and standards for timber structures and the theory and practice of the planning, design, erection and maintenance of temporary structures. Prerequisites: BCN 4431.

**BCN 4561 Environmental Control in Buildings I (3).**

A study of the concepts of thermal and plumbing systems in residential and commercial buildings, including code provisions and cost estimates.

**BCN 4564 Environmental Control in Buildings II (3).**

Concepts and practices of electrical systems in the construction of residential and commercial buildings, including code provisions and cost estimates. Prerequisites: PHY 2053 and PHY 2048L.

**BCN 4570 Sustainable Approach to Construction (3).**

This course presents a study of the concepts and techniques of sustainable construction. An in depth review of sustainable materials and construction techniques will be covered.

**BCN 4612 Construction Cost Estimating II (3).**

Quantity take-offs and pricing, and the application of computing techniques in construction estimating. Prerequisites: BCN 3611 and BCN 3727.

**BCN 4703 Management of Construction Projects (3).**

Management of construction project field operations and procedures as they relate to contract management, planning, control, coordination, quality, safety, documentation, and resource management. Prerequisites: BCN 3762, BCN 3740, BCN 3730.

**BCN 4724 Construction Scheduling II (3).**

The application of advanced computerized planning, scheduling, and simulation techniques to construction operations, processes, and control. Prerequisites: BCN 3720 and BCN 3611.

**BCN 4794 Quality Control in Construction (3).**

Quality control as governed by the job inspector, contractor superintendent, architect-engineer, building official, and governmental agencies and requirements. Prerequisites: BCN 3762 or equivalent.

**BCN 4905 Directed Independent Studies (VAR).**

Specialized intensive study in an area of special interest to the student. Prerequisites: Permission of the instructor and the School Director.

**BCN 4906 Special Topics (3).**

For a group of students who wish an intensive study of a topic not otherwise offered in the University. Prerequisites: Permission of the instructor and the School Director.

**Courses towards minor in Business Students need to take the following five courses towards a minor in Business**

**ACG 3024 Accounting for Managers and Investors (AC) (3).**

Introduction to the principles used in measuring organization activities. For non-business majors only.

**FIN 3005 Introduction to Business Finance (3).**

An introductory course offering a survey of financial markets and institutions, managerial finance, investments, and personal financial issues. For non-business majors only.

**ISM 3012 Introduction to Decision and Information Systems (DS) (3).**

Understanding how computer systems can be used to improve decision making. Includes applications and impacts of IS, databases, decision support systems, production planning and control systems, and resource allocations systems. Prerequisite: This course cannot be taken by Business students.

**MAN 3022 Introduction to Management (3).**

Introduction to management processes: planning, organizing, directing and controlling for nonbusiness majors. Individual/team responses to various environment and technologies are described as techniques of employee management. Prerequisite: This course cannot be taken by students enrolled in the College of Business Administration.

**MAR 3024 Marketing Fundamentals (ME) (3).**

An introduction to the basic concepts, analyses, and activities that make up the marketing function within an organization for students pursuing the Business minor. Prerequisite: Not open to business majors.

**Elective courses from the Business School.**

**AMH 4373 Entrepreneurs in the US (3).**

Focusing on entrepreneurship, course covers American ideals (capitalism, individualism, upward mobility, the free market, independence) in historical context. Examines why these ideals have changed, colonial era to the present.

**AMH 4375 Technology and American Society (3).**

The history and impact of technology and innovation on American society, politics, and culture from the 18th century to the present.

**ENT 4113 Entrepreneurship: New Business Development (3)**

An introduction to the general theories, principles, concepts and practices of entrepreneurship. Developing business plans. Heavy emphasis is placed on lecture, readings, case studies and group

projects.

**GEB 4110 Writing the Business Plan (3)**

Students (a) write 2 business plans for a new business - one to raise equity and the other to obtain debt, (b) analyze successful plans, and (c) obtain understanding of investor perspectives and demands.

**MAR 3023 Introduction to Marketing (3)**

A study of how marketing delivers value and satisfies customer needs and wants by determining which markets can best be served, and which products, services, and programs best serve these markets.

**MAR 4144 Export Marketing (3).**

The course emphasizes practical approaches to export marketing, including marketing strategies by individual firms to serve foreign markets. Operational methods of identifying, establishing, and consolidating export markets are discussed, with particular attention to the needs of the smaller business.

**MAR 4156 International Marketing (3).**

The course studies the information required by marketing managers to assist in satisfying the needs of consumers internationally. Special emphasis will be given to the constraints of the international environment.

**MAR 4203 Marketing Channels (3).**

The course focuses upon institutions, functions, and flows within channels of distribution; and their integration into channels systems. Wholesaling and physical activity are emphasized.

**MAR 4231 Retail Marketing (3).**

An examination of the role of retailing in the marketing system. Attention is concentrated on fundamentals for successful retail management. The course emphasizes basic marketing principles and procedures, including merchandising; markup-markdown; pricing; stock-turn; and sales and stock planning. Prerequisites: A grade of "C" or higher in MAR 3023 or equivalent, 60 credit hours earned.

**MAR 4232 Current Issues in Retail Marketing (3).**

An intensive look at topics of current importance in retailing, from planning, buying and store management perspectives. Course emphasizes interaction with business executives and a practical learning approach. Prerequisites: MAR 4231 or equivalent.

**MAR 4400 Personal Selling (3).**

Development of effective sales skills, including listening, questioning, presenting, objection handling and closing, needed to build long-term relationships.

MAR 4403 Sales Management (3). Analysis of field sales management with emphasis on the role of personal selling in the marketing mix, building an effective organization, and controlling and evaluating the sales force. Prerequisites: MAR 3023 or equivalent.

**MAR 4404 Business-to-Business Sales (3).**

This course focuses on the development of strategic plans to manage major accounts, the supply chain, purchasing units, and the segmenting and targeting of organizational markets. Prerequisites: A grade of "C" or higher in MAR 3023 or equivalent, and have at least 60 credit hours earned.

**MAR 4415 Advanced Professional Selling (3).**



Student will gain advance instruction, coaching and skills development in interpersonal communication skills, objection handling, closing and team selling, through sales calls and presentations. Prerequisite: A grade of "C" or higher in MAR 4400 or equivalent, and have at least 60 credit hours earned.

**MAR 4503 Consumer Behavior (3).**

A study of essentials underlying consumer decisions, and relating such understanding to issues in product development/positioning, pricing, advertising, segmentation, and other marketing variables.

**MAR 4613 Managing Marketing Information (3).**

Study of the marketing research process and its role in decision-making. Emphasis placed on problem identification, and use of methods, primary and secondary data tools and information. Prerequisites: A grade of "C" or higher in MAR 3023 or equivalent, 60 credit hours earned.

**MAR 4620 Tools for Managing and Negotiations (3).**

This course presents students with a thorough grounding in approaches and calculations used in the field of marketing, including product mix/pricing/volume relationships, market share concepts, media math, cross tabs, and retail calculations. Prerequisites: A grade of "C" or higher in MAR 3023 and MAR 4613 or equivalent, 60 credit hours earned.

**MAR 4643 Decision Making and Negotiations (3).**

The course explores individual and group level judgment and decision-making and methods for debiasing these processes. It also presents techniques for maximizing one's negotiating effectiveness.

**MAR 4674 Database Marketing (3).**

A study of the metrics and systems needed to receive a return on every sales and marketing investment made. The course focuses on tools and approaches to gauge the impact of marketing expenditures. Prerequisites: A grade of "C" or higher in MAR 3023 or equivalent, and have at least 60 credit hours earned.

**MAR 4804 Marketing Strategy (3).**

An analysis of marketing strategy, including situation analysis, target strategy, positioning strategy, and planning. Course emphasizes the use of cases. Prerequisites: MAR 4503, MAR 4613.

**MAR 4860 Customer Relationship Management (3).**

Customer Relationship Management (CRM) is becoming an important strategic tool in consumer goods, firms, financial, health and tourist services, business-to-business firms, and in all of eMarketing.

Prerequisites: MAR 3023 or equivalent.

**MAR 4907 Independent Study in Marketing (3).**

This course offers an opportunity to apply marketing knowledge within the context of a consumer research setting. The intention is to be an introductory experience to a marketing research lab.

Prerequisites: MAR 4620 and at least sophomore standing.

**TRA 4202 Logistics Technology (3).**

The use of information technology in logistics: EDI, data bases, Internet, decision support systems for logistics, and commercial logistics software. The application of quantitative models in logistics.

Prerequisites: A grade of "C" or higher in TRA 4203 or equivalent, 60 credit hours earned.

**TRA 4203 Principles of Logistics (3)**

Overview of the logistics functions within a firm and in the context of integrated vertical systems. Topics include: customer service, information flow, inventory control, materials management, order processing, packaging, physical distribution, purchasing, transportation, warehousing, and supply chain management. Prerequisite: 60 credit hours earned.

**TRA 4214 Logistics Strategy (3).**

Study of logistics policy and strategy, computer simulation of logistics systems under various market conditions, and integration of the logistics function with marketing, production, and finance functions. Case and simulation exercises to illustrate logistics. Prerequisites: A grade of "C" or higher in TRA 4203 and TRA 4202 or equivalents, 60 credit hours earned.

**TRA 4721 Global Logistics (3)**

Logistics activities of multinational firms, international transportation systems, global sourcing, customer service, faculty location, inventory management, customs issues, export-import activities and the role of governments.

- F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.**

This program is heavily supported by the concrete industry, the entire curriculum is designed to provide industry related competencies to the students. A mandatory internship in one of the patron companies supporting the program in South Florida ensures the practical learning the student needs to provide a well-rounded individuals. One of the key points of the Memorandum of Understanding (MOU) signed between the University and the Concrete Industry Management is the formation of a concrete industry advisory council that provides input on different administrative aspects of the program, provides support in the form of internships and also participates in the evaluation of the students during the capstone course.

- G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.**

It is not anticipated at this time to pursue accreditation from the American Council for Construction Education (ACCE) nor from ABET.

- H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor's or master's programs associated with the proposed program. Are the programs accredited? If not, why?**

Not applicable.

- I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized**

services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The delivery system for this program will be the traditional lecture and lab courses delivered mainly in the Engineering Center, depending on availability of other classes students will take courses at the Biscayne Bay, FIU at I-75 and Modesto A. Maidique campuses.

## IX. Faculty Participation

- A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Speciality	Rank	(e), (f) Contract Status	PY Year 1	PY Year 5
A	Jose A. Faria, Ph.D. Construction Management	Senior Instructor	MYA 9 mo	0.38	0.38
A	Ronald Baier, M.S. Construction Management	Senior Instructor	MYA 9 mo	0.11	0.11
A	Irtishad Ahmad Construction Management	Professor	Tenured 12 mo	0.15	0.00
A	Wallied Orabi Construction Management	Professor	Tenure 9mo	0.11	0.00
A	New Hire, Degree Construction Management	Instructor	MYA 9mo	0.00	0.75
E 0.75	New Hire, Degree Academic Discipline	Instructor	MYA 9mo	0.75	0.75

- B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated full-time faculty (as identified in Table 2 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

The funding for the program will mainly come from donations from the industry through the patrons group. We anticipate that as the enrollment goes up the revenue will also increase.

- C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).**

See Appendix C

- D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.**

OHL School of Construction faculty members were active in publishing their research findings in reputable construction journals and conference proceedings. Collectively, the school faculty published seven journal papers, two research reports and twelve conference proceedings papers. The school did extremely well again this year in external research funding, thanks to Dr. Mostafavi, Dr. Bayraktar and Dr. Orabi. The school is fortunate to have Dr. Nipesh Pradhananga, a recent PhD graduate of Georgia Tech joined us in fall 2014. In fall 2015 Dr. Youngjib Ham, a PhD graduate of University of Illinois at Urbana-Champaign recently joined the school as a tenure track assistant professor in the fall of 2016.

#### **X. Non-Faculty Resources**

- A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university's students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.**

Our College of Engineering has a number of licenses to access RSMeans Online, an online database of costs for construction. These licenses are used by our CM students in different cost estimating courses. The CIM students will be taking the same classes as the CM for estimating so in the future the number of licenses might need to be increased. Currently there are 120 licenses available, we have not experienced any issues to this point. These licenses are administered by the Library.

- B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3 in Appendix A. Please include the signature of the Library Director in Appendix B.**

None needed.

- C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.**

We plan to use existing facilities and offices as much as possible. We will be hiring mostly adjunct faculty for the new courses we have in the curriculum. We envision the hiring of a new full time faculty on or about the third year of the program. Current lab facilities should be sufficient for the first five years of operation.

- D. Describe additional classroom, teaching laboratory, research laboratory, office, and other**

space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

None needed.

- E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.**

None needed.

- F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.**

In the OHL School of Construction Materials and processes lab we have currently a concrete mixer, samples of different aggregates and samples of concrete blocks. The lab serves as a teaching area for several courses and can also accommodate the teaching of some topics for CIM. This lab is also being used to perform research projects and can also be used for that purpose by CIM faculty and students. We envision that in the beginning years we will be using the testing equipment in the facilities of one or several of our Patrons group, and procuring or obtaining donations for new equipment such as a universal testing machine. For the first five years the OHL School of Construction lab should be sufficient to cover the needs of the CIM and CM students.

- G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.**

None needed

- H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.**

None needed

- I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.**

The local patrons group has committed in the MOU to provide CIM students with scholarships and internships.

- J. Describe currently available sites for internship and practicum experiences, if**

**appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.**

The program requires a mandatory internship in the concrete industry. The local patrons group has committed in the MOU to provide CIM students with scholarships and internships.

## APPENDIX A

**TABLE 1-A (DRAFT)  
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES  
(Baccalaureate Degree Program)**

Source of Students (Non-duplicated headcount in any given year)*	Year 1		Year 2		Year 3		Year 4		Year 5	
	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Upper-level students who are transferring from other majors within the university**	4	3	7	5.25	8	6	10	7.5	8	6
Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***	2	1.5	5	3.75	7	5.25	10	7.5	13	9.75
Florida College System transfers to the upper level***	0	0	0	0	3	2.25	5	3.75	6	4.5
Transfers to the upper level from other Florida colleges and universities***	4	3	8	6	10	7.5	13	9.75	19	14.25
Transfers from out of state colleges and universities***	0	0	0	0	2	1.5	2	1.5	4	3
Other (Explain)***	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>10</b>	<b>7.5</b>	<b>20</b>	<b>15</b>	<b>30</b>	<b>22.5</b>	<b>40</b>	<b>30</b>	<b>50</b>	<b>37.5</b>

\* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

\*\* If numbers appear in this category, they should go DOWN in later years.

\*\*\* Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.

**APPENDIX A**

**TABLE 2  
PROJECTED COSTS AND FUNDING SOURCES**

Instruction & Research Costs (non-cumulative)	Year 1						Year 5						
	Funding Source						Funding Source						
	Reallocated Base* (E&G)	Enrollment Growth (E&G)	Other New Recurring (E&G)	New Non-Recurring (E&G)	Contracts & Grants (C&G)	Auxiliary Funds	Subtotal E&G, Auxiliary, and C&G	Continuing Base** (E&G)	New Enrollment Growth (E&G)	Other*** (E&G)	Contracts & Grants (C&G)	Auxiliary Funds	Subtotal E&G, Auxiliary, and C&G
Faculty Salaries and Benefits	60,000	0	0	0	0	140,000	\$200,000	120,000	0	0	0	140,000	\$260,000
A & P Salaries and Benefits	2,000	0	0	0	0	0	\$2,000	2,000	0	0	0	0	\$2,000
USPS Salaries and Benefits	0	0	0	0	0	15,000	\$15,000	0	30,000	0	0	15,000	\$45,000
Other Personal Services	0	0	0	0	0	30,000	\$30,000	0	0	0	0	30,000	\$30,000
Assistantships & Fellowships	0	0	0	0	0	15,000	\$15,000	0	0	0	0	15,000	\$15,000
Library	0	0	0	0	0	0	\$0	0	0	0	0	0	\$0
Expenses	0	0	0	0	0	0	\$0	0	0	0	0	0	\$0
Operating Capital Outlay	0	0	0	0	0	0	\$0	0	20,000	0	0	0	\$20,000
Special Categories	0	0	0	0	0	0	\$0	0	0	0	0	0	\$0
<b>Total Costs</b>	<b>\$62,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$262,000</b>	<b>\$122,000</b>	<b>\$50,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$372,000</b>

\*Identify reallocation sources in Table 3.

\*\*Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "other new recurring") from Years 1-4 that continue into Year 5.

\*\*\*Identify if non-recurring.

**Faculty and Staff Summary**

Total Positions	Year 1	Year 5
Faculty (person-years)	1.5	2
A & P (FTE)	0	0.25
USPS (FTE)	0.5	0.75

**Calculated Cost per Student FTE**

	Year 1	Year 5
Total E&G Funding	\$62,000	\$172,000
Annual Student FTE	10	50
E&G Cost per FTE	\$6,200	\$3,440



# APPENDIX A

**TABLE 3 (DRAFT)  
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS\***

Program and/or E&G account from which current funds will be reallocated during Year 1	Base before reallocation	Amount to be reallocated	Base after reallocation
Current faculty salary	868,005	62,000	806,005
	0	0	
	0	0	
	0	0	
	0	0	
	0	0	
<b>Totals</b>	868,005	62,000	806,005

\* If not reallocating funds, please submit a zeroed Table 3

# APPENDIX A

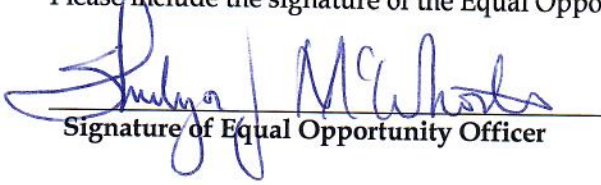
**TABLE 4 (DRAFT)  
ANTICIPATED FACULTY PARTICIPATION**

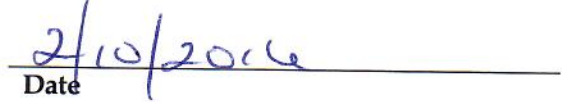
Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Speciality	Rank	Contract Status	Initial Date for Participation in Program	Mos. Contract Year 1	FTE Year 1	% Effort for Prg. Year 1	PY Year 1	Mos. Contract Year 5	FTE Year 5	% Effort for Prg. Year 5	PY Year 5
A	Jose A. Faria, Ph.D. Construction Management	Senior Instructor	MYA	Spring 2017	9	0.75	0.50	0.38	9	0.75	0.51	0.38
A	Ronald Baier, M.S. Construction Management	Senior Instructor	MYA	Spring 2017	9	0.75	0.15	0.11	9	0.75	0.15	0.11
A	Irtishad Ahmad Construction Management	Professor	Tenure	Spring 2017	12	1.00	0.15	0.15	12	1.00	0.00	0.00
A	Wallied Orabi Construction Management	Professor		Spring 2017	9	0.75	0.15	0.11	9	0.75	0.00	0.00
A	New Hire, Degree Construction Management	Instructor		Spring 2021	9	0.75	0.00	0.00	9	0.75	1.00	0.75
C	New Hire, Degree Academic Discipline	Instructor		Fall 2017	9	0.75	1.00	0.75	9	0.75	1.00	0.75
	New Hire, Degree Academic Discipline				0	0.00	0.00	0.00	0	0.00	0.00	0.00
	New Hire, Degree Academic Discipline				0	0.00	0.00	0.00	0	0.00	0.00	0.00
<b>Total Person-Years (PY)</b>								<b>1.50</b>				<b>2.00</b>

Faculty Code	Source of Funding	PY Workload by Budget Classification	
		Year 1	Year 5
A	Existing faculty on a regular line	0.75	0.50
B	New faculty to be hired on a vacant line	0.00	0.00
C	New faculty to be hired on a new line	0.75	1.50
D	Existing faculty hired on contracts/grants	0.00	0.00
E	New faculty to be hired on contracts/grants	0.00	0.00
<b>Overall Totals for</b>		<b>1.50</b>	<b>2.00</b>

**APPENDIX B1**

Please include the signature of the Equal Opportunity Officer and the Library Director.

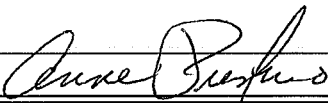
  
Signature of Equal Opportunity Officer

  
Date

This appendix was created to facilitate the collection of signatures in support of the proposal. Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II.E of the proposal and the Library Director has reviewed sections X.A and X.B.

**APPENDIX B2**

Please include the signature of the Equal Opportunity Officer and the Library Director.

Anne Prestamo		2-18-16
Signature of Library Director		Date

This appendix was created to facilitate the collection of signatures in support of the proposal.

Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section II.E of the proposal and the Library Director has reviewed sections X.A and X.B.

## **APPENDIX C**

### **OHL School of Construction Faculty Curriculum Vitae**

# CURRICULUM VITAE

## **Irtishad U. Ahmad, Ph.D., P.E., F.ASCE**

Professor and Director  
OHL School of Construction  
College of Engineering and Computing  
Florida International University  
Engineering Center  
10555 W. Flagler St.  
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**January 2013**

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## Table of Contents

	PAGE
1. EDUCATION AND EXPERIENCE	3
1.1. EDUCATION	3
1.2. FULL-TIME ACADEMIC AND ADMINISTRATIVE EXPERIENCE	3
1.3. PART-TIME ACADEMIC EXPERIENCE	3
1.4. PROFESSIONAL REGISTRATION	4
1.5. HONORS, AWARDS AND RECOGNITIONS	4
1.6. INTERNATIONAL RECOGNITION	5
2. ADMINISTRATIVE EXPERIENCE AND ACCOMPLISHMENTS	6
2.1. MAJOR ACCOMPLISHMENTS AND INITIATIVES AS CHAIR OF THE DEPARTMENT	6
2.2. FUNDRAISING	9
2.3. MENTORING	9
2.4. DEPARTMENTAL RESEARCH LEADERSHIP	10
2.5. WORKING WITH OTHER DEPARTMENTS/UNITS	10
2.6. ADMINISTRATIVE AND LEADERSHIP EXPERIENCE	10
3. ACADEMICS AND RESEARCH	12
3.1. PROGRAM/CURRICULUM/COURSE DEVELOPMENT	12
3.2. COURSES TAUGHT	12
3.3. RESEARCH GRANTS/CONTRACTS	13
3.4. RESEARCH PROJECTS WITH INTERNAL FUNDING	17
3.5. GRADUATE RESEARCH: THESIS/PROJECT TOPICS	17
3.6. PUBLICATIONS	19
3.7. SEMINARS AND PRESENTATIONS	29
3.8. OTHER ACADEMIC ACTIVITIES	31
4. PROFESSIONAL AND INSTITUTIONAL SERVICE	33
4.1. PROFESSIONAL LEADERSHIP	33
4.2. AFFILIATIONS	34
4.3. INSTITUTIONAL SERVICE AND LEADERSHIP	34
4.4. COMMUNITY SERVICE	35
4.5. CONSULTING	35

## **1. EDUCATION AND EXPERIENCE**

### **1.1. EDUCATION**

- Ph. D. (1983-1988) in Civil Engineering, Department of Civil and Environmental Engineering, University of Cincinnati, Cincinnati, Ohio.
- M.Sc. Eng. (1981-1983), with concentration in structural analysis and design, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.
- B.Sc. Eng. (1973-1977), Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

### **1.2. FULL-TIME ACADEMIC AND ADMINISTRATIVE EXPERIENCE**

- Founding Director (2012 - ), OHL School of Construction, College of Engineering and Computing, Florida International University, Miami.
- Chairperson (2004 -2012) and Professor (2005 - ), Department of Construction Management, College of Engineering and Computing, Florida International University, Miami. With joint appointment in the Department of Civil and Environmental Engineering.
- Associate Professor (1998 - 2003) and Director of Graduate Program (2000-2003), Department of Civil and Environmental Engineering, Florida International University (FIU), Miami, Florida.
- Associate Professor - tenured (1995 - 1997), Assistant Professor - tenure track, (1990 - 1995), Department of Construction Management, Florida International University (FIU), Miami, Florida.
- Assistant Professor - tenure track, (1988 - 1990), Department of Construction Management and Engineering, North Dakota State University (NDSU), Fargo, North Dakota.
- Assistant Professor (1981-1983), Lecturer (1978-1981), Department of Civil Engineering, Bangladesh University of Engineering and Technology, Dhaka.

### **1.3. PART-TIME ACADEMIC EXPERIENCE**

- Affiliated Faculty (2004 - ), Department of Civil and Environmental Engineering, Florida



International University (FIU), Miami, Florida.

- Affiliated Faculty (2002 - ), Masters of Science in Engineering Management, Department of Industrial Engineering, Florida International University (FIU), Miami, Florida.
- Instructor (Adjunct) (1984-1988), Department of Construction Science, University of Cincinnati (UC), Cincinnati, Ohio.
- Graduate Teaching Assistant (1984-1988), Department of Civil and Environmental Engineering, University of Cincinnati, Ohio.

#### **1.4. PROFESSIONAL REGISTRATION**

- Registered Professional Engineer in the states of Florida (45060 - active) and North Dakota (3293 - inactive).

#### **1.5. HONORS, AWARDS AND RECOGNITIONS**

- Elected Fellow (2009), American Society of Civil Engineers.
- Executive Member, Global Leadership Forum (2011-), Construction Engineering and Management Programs.
- Editor-in-Chief (2002 - 2008), *Journal of Management in Engineering*, American Society of Civil Engineers.
- Executive Member, Editorial Board (2008 -), *Journal of Management in Engineering*, American Society of Civil Engineers.
- Member, Editorial Board (2007 - ), *Leadership and Management in Engineering*, American Society of Civil Engineers.
- Presiding Chair, Florida Infrastructure Sustainability Forum, College of Engineering and Computing, Florida International University, Held February 18, 2010, Miami, Florida.
- Member (2005 - ), Advisory Board, International Hurricane Center, Florida International University, Miami.
- Recipient of the university-wide *Excellence in Research Award* in 2001 at Florida International University.

- Recipient of the university-wide *Excellence in Teaching Award* in 1999 at Florida International University.
- Member (2000 - 2007), Asian-American Advisory Board, Miami-Dade County, Florida. (Appointed by the local County Commissioner.)
- Instructional Enhancement and Development Program Mini Grant by Florida International University Academy of the Art of Teaching, Summer 1991.
- Research Fellowship by the University of Cincinnati to conduct a research project entitled "Development of an Expert System for Making Bid Decisions." Summer 1988.
- Research Fellowship by the University Research Council of the University of Cincinnati to conduct a research entitled "Development of an Additive Utility Model for Selecting Optimum Bid Price." Summer 1986.
- Research Fellowship by the University Research Council of the University of Cincinnati to conduct a research entitled "Development of Engineered Time Standards for Common Construction Operations Using MOST Work Measurement Technique." Summer 1985.
- University Graduate Scholarship at the University of Cincinnati during graduate studies. Sept. 1983 - May 1988.

#### 1.6. INTERNATIONAL RECOGNITION

- Invited keynote speaker on Globalization in Construction, at the Second International Conference on Construction in the Developing Countries, held in Cairo, Egypt, August 3-5, 2010.
- Chair of the Advisory Council, Fifth International Conference on Construction in the Twenty First Century, held in Istanbul, Turkey, May 19-22, 2009.
- Invited keynote speaker on Construction Education and Research in USA, at the International Conference on Construction in the Developing Countries, held in Karachi, Pakistan, August 3-5, 2008.
- Invited panel speaker on Information and Communication Technology (ICT) in Construction at the *Journal of Construction Management and Economics* Twenty-fifth anniversary conference held in Reading, UK, July 15-17, 2007.

- Invited keynote speaker on Construction Organizations in the Twenty-first Century at the Fourth International Conference on Construction in the Twenty-first Century (CITC IV) held in Gold Coast, Australia, July 12-13, 2007.
- Invited to serve as the External Examiner for a dissertation of a doctoral research by the College of Engineering, University of Waterloo, Canada, February 2007.
- Invited to deliver a keynote speech on the design of slender columns as an expert in reinforced concrete design - ASCE Miami Chapter, May 2003.
- Invited to review tenure application of a new faculty member in College of Engineering at the University of Wisconsin, Milwaukee, June 2004.
- Invited to review tenure and promotion application of a faculty member in the King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, August 2002.
- Invited keynote speaker in the Annual Conference of the Korean Institute of Construction Engineering and Management, Seoul, November 2001.
- Invited to conduct a three-day workshop in Hong Kong for the local construction industry professionals on Project Management Information Systems, Organized by Hong Kong Polytechnic Institute, January 2003 and August 2001.
- Invited to conduct a two-day workshop in Dhaka, Bangladesh for the local construction industry professionals and civil engineers on Cost Engineering, Organized by Bangladesh University of Engineering and Technology, March 2001.

## **2. ADMINISTRATIVE EXPERIENCE AND ACCOMPLISHMENTS**

### **2.1. MAJOR ACCOMPLISHMENTS AND INITIATIVES AS CHAIR OF THE DEPARTMENT (SINCE JANUARY 2004)**

**Director (2012 - ), OHL School of Construction, Florida International University, Miami.**

**Chair (2004 - 2012), Department of Construction Management, FIU.**

- The Department became a named school with a multi-million dollar endowment support in March 2012 as a result of the rigorous campaign launched by the Department and the College of Engineering Office of Development.
- Launched the Industry Support Campaign to raise \$250,000 emergency fund for

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operating expenses of the Department in 2009. It was an emergency campaign undertaken to offset the statewide budget cut. The campaign exceeded its target by raising \$272,500 in the summer of 2009. The campaign continued in 2010 and raised \$170,000.

- Significant increase in enrollment at both undergraduate and graduate levels. During the last six years, undergraduate enrollment experienced significant increase (from 240 to 400 now) and graduate enrollment has doubled (from 100 to close to 200 currently). The graduate masters program has the largest number of students among all the construction management programs in the country.
- Led the application for re-accreditation effort in 2007. The undergraduate program has gone through the re-accreditation process successfully. (The program is accredited by the American Council for Construction Education - ACCE). The site visit was concluded in September 2007. The visiting team cited the department leadership as one of its strengths.
- Recruited six faculty members at the tenure-earning assistant professor rank (with degrees and training from Wisconsin-Madison, Purdue, University of Florida, Maryland, Illinois at Urbana-Champaign and Texas-Austin). Currently the total number of full-time faculty is ten.
- Launched the online Masters' degree program. With the help of the faculty and the direction from the college administration a complete program including, logistics, systems requirements, human resources, compensation plan and administration for the online delivery of the Masters of Science in Construction Management degree program was developed and implemented. Several students have already earned their degrees through this online delivery system. It proved to be extremely beneficial to the students seeking the degree from distant locations as well as to the busy professionals enrolled in the program. Revenue of close to \$450,000 is generated from this program on an annual basis.
- Developed the Masters of Science degree program in Construction Engineering with collaboration of the Department of Civil and Environmental Engineering. A very forward-looking, modern and interdisciplinary curriculum was developed and proposed. MS in Construction Engineering, when implemented will be the first independent degree program in the state of Florida. It has already been approved by the University Faculty Senate and is awaiting approval by the FIU Board of Trustees.
- Increased department's external research funding by seven times within five years. Increased significantly the number of Graduate Assistants supported by external and

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college fund.

- Developed collaborative arrangements with the Department of Civil and Environmental Engineering for recruiting doctoral students by the Department of Construction Management to enable the construction management faculty for advising doctoral students. Five students are currently working on their doctoral degrees under this arrangement.
- Sponsored and led the effort for organization of an international series of conferences (Construction in the Twenty-First Century – CITC).
- Launched the department newsletter *Constructioneer* in fall 2006.
- Spearheaded the formation of the Department's first alumni chapter. The first event took place in February 2007 with a gala dinner. More than 100 former graduates of the department attended the event.
- A special job fair program (Career Expo) was initiated beginning in 2005. Almost all major construction companies eagerly participate in these fairs. These events bring much-needed revenue to the department, but most importantly, provide an excellent way to develop and foster strong ties with the industry. The job fair program was cited by the re-accreditation visiting team as one of the strengths of the program.
- Initiatives were taken to revitalize the department's relationship with the construction industry. The Industry Advisory Council of the department has been expanded; currently the Council is composed of twenty five members and has representations from almost all major construction companies active in south Florida as well as from several companies of national and international reputation. The Board includes CEOs, Presidents, and Vice Presidents of many of these companies. It meets two to three times a year and provides strong support to the department in fundraising and capital campaign activities. Many of them made generous financial contribution for different projects and needs of the department. A subcommittee of the Council reviews the curricula and provides feedback to the department. The re-accreditation visiting team cited the department's relationship with the industry as one of its strengths.
- Encouraged students to take part in student chapters of professional organizations, to participate in national competitions, and to organize community service projects. As a result of these efforts, the FIU construction management student team won the 2006 National Grand Championship in a competition for construction management students sponsored by the Associated Builders and Contractors in Las Vegas. The

FIU team was ranked within the top five schools in 2007 in Nashville. In 2005, FIU was one of only eighteen solar decathlon teams invited to showcase an 800 sq ft self-sustaining solar house on the National Mall in Washington DC. FIU's Solar House was ranked number one in regards to conservation of energy.

- FIU has been invited by the Government of the Peoples Republic of China as sole representative from the United States to build a sustainable, energy-efficient house at the site of the 2008 Beijing Olympics - one of only ten demo houses, representing eight different countries. FIU has partnered with two US sponsors to build the "Future House USA" in Beijing. The groundbreaking ceremony of this house (over 2000 sq ft) was held in March 2007.

## 2.2. FUNDRAISING

- Raised \$272,500, exceeding its goal of \$250,000, in summer 2009 through a successful Industry Support Campaign. This campaign was launched to mitigate adverse effects of budget cut measures proposed by the university. The campaign continued in the summer of 2010 and raised \$170,000.
- More than \$200,000 was raised from the local construction industry during 2005-2006. Total raised in last five years is close to \$1 million.
- Three endowed scholarships totaling \$150,000 were received for the construction management students during the last three years. Scholarship endowment - Balfour Beaty (formerly Centex Rooney) (\$26,500), CASF (\$25,000 towards a \$50,000 endowment), Kelly Foundation (\$50,000), American Society of Professional Estimators (\$25,000). Other one-time scholarships - Turner (\$10,000), Moss (\$7,500).
- Revenue received from five Career Expos (2005-2007)- \$120,000
- Revenue from online Masters program, close to \$450,000 a year.

## 2.3. MENTORING

As the department chair, I am responsible for providing resources, guidance and advice to the younger faculty members as their mentor. I take this responsibility very seriously as it is not only important for the department and its programs but for their careers and professional developments as well. I have helped faculty members in identifying sponsoring and funding agencies, in writing grant proposals and in making contacts with key persons in the funding agencies. One faculty member was promoted to the associate professor rank with tenure in 2006, this year he has accepted the position of chair with the rank of professor in another

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university. Another faculty member received tenure and promotion in 2010, he was hired under my chairmanship in 2004. One of the doctoral students I supervised is now employed at Auburn University as a tenured associate professor.

#### **2.4. DEPARTMENTAL RESEARCH LEADERSHIP**

Construction engineering and management is traditionally not a strong field for attracting a significant amount of external research funding. Yet, with only half of the faculty members active in research the department maintains about \$500k-\$600k of external research on an annual basis, which is about seven times higher than the department average five years ago. The departmental faculty received funding from the National Science Foundation for the first time in the history of the department in 2009. In addition, faculty members are engaged in university-funded research with graduate assistants pursuing doctoral and masters degrees.

#### **2.5. WORKING WITH OTHER DEPARTMENTS/UNITS**

Initiated collaborative research projects and course sharing between the Construction Management and other departments/units of the College and the University:

- Real Estate - course sharing;
- Architecture - course sharing, solar house project;
- Civil Engineering - joint research projects, doctoral student supervision, joint program in construction engineering, "Wall of Wind" project;
- Industrial Engineering - doctoral student supervision;
- Mechanical Engineering - solar house project, "Future House" project in Beijing;
- Applied Research Center - joint research projects, adjunct faculty appointments;
- E. Pino and Family Entrepreneurship Center - co-sponsor of events; and
- International Hurricane Center - serving as a member of the Internal Advisory Council.

**Graduate Program Director, Department of Civil and Environmental Engineering, Florida International University, Miami (1999-2003).**

- During this period of four years the number of doctoral students in the Civil and Environmental Engineering Department increased from 4 to 31.
- Developed admission and graduation requirements for the masters and the doctoral students as the Chair of the Graduate Program Advisory Committee.

#### **2.6. ADMINISTRATIVE AND LEADERSHIP EXPERIENCE (Exposure at the College Level)**

During the last eight years I have worked closely with two deans in the college and the Dean's office as a key member of the college leadership team. During the last four to five years, the College of Engineering and Computing at FIU earned a number of outstanding achievements. Some noteworthy accomplishments of the College are:

- Enrollment - FIU was ranked by ASEE (2010) as 22<sup>nd</sup> largest undergraduate engineering program in the nation. Total enrollment now stands at over 4,700 students, awarded 574 BS, 252 MS, and 42 PhD degrees in 2010-11. FIU Construction Management Masters program is the largest in terms of enrollment in the US.
- Diversity - FIU produces the largest number of Hispanic engineers with bachelors, masters, and doctoral degrees - in each category among the fifty states. FIU engineering is one of the leading producers of African-American engineers in the country. Female students at all levels constitute higher percentages than the national average. The College of Engineering and Computing at FIU received the 2006 Award for Diversity from ABET.
- International programs - The Department of Construction Management is involved in designing and building an energy-efficient, sustainable demo house - "Future House USA," at the site of Beijing Olympics 2008, as part of the ten demo houses being built by eight different countries to showcase their architectural and construction technologies.
- Corporate and Global Programs - The College's Division of Corporate and Global Program (DCGP), created in 2002 (renamed as the Division of External Programs in 2010), to negotiate, manage and offer degree and non-degree programs at off-campus sites as well as in the foreign countries with current focus on Latin America, the Caribbean and China. Masters in Engineering Management degree programs are offered in Mexico with Tec de Monterrey, and in Jamaica, with University of Technology. A construction management masters degree program will begin in Summer 2012 in the Dominican Republic. Another program in Panama will begin in 2013.
- Research - FIU is ranked by the Carnegie Foundation as a Research University in the high research activity category. The college grew exponentially in externally funded research programs; research expenditures for engineering programs almost tripled from \$8 million in 2004-05 to close to \$22 millions in 2010-11.
- Industry and community relations - FIU College of Engineering and Computing has established close ties with the local industry and the community. The Construction Management Department Industry Advisory Council has representation of all major construction associations, such as AGC (Associated General Contractors), ABC



(Associated Builders and Contractors), and Construction Association of South Florida in addition to all major national and regional construction companies.

### 3. ACADEMICS AND RESEARCH

#### 3.1. PROGRAM/CURRICULUM/COURSE DEVELOPMENT

- Developed and launched the online masters' degree program in construction management in 2004.
- Developed and proposed the Masters of Science in Construction Engineering degree program (awaiting final approval) in 2006.
- Developed an 18-credit hour certificate program on Information Technology in Civil Engineering (ITCE) for industry professionals in 2002.

#### Graduate courses developed in Construction Management and Civil Engineering

- Advanced Project Planning for Civil Engineers
- Advanced Heavy Construction Techniques
- Civil Engineering Systems
- Construction Cost Analysis and Control
- Topics in International Construction
- Decision and Risk Analysis in Construction

#### 3.2. COURSES TAUGHT

<u>Course</u>	<u>Level</u>	<u>Location (No. of Terms)</u>
Civil Engineering Systems ( <i>also developed</i> )	Graduate	FIU (3)
Advanced Reinforced Concrete Design	Graduate	FIU (3)
Reinforced Concrete Design	Senior	FIU (7)
Heavy Construction	Senior	FIU (4)
Construction Engineering and Management	Graduate	FIU (2)
Computer Integrated Construction	Graduate	FIU (3)
Construction Information Systems	Graduate	FIU (5)
Decision and Risk Analysis ( <i>also developed</i> )	Graduate	FIU (6)
Cost Analysis and Control ( <i>also developed</i> )	Graduate	FIU (5)
Advanced Cost Estimating and Bidding Strategy	Graduate	FIU (4)
Construction Productivity	Graduate	FIU (3)
Developments in Construction Technologies	Graduate	FIU (3)

Topics in International Construction ( <i>also developed</i> )	Graduate	FIU (4)
Construction Management Seminar	Graduate	FIU (3)
Management of Construction Organizations	Graduate	FIU (2)
Construction Finance	Senior	NDSU (1)
Cost Engineering	Senior	NDSU (2)
Concrete Formwork Design	Senior	NDSU (2)
Construction Methods and Equipment	Senior	UC (3)
Project Costing	Senior	UC (2)
Structural Analysis and Design	Junior	FIU (1)
Project Planning and Scheduling (CPM)	Junior	NDSU (2)
Computer Applications in Construction	Junior	NDSU (2)
Construction Estimating	Junior	NDSU (2)

**Note:** FIU-Florida International University; NDSU-North Dakota State University; UC-University of Cincinnati.

### 3.3. RESEARCH GRANTS/CONTRACTS

Obtained **eighteen** research grants from state and private sources during the past fourteen years. These grants were awarded on a competitive basis. Sixteen of these projects have been completed within the scheduled time frame and two are in progress. The awards have totaled over **\$1.2 million**. Three doctoral students and several masters' students have been, or are being, supported from these grants.

The funding agencies have included:

- Florida Department of Transportation,
- Building Construction Industry Advisory Committee of the State of Florida Department of Education,
- North American Insulation Manufacturer's Association, and
- Florida Air-conditioning Contractor's Association.

### Impact of Research

Research findings generated far-reaching results in their significance and are highly relevant to various segments of the construction industry as well as to regulatory agencies and the public at large. Research has been the focus of media attention and has been featured in the *Miami Herald* and the *Construction Today* television show. Research results have been used by the

- Florida Department of Transportation in its materials manual and the specifications,
- Florida Construction industry Licensing Board,

- Florida Department of Business and Professional Regulation,
- Florida Legislature,
- Associated General Contractors of America,
- North American Insulation Manufacturers Association,
- Construction Industry Licensing Board, and
- Florida Department of Business and Professional Regulation.

### List of Funded Research Projects

1. "Develop Epoxy Grout Pourback Guidance and Test Methods to Eliminate Thermal/Shrinkage Cracking at Post-tensioning Anchorages"

Principal Investigator - Dr. Nakin Suksawang

**Co-Principal Investigator - Dr. Irtishad Ahmad**

Amount: **\$148,698**

Awarded by The Florida Department of Transportation (FDOT)

Time Period - 24 months (7/12 - 7/14)

2. "Development of a Realistic Prototyping Road User Cost Tool for FDOT,"

Principal Investigator - Dr. Yimin Zhu

**Co-Principal Investigator - Dr. Irtishad Ahmad**

Amount: **\$129,000**

Awarded by The Florida Department of Transportation (FDOT)

Time Period - 12 months (1/07 - 12/08)

3. "Development of a Strategic Model for Improvement of Construction Project Management Education, Research and Practice in Pakistan,"

Principal Investigator - Dr. Syed Ahmed

**Co-Principal Investigator - Dr. Irtishad Ahmad**

and Dr. Sarosh H. Lodi ( Pakistan )

Amount: **\$405,000.00** (\$130,000 US Side and \$275,000 Pakistan Side)

Awarded by the United States Agency for International Development (USAID) and the Higher Education Commission (HEC), Government of Pakistan,

Time Period - three years (1/06-12/08)

4. "Coordination of Specialized Transportation Services for Transportation-Disadvantaged Populations: Issues and Solutions."

Principal Investigator - Dr. L. David Shen. (Lehman Center and CEE Department)

Dr. Albert Gan (Co-PI) (Lehman Center and CEE Department)

Dr. Fang Zhao (Co-PI) (Lehman Center and CEE Department)

Dr. Jill Strube (Co-PI) (FIU Metropolitan Center)

Dr. Min-Tang Li (Co-PI) (Lehman Center and CEE Department)

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Dr. Tzai-Shian Jung (Co-PI) (Lehman Center and CEE Department)

**Dr. Irtishad Ahmad (Co-PI) (Lehman Center and CM Department)**

Total Amount: **\$388,350**

Jointly awarded to Florida International University and University of Miami by Federal Transit Administration, US Department of Transportation.

Time Period - 18 months (8/04 - 2/06)

5. "A Need Assessment and Catalog of Best Practices for Emergency Management at Remote K12 Schools in Florida"

**Principal Investigator - Dr. Irtishad Ahmad**

Co- Principal Investigator - Mr. Ricardo Alvarez

Amount: **\$100,000**

Awarded by The Florida Department of Education

Time Period - 12 months (1/05 - 1/06)

6. "Utilization of Maturity Meters for Concrete Quality Assurance."

**Principal Investigator - Dr. Irtishad Ahmad**

Amount: **\$104,742**

Awarded by the Florida Department of Transportation (FDOT)

Time period - 24 months (5/03 - 4/05)

7. "Lumps and Balls in High-slump Concrete: Reasons and Remedy."

**Principal Investigator - Dr. Irtishad Ahmad**

Amount **\$94,957.00.**

Awarded by the Florida Department of Transportation (FDOT)

Time period - 15 months (10/00 -1/02)

8. "Temperature variation in Drilled Shaft Concrete."

**Principal Investigator - Dr. Irtishad Ahmad**

Amount **\$161,250.00**

Awarded by the Florida Department of Transportation (FDOT)

Time period - 24 months (10/00 -10/02)

9. Generalized Method for Analysis of Pavement Management Database

**Principal Investigator - Dr. Irtishad Ahmad**

Amount **\$35,000.00**

Awarded by the Florida Department of Transportation (FDOT)

Time period - 24 months (11/99 - 6/01)

10. "An Investigation into Application and Bonding Strengths of Thermoplastic Pavement Markings on Concrete and Asphaltic Roadway Surfaces."

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**Principal Investigator - Dr. Irtishad Ahmad**

Amount **\$50,000.00**

Awarded by the Florida Department of Transportation (FDOT)

Time period - 24 months (1/99 -12/00)

11. "Evaluation and Analysis of Current Compaction Methods for FDOT Pipe Trench Backfills in Areas of High Water Tables."

**Principal Investigator - Dr. Irtishad Ahmad.**

Amount **\$104,500.00.**

Awarded by the Florida Department of Transportation (FDOT).

Time period - Fifteen months (9/96-11/98).

12. "A Study of Florida's Licensing System for Construction Contractors - Phase II."

**Co-Principal Investigator - Dr. Irtishad Ahmad.**

Amount **\$22,573.00.**

Awarded by the Building Construction Industry Advisory Committee.

Time period - Fifteen months (9/95-11/96).

13. "Effects of HVAC Sanitation Procedures on Indoor Air Quality of Residential Buildings - Phase II."

**Principal Investigator - Dr. Irtishad Ahmad**

Co-Principal Investigator - Dr. Berrin Tansel

Co-Principal Investigator - Prof. Jose D. Mitrani

Amount **\$29,857.00.**

Awarded by the Building Construction Industry Advisory Committee (BCIAC) through the Department of Education of the State of Florida and the North American Insulation Manufacturers' Association (NAIMA).

Time period - Twenty months (2/94-9/95).

14. "An Investigation of the Attorney's Role in Worker's Compensation."

Principal Investigator - Prof. Wilson Barnes

**Co-Principal Investigator - Dr. Irtishad Ahmad**

Co-Principal Investigator - Larry Lieby, Esqr.

Amount **\$19,901.00.**

Awarded by the Building Construction Industry Advisory Committee (BCIAC) through the Department of Education of the State of Florida.

Time period - Sixteen months (4/94-7/95).

15. "Assessment of the Effectiveness of HVAC Sanitation Processes in Improving Indoor Air Quality."

**Principal Investigator - Dr. Irtishad Ahmad**

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Co-Principal Investigator - Dr. Berrin Tansel  
Co-Principal Investigator - Prof. Jose D. Mitrani  
Amount **\$40,393.00.**

Awarded by the Building Construction Industry Advisory Committee (BCIAC) through the Department of Education of the State of Florida and the North American Insulation Manufacturers' Association (NAIMA).

Time period - Twenty two months (10/92-8/94).

16. "Development of MBE/DBE/WBE Database and Analytical Models to Determine Their Capacity for the Florida Construction Industry."

**Principal Investigator - Dr. Irtishad Ahmad**

Co-Principal Investigator - Prof. John Dye  
Amount **\$19,048.00.**

Awarded by the Building Construction Industry Advisory Committee (BCIAC) through the Department of Education of the State of Florida.

Time period - Fifteen months (2/92-4/94).

17. "Alternative Bid-Evaluation and Contract-Award Systems."

**Principal Investigator - Dr. Irtishad Ahmad**

Co-Principal Investigator - Dr. Ayman Morad  
Amount **\$15,970.00.**

Awarded by the Building Construction Industry Advisory Committee.

Time period - Sixteen months (3/92-7/93).

18. "A Comprehensive Study of the Licensing System for the Construction Contractors in Florida."

**Principal Investigator - Dr. Irtishad Ahmad**

Co-Principal Investigator - Prof. Jose D. Mitrani  
Amount **\$23,575.00.**

Awarded by the Building Construction Industry Advisory Committee.

Time period - Sixteen months (10/91-3/93).

19. "Alternative to 10% Retainage."

**Principal Investigator - Dr. Irtishad Ahmad**

Co-Principal Investigator - Prof. Wilson Barnes  
Amount **\$9,745.00.**

Awarded by the Building Construction Industry Advisory Committee.

Time period - Sixteen months (8/91-12/92).

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### 3.4. RESEARCH PROJECTS WITH INTERNAL FUNDING

Active research projects with graduate students. These projects include:

- Modeling Information for Integrated Project Delivery Systems – ongoing doctoral research.
- Enterprise Resource Planning in Construction – ongoing doctoral research.
- Job Site Management Tool – automation and information management in construction – doctoral research, completed doctoral thesis.
- Data Warehousing A doctoral dissertation research on data warehousing techniques for effective construction project management, completed doctoral thesis.

### 3.5. GRADUATE RESEARCH: THESIS/PROJECT TOPICS

1. "The Use of Computing Technology in Construction Contractor Organizations as a Total Jobsite Management Tool," Doctoral Dissertation, Christin Perkinson, Completed, 2005-2008.
2. "Data Warehousing for Effective Project Management in Construction," Doctoral Dissertation. Salman Azhar, Completed, 2001-2005.
3. "Using the Meta-model Approach to Integrate Structured and Unstructured Data for Document Management in the Construction Industry," Masters Thesis, Weihua Mao, Completed, November 2005.
4. "Extent of Lumps and Balls in Drilled Shaft Concrete." Master's Thesis. Ivan Canino, 2002.
5. "An Investigation into the Effects of Shoring/Reshoring Sequence on the Cost of Multistory Concrete Buildings." Master's Thesis. Student Name: Apinop Koolawang, Completed in December 2000.
6. "A Data warehouse/GIS technique to provide decision-support to builder-developers." Master's Thesis. Student Name: Pranas Lukauskis, Completed May 1999.
7. "An object-oriented computerized estimating system for skylights." Master's Thesis. Student Name: Anthony Smith, Completed September 1999.
8. "A spreadsheet-based system for wind load calculations of multistoried buildings." Master's Project. Student Name: Roda Fawaaz, Completed May 1999.
9. "A Knowledge-Based System for Sequential Parametric Estimating." Master's Thesis. Student Name: Praveen Ommi, Completed July 1995.

10. "A Study of the Construction Industry and Market in the South East Asia." Masters Project. Student Name: Nathapon Panthasen, Completed April 1995.
11. "Use of Artificial Neural Network for Predicting Contractor Failure." Masters Project. Student Name: Noriyuki Takahashi, Completed March 1994.
12. "Use of Microcomputer-Based Scheduling Systems for Minimizing and Resolving Construction Claims." Masters Project. Student Name: George Navarrete, Completed March 1994.
13. "Development of a Database Management System for selecting Minority-owned Business Enterprises." Masters Project. Student Name: Hesham El-Badrawi, Completed December 1993.
14. "Development of a Cost-Effective Shoring/Reshoring Plan for the Construction of Multi-story Concrete Buildings." Masters Project. Student Name: Santiago Sanin, Completed July 1993.

### 3.6. PUBLICATIONS

#### Summary of Publications

Has authored or coauthored more than **eighty** technical articles, as the principal author of most of the articles. Several of these papers were presented in various national and international conferences. The journal articles underwent formal refereeing processes by the reviewers selected from experts and educators from the construction engineering and management field. These articles have been published in the reputed journals of construction engineering and management including *ASCE Journal of Construction Engineering and Management*, *ASCE Journal of Management in Engineering*, *Civil Engineering Systems*, *Transportation Research Record*, *American Institute of Constructors (AIC) Journal*, *Automation in Construction*, and the *Journal of Construction Management and Economics*.

#### Citation by Other Researchers

The research studies conducted made significant contribution to the existing body of knowledge and added new and important knowledge to the subject matters. This was evidenced by references made to his published work by noted scholars from institutions such as Massachusetts Institute of Technology, Columbia University, Concordia University and several other international researchers.

#### Books

Tang, S.L. I. Ahmad, S.M. Ahmed and M. Lu, "*Quantitative Techniques for Decision Making in Construction*." Hong Kong Polytechnic University Press. 2004.



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**Edited Proceedings**

1. Ahmad, I., S.M. Ahmed, and S. Azhar, *Proceedings of the First International Conference on Construction in the Twenty First Century*, held in Miami, April, 2002.
2. Ahmed, S.M., I. Ahmad, S.L. Tang, and S. Azhar, *Proceedings of the Second International Conference on Construction in the Twenty First Century*, held in Hong Kong, December, 2003.

**Refereed Journal Articles**

1. Azhar, S., M. Lukkad, and I. Ahmad, "An Investigation of Critical Factors and Constraints for Selecting Modular Construction over Conventional Stick-Built Technique." *International Journal of Construction Education and Research*, Accepted for publication, 2013.
2. Azhar, S., W.A. Carlton, D. Olsen, and I. Ahmad, "Building Information Modeling for Sustainable Design and LEED(R) Rating Analysis" *Automation in Construction*, Vol. 20, Issue 2, March 2011, p. 217-224.
3. Perkinson, C.L., M.E. Bayraktar, and I. Ahmad, "The Use of Computing Technology in Highway Construction as a Total Jobsite Management Tool" *Automation in Construction*, Vol. 19, Issue 7, November, 2010, p. 884-897.
4. Azhar, S. I. Ahmad and M. K. Sein, "Action Research: A Proactive Research Method for Construction Engineering and Management," Special Issue on Research in ASCE *Journal of Construction Engineering and Management*, January, 2010.
5. Zhu, Y., R. Zhang and I. Ahmad, "Applying Concept Similarity to the Evaluation of Common Understanding in Multidisciplinary Learning," *Journal of Computing in Civil Engineering*, accepted for publication, 2009.
6. Zhu, Y., I. Ahmad and L. Wang, "Estimating Work Zone Road User Cost for Alternative Contracting Methods in Highway Construction Projects," Accepted for publication *Journal of Construction Engineering and Management*, ASCE, 2009.
7. Sein, M.K., I. Ahmad and G. Harindranath, "Sustaining ICT for Development Projects: The Case of Grameenphone CIC," *Telektronikk*, Issue 2, 2008.
8. Zhu, Y. W. Mao and I. Ahmad, "Capturing Implicit Structures in the Unstructured Content of Construction Documents", *Journal of Computing in Civil Engineering*, 2006.
9. Mao, W. Y. Zhu and I. Ahmad, "Applying Metadata Models to Unstructured Content of Construction Documents: A View-Based Approach", *Automation in Construction*, 2006.

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10. Ahmad, I., S. Azhar, and P. Lukauskis, "Development of a Decision Support System using Data Warehouseing to Assist Builders/Developers in Site Selection," *Automation in Construction*, Vol. 13, 2004, p. 525-542.
  11. Ahmad, I. and S. Azhar, "Temperature Variation in High Slump Drilled Shaft Concrete and its Effect on Slump Loss," *Cement and Concrete Research*, Vol. 34, 2004, p. 207-217.
  12. Ahmad, I., S. Azhar, and S. M. Ahmed, "Construction of a Bridge in a Developing Country: A Bangladesh Case Study." *ASCE Leadership and Management in Engineering*, October 2003, p. 177-182.
  13. Najafi, F.T., I. Ahmad, P. Lancaster, J. L. Benham, M. Sadeghinia, and M.M. Alam, "Methods of Application and Bonding Strengths of Thermoplastic Pavement Markings on Concrete and Asphalt Roadway Surfaces." *International Journal of Pavements*, Vol. 1, No. 3, September 2002, p. 97-.
  14. Ahmed, S. M., I. Ahmad and S. Azhar, "Current State and Trends in E-commerce in the Construction Industry: Analysis of a Questionnaire Survey," *Revista Ingeniería de la Construcción (Construction Engineering Journal)*, Vol. 17, No. 2, 2002, p. 47-58,.
  15. Ahmed, S.M., S. Azhar, and I. Ahmad, "Supply Chain Management in Construction," *Delhi Business Review*, Vol. 3, No.1, 2002.
  16. Ahmed, S.M., S. Azhar, and I. Ahmad, "Evaluation of Florida General Contractors' Risk Management Practices," *Revista Ingeniera de la Construction (Construction Engineering Journal)*, Vol. 17, No. 1, pp. 4-11., 2002.
  17. Ahmad, I., B.Tansel and J.D. Mitrani, "Effectiveness of HVAC Duct Cleaning Procedures in Improving Indoor Air Quality," *Environmental Monitoring and Assessment*, Vol. 72, pp. 265-276, 2001.
  18. Ahmad, I. and S. Putchu, "Evaluation of Compaction Methods for Pipe Trench Backfill in Areas of High Water Table," *Transportation Research Record Journal of the Transportation Research Board*, 1736, Part 2, 2001, p. 55-61.
  19. Ahmad, I. "Success in the wake of the IT revolution," *ASCE Journal of Management in Engineering*, Vol. 16, No. 1, 2000, p. 28.
  20. Ahmad, I. "Managing, Processing, and Communicating Information: What A/E/C Organizations Should Know," *Journal of Management in Engineering*, American Society of Civil Engineers, Vol. 15, No. 4, 1999, p.33-36.

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21. Ahmad, I. and M. Sein, "Building Construction Project Teams for TQM: A Factor-Element Impact Model," *Journal of Construction Management and Economics*, Vol. 15, No. 5, 1997, p. 457-467.
  22. Ahmad, I. "Projects and IT: An Optimal Pairing." *PM Network*, Project Management Institute, 1997, p. 31-34.
  23. Ahmad, I., J. Russell, and A. Abou-Zeid, "Information Technology and Integration in the Construction Industry." *Journal of Construction Management and Economics*, Vol. 13, 1995, p. 163-171.
  24. Ahmad, I. and W. Barnes, "Retainage Policies of Public Agencies." *The American Professional Constructor, The Journal of American Institute of Constructors*, Vol. 19, No. 1, 1995, p.2-8.
  25. Ahmad, I., "Applications of Knowledge-Based Systems in Construction." *The American Professional Constructor, The Journal of American Institute of Constructors*, Vol. 18, No. 1, 1994, p.2-8.
  26. Ahmad, I., "Decision Support System for Modeling the Bid/No-Bid Decision Problem." *ASCE Journal of Construction Engineering and Management*. Vol. 116, No. 4, 1990. p. 595-608.
  27. Minkarah, I. and I. Ahmad, "Expert System as Construction Management Tools". *ASCE Journal of Management in Engineering*. Vol 5, No. 2, 1989. p. 155-163.
  28. Ahmad, I. and I. Minkarah, "Questionnaire Survey on Bidding in Construction." *ASCE Journal of Management in Engineering*. Vol. 4, No. 3, 1988. p. 229-243.
  29. Ahmad, I. and I. Minkarah, "Optimum Markup for Bidding: A Preference-Uncertainty tradeoff Approach." *Journal of Civil Engineering Systems*. Vol. 4, No. 4, 1987. p. 170-174.
  30. Minkarah, I., J. P. Cook and I. Ahmad, "Recommended Static and Dynamic Limits of Vertical Movements for Testing Joint Sealants." *Special Publication of the 2nd World Congress on Joints and Bearings*, Vol. 1, SP-04, American Concrete Institute (ACI), 1986. p. 389-408.

#### *Other Refereed Papers*

31. Ahmad, I. "Information as a Resource," Editorial, *Journal of Management in Engineering*, American Society of Civil Engineers, Vol. 15, No. 4, 1999, p. 3-4.
32. Ahmad, I., "Networking with Internet, Corporate Intranet, and Project Extranet," Forum, *Journal of Management in Engineering*, Vol. 15, No. 4, 1999, pp. 7-8.

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33. Navarrete, G. and I. Ahmad, "Computer Scheduling and Construction Specs." *Civil Engineering*, 1993. p. 50-52.

### Proceedings

1. Saqib, M. and I. Ahmad, "Public-Private Partnership in US Infrastructure Projects: Port of Miami Tunnel Case Study," Sixth International Conference on Construction in the 21<sup>st</sup> Century (CITC-VI), July 5-7, 2011.
2. Azhar, N. and I. Ahmad, "Internet-based ICT Usage in Construction Project Management: A Global Appraisal," Sixth International Conference on Construction in the 21<sup>st</sup> Century (CITC VI), July 5-7, 2011.
3. Ahmad, I. M.K. Sein and K. Panthi, "Challenges of Integration and ICT's Potentials in the Globalized Construction Industry," Annual PICMET Conference, Phuket, Thailand, July 2010.
4. Ahmad, I. and M.K. Sein, "Transformational Capabilities of ICT: A Technology Management Perspective in Construction," Annual PICMET Conference, Cape Town, South Africa, July 2008.
5. Ahmad, I. and M. K. Sein, "IT in Construction: Potentials and Challenges," Twenty-fifth anniversary of the Journal of *Construction Management and Economics*, Reading, UK, July 2007.
6. Ahmad, I. "Construction in the Twenty-first Century: Towards Effective Organizations," Keynote speech, CITC-IV conference, Gold Coast, Australia, July 2007.
7. Ahmad, I. and M.K. Sein, "ICT in Construction Education: An assessment," Annual PICMET Conference, Istanbul, July 2006.
8. Ahmad, I., S. M. Ahmed, A. Koolawong, and S. Azhar, "Safety and Economy of Shoring/Reshoring Schemes in Construction of Multistory Concrete Buildings". *Proceedings of the ASCE Construction Research Congress* (on CD ROM), Honolulu, Hawaii, March 19-21, 2003.
9. Ahmed, S.M.; I. Ahmad, S. Azhar, and S. Mallikarjuna, "Implementation of Enterprise Resource Planning (ERP) Systems in the Construction Industry". *Proceedings of the ASCE Construction Research Congress* (on CD ROM), Honolulu, Hawaii, March 19-21, 2003.
10. Ahmad, I., S. Azhar, and S.M. Ahmed, "Web-based Construction Project Management: Scope, Potential and Trends," Proceedings of CIB-W65/W55 International Conference, Cincinnati, Ohio, USA September 2002.
11. Ahmed, S.M, P. Tang, S. Azhar, and I. Ahmad, "An Evaluation of Safety Management System in the Hong Kong Construction Industry Using TQM Principles," Proceedings of CIB-

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W65/W55 International Conference, Cincinnati, Ohio, USA September 2002.

12. Ahmad, I. and S. Azhar, "Data Warehousing in Construction: From Conception to Application," Proceedings of the First International Conference on Construction in the Twenty First Century, Miami, Florida, USA, April 2002.
13. Ahmad, I., Najafi, F.T., Benham, J.L., Lancaster, P., Sadighinia, M, "Methods of Application and Bonding Strengths of Thermoplastic Pavement Markings: A Comparison between Concrete and Asphalt Roadway Surfaces," TRB paper # is: 02-3670, Washington, D.C., 2002.
14. Azhar, S., I. Ahmad, and S. M. Ahmed, "Impact of ICT on Design and Management Process in the Construction Industry," Published in the 3rd International Conference on Technology Convergence - The Human Perspective, New Delhi, India, January 8-9, 2002.
15. Ahmed, S. M., S. Azhar, and I. Ahmad, "Supply-Chain Management in Construction: Scope, Trends, and barriers," Published in the 3rd International Conference on Technology Convergence - The Human Perspective, New Delhi, India, January 8-9, 2002.
16. Ahmad, I. and S. M. Ahmed, "Integration in the Construction Industry: Information Technology (IT) as the Driving Force," Accepted for presentation and publication in the proceedings for the Third International Conference on Construction Project Management, Singapore 29-30 March, 2001.
17. Ahmed, S.M. and I. Ahmad, "Construction Contracts in Hong Kong: Procurement Strategies and Risk Sharing," Accepted for presentation and publication in the proceedings for the Third International Conference on Construction Project Management, 29-30 March, 2001.
18. I. Ahmad, A. Koolawang, and S.M. Ahmed, "Safety and economy of shoring/reshoring schemes in construction of multistory concrete buildings," Accepted for presentation and publication in the proceedings for the Eighth East Asia Pacific Conference on Structural Engineering and Construction, Singapore 5-7 December, 2001.
19. Ahmad, I., "Data Warehousing in Construction Organizations," ASCE Construction Congress-6, February 2000, Orlando, Florida.
20. Ahmad, I, "Evaluation of compaction methods for FDOT pipe trench backfill in areas of high water table," Transportation Research Board Annual Meeting, Washington, D.C., January 2000.
21. Ahmad, I., G. Navarrete, and F.T. Najafi, "Delay Claims and the Use of CPM," Proceedings of the 1999 Annual Conference of the *Canadian Society for Civil Engineering*, Vol. III, June 1999, Regina, Saskatchewan, p. 227-236.

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22. Ahmad, I. and C. Nunoo, "Data Warehousing in the Construction Industry: Organizing and Processing Data for Decision-making," 8<sup>th</sup> International Conference on Durability of Building Materials and Components, *Institute for Research in Construction*, Vancouver, British Columbia, May-June, 1999.
  23. Ahmad, I., "TQM in construction organizations: A factor-element impact model," *International Conference on TQM and Leadership in Building and Construction*, Singapore, October, 1997.
  24. Ahmad, I., "Role of Information Technology in Management of AEC Projects: Current Applications and Future Potentials," *International Conference on Computing and Information Technology for Architecture, Engineering and Construction*, Singapore, May, 1996.
  25. Ahmad, I. and W. Barnes, "Retainage Policies of Public Agencies: Findings of a Questionnaire Survey," *Proceedings of the Annual Meeting of the Associated School of Construction*, Peoria, April, 1994, p. 127-134.
  26. Ahmad, I., B. Tansel, J.D. Mitrani, "Case Study of HVAC Sanitation Procedures on Indoor Air Quality of Selected Residential Buildings," *Proceedings of the Indoor Air Quality-1993 (IAQ-'93) Conference organized by ASHRAE*, Philadelphia, November, 1993. p. 157-163.
  27. Navarrete, G. and I. Ahmad, "Scheduling Principles of the Miami Metromover Project," *Proceedings of the Fourth International Conference on Automated People Movers*, ASCE Urban Transportation Division, March 1993. p. 743-753.
  28. Ahmad, I. and A. Morad, "Alternative Bid-Evaluation and Contract-Award Systems." *CIB Symposium held in Trinidad*, September 1993. p. 681-687.
  29. Ahmad, I., "Expert Decision Support Systems for the Construction Industry." Published in the *1990 Associated Schools of Construction (ASC) Annual Meeting Proceedings*. April 1990. p. 221-225.
  30. Ahmad, I. and I. Minkarah, "Decision Analysis and Expert System Technology: A Construction Industry Perspective." *CIB Symposium on Value in Building Economics and Construction Management*, Sydney, Australia, March 1990. p. 363-372.
  31. Suckarieh, G., I. Minkarah and I. Ahmad, "Application of Maynard Operation Sequence Technique (MOST) to Measurement of Construction Tasks." *Proceedings of CIB W-65 Symposium 1987 on Organization and Management of Construction*, September 1987, London. p. 735-746.

#### **Refereed by Abstracts: Conference Presentations and Proceedings Articles**

1. Ahmad, I. and S. Putcha, "Compaction methods for backfill materials under high water table," *Annual Meeting of the Florida section of the ASCE*, Orlando, Florida, September 1999.
2. Ahmad, I. and C. Nunoo, "Implementation of data warehousing in Construction," *International Conference on the applications of Artificial Intelligence techniques in Civil Engineering*, Miami, Florida, September 1998.
3. Ahmad, I. and P. Ommi, "Parametric Estimating: An Object-Oriented Approach," *Third Congress on Computing in Civil Engineering*, Anaheim, California, June 1996.
4. Ahmad, I. "Applications of Information Technology in Management," *International Conference on Information Technology*, Center for Advanced Management Systems, Miami, December 1995.
5. Attoh-Okine, N.O. and I. Ahmad, "Application of Bayesian Influence Diagrams to Risk Analysis of Highway Construction Costs." *ASCE Second Congress on Computing in Civil Engineering*, Atlanta, Georgia, June, 1995.
6. Tansel, B., I. Ahmad., and A. Vereia, "Environmental Planning for Community Housing Projects," *Proceedings of the 22nd International Association for Housing Science World Symposium*, Salzburg, Austria, October 1994.
7. Ahmad, I. and S. Rahman, "Refinement of Cost Estimates with Artificial Neural Nets." *ASCE First Congress on Computing in Civil Engineering*, Washington, D.C., June, 1994.
8. Dye, J., J. Mitrani and I. Ahmad, "Florida's Licensing System for Contractors." *ASCE South Florida Section Annual Meeting Proceedings*, Naples Beach, Florida, October 1993.
9. Ahmad, I. and A. Morad, "Computer-Aided Decision Model for Selecting A Contractual System." *ASCE 5th International Conference on Computing in Civil and Building Engineering*, Anaheim, California, June, 1993. pp. 255-261.
10. Ahmad, I., "Innovative Organizational Structures for Construction Firms of the Future." Presented at the *1992 ASCE Annual Convention*, New York, September.
11. Ahmad, I. and S.Rahman, "Framework of a Knowledge-Based Estimate Classification System." *ASCE 8th Annual Conference of Computing in Civil Engineering*, Held in Dallas, Texas in June 1992. p.967-74.
12. Ahmad, I., "Contingency Allocation: A Computer-Aided Approach." *AACE. (Cost Engineering) 36th Annual Meeting*, Held in Orlando, Florida in June, 1992.

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13. Ahmad, I. and A. Morad, "Computer-Aided Decision and Risk Analysis in Construction." *CIB Symposium*, held in Montreal, Canada in May, 1992.
  14. Ahmad, I., "Estimating Construction Costs Using Expert System Technology." *Ninth National Conference on Microcomputers in Civil Engineering*, Held in Orlando, Florida in October, 1991. p. 143-147.
  15. Ahmad, I., "Expert Systems: New Tools for Construction." *Handbook for the Florida International University/Building Construction Industry Advisory Council Workshop on Expert Systems*, December, 1990, March, 1991 and April, 1991.
  16. Ahmad, I., "Restructuring Responsibility and Reward for More Construction Innovation." *Presented at the Construction Congress, 1991, sponsored by ASCE*, held April 12-16, 1991, in Cambridge, Massachusetts. Published in the proceedings. p. 453-458.
  17. Russell, J. and I. Ahmad, "A PERT Approach to Contractor Prequalification Analysis." *AACE (Cost Engineering) 34th. Annual Meeting*, Boston, June 1990.
  18. Ahmad, I. and L. Woodbury, "An Undergraduate Course on Microcomputer Applications in Construction," *Associated Schools of Construction (ASC) Region IV Meeting*, October 1989.
  19. Minkarah, I., and I. Ahmad, "Expert Systems as Construction Management Tools." *Seminar on Improving Engineers as Managers*, organized by Engineering Management Group, ASCE, April 1988, Cincinnati, Ohio.
  20. Ahmad, I. and I. Minkarah, "An Expert System for Selecting Bid Markups." *Fifth Conference on Computing in Civil Engineering organized by the American Society of Civil Engineers*, March 1988, Alexandria, Virginia. p. 229-238.
  21. Ahmad, I. and I. Minkarah, "An Additive Utility Model for Selecting Optimum Bid Price." *Proceedings of the Eighteenth Annual Pittsburgh Conference on Modeling and Simulation*, April, 1987, Pittsburgh. p. 367-373.

### Chapters in Books

1. Ahmad, I. and S. Azhar, "Data Warehousing in Construction: From Conception to Application," in *Data Warehousing: Design and Development Perspectives*, Edited by S. Jaya Krishna, ICFAI University Press, Hyderabad, India, 2004, p. 132-144.

### Government Reports or Monographs



1. Ahmad, I., and S. Azhar, "Use of Maturity Meters for Concrete Quality Assurance," Florida Department of Transportation, 2005.
2. Ahmad, I., and S. Azhar, "Temperature Variation in Drilled Shaft Concrete and its Effect on Slump Loss," Florida Department of Transportation, 2003.
3. Ahmad, I., S. Azhar, and J. Sobanjo, "Lumps and Balls in High-Slump Concrete: Reasons and Remedies," Florida Department of Transportation, 2003.
4. Ahmad, I. and M.T. Lu, "Generalized Method for Analysis of Pavement Management Database," Florida Department of Transportation, 2002.
5. Ahmad, I. "An Investigation into Application and Bonding Strengths of Thermoplastic Pavement Markings on Concrete and Asphaltic Roadway Surfaces," Florida Department of Transportation, 2001.
6. Ahmad, I. "Evaluation and Analysis of Current Compaction Methods for FDOT Pipe Trench Backfills in Areas of High Water Tables," Florida Department of Transportation, 1998.
7. Ahmad, I., B. Tansel and J. D. Mitrani, "Effectiveness of HVAC Sanitation Processes in Improving Indoor Air Quality - Phase II," Building Construction Industry Advisory Committee, 1996.
8. Ahmad, I. B. Tansel and J. D. Mitrani, "Effectiveness of HVAC Sanitation Processes in Improving Indoor Air Quality." Building Construction Industry Advisory Committee, 1994.
9. Ahmad, I. and J. Dye, "Development of a Database of MBE/DBE Firms and Decision Models to Determine their Capacity for the Florida Construction Industry." Building Construction Industry Advisory Committee, 1994.
10. Ahmad, I. and Morad. A. "Alternative Bid-Evaluation and Contract-Award Systems." Building Construction Industry Advisory Committee, 1993.
11. Ahmad, I., J.D. Mitrani and J. Dye, "A Comprehensive Study of the Licensing System for the Construction Contractors in Florida." Building Construction Industry Advisory Committee. January 1993.
12. Ahmad, I. and W.C. Barnes, "Alternative to 10% Retainage." Building Construction Industry Advisory Committee, 1992.

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**Book Reviews**

1. Ahmad, I. Review of *Project Management Framework* by David G. Carmichael, (A.A. Balkema Publishers, © 2004 Swets & Zeitlinger B.V., Lisse, ISBN 90 5809 325 5) for Construction Management and Economics, July 2004.
2. Ahmad, I. "Combining Management and Computing for Now and Later," Review of *Best Practices in Information Technology: How Corporations get the most value from Exploiting their Digital Investments* by James W. Cortada, (Prentice Hall, Inc., New Jersey), *ASCE Journal of Management in Engineering*. Vol.15, No. 4, July / August 1999, p. 27-28.
3. Ahmad, I. Review of *The Corporation of the 1990's: Information Technology and Organizational Transformation*, edited by Michael S. Scott Morton (1991, Oxford University Press, New York), Review published in *ASCE Journal of Management in Engineering*. Vol. 9, No. 2, March 1993, p. 119-120.

**Other Publications**

1. Editor's Letters in every issue of the *ASCE Journal of Management in Engineering* in all issues of Volume 18 (2002), 19 (2003), and 20 (2004).
2. "Get the Yuck out of Ducts is a Game without Rules," *The Miami Herald*, Sunday, August 1, 1993. Featured research study on HVAC sanitation procedures of which Dr. Ahmad was the Principal Investigator.
3. "Air Conditioning Duct Cleaning," *Construction Today*, a call-in television show in which Dr. Ahmad was invited to participate as a panelist and to talk about his research on duct cleaning. Cable TAP channel 35, September 20, 1993.

**3.7. SEMINARS AND PRESENTATIONS**

Delivered numerous invited lectures and presentations at various universities in the US and abroad, as well as in many national and international conferences. These have included presentations on construction organizations, computerized estimating, expert systems, contractual methods, decision and risk analysis, and indoor air quality of residential buildings.

**Selected presentations/workshops**

1. Invited keynote speaker in the ICCIDC-II, Construction in the Developing Countries, August 2010, Cairo, Egypt.
2. Invited seminar speaker, Angan Lecture Series, Construction Management Education: A New

Paradigm, Department of Architecture, BRAC University, July 2010, Dhaka, Bangladesh.

3. Invited keynote speaker in the CITC - IV, Construction in the Twenty-first Century conference, July 2007, Gold Coast, Australia.
4. Seminar on Global Construction in Tsinghua University, Beijing, China, June 2005.
5. Seminar on Construction Education and Research in Harbin Institute of Technology, Harbin, China, June 2005.
6. Taught the reinforced concrete design part of the P.E. refresher course offered by the Civil and Environmental Engineering Department in September, 2004.
7. Invited keynote speaker in the ASCE Miami-Dade chapter meeting on design of concrete slender columns - use of cracked versus uncracked sections, May 2003, Miami, Florida.
8. Taught Dade, Broward and Palm Beach County professional engineers a four-hour module on the calculations of wind loading on structures according to ASCE 7-2002 to enable them earn PDH hours, in April and June 2002.
9. Invited keynote speaker in the Second Korean Institute of Construction Engineering and Management Annual Conference, November 2001, Seoul, Korea.
10. Conducted a three-day workshop in Hong Kong for the local construction industry professionals on Project Management Information Systems, Organized by Hong Kong Polytechnic Institute, August 2001.
11. Conducted a two-day workshop in Dhaka, Bangladesh for the local construction industry professionals and civil engineers on Cost Engineering, Organized by Bangladesh University of Engineering and Technology, March 2001.
12. Conducted a two-day workshop on Cost Engineering, at Sol Engineering, August 18-19, 2000, St. Antonio, Texas.
13. Conducted a two-day workshop on Project Control and Cost Engineering at T & N Associates, August 23-24, 2000, Milwaukee, Wisconsin.
14. Seminar on *Decision Making under Uncertainty*, American Association of Cost Engineers, May 8, 1996, Sheraton Riverhouse, Miami, Florida.
15. Seminar on *Information Technology in Project Management*, IT-95, Project Management Systems, Inc., December 20, 1995, Hyatt Regency, Miami, Florida.

16. Seminar on *Indoor Air Quality of Residential Buildings*, Indoor Air Quality Association, Inc. November 18, 1995, Boca Raton, Florida.
17. Discussion panel on *Civil Engineering Careers*, ASCE Miami-Dade branch, February 1994, Miami, Florida.
18. Seminar on *Computerized Estimating*, Gerrits Urban Joint Venture, October 31, 1992, Miami International Airport, Miami, Florida.
19. Seminar on *Alternative Bidding Systems*, Construction Specifications Institute Annual Regional Meeting, September 26, 1992, Miami, Florida.
20. "*Expert Systems: New Tools for Construction.*" Building Construction Industry Advisory Committee Workshop on Expert Systems, Dec. 1990, Mar. 1991 and April, 1991.

### 3.8. OTHER ACADEMIC ACTIVITIES

#### Newspaper Interviews

Interviewed by the *Miami Herald* and the *Sun Sentinel* on the prospects of job market for construction graduates during 2005 and 2006. One example:

"Job Outlook for 2005: Nursing, biotech and construction are hot," By Niala Boodhoo, *Sun-Sentinel*, January 10, 2005.

#### Advising

#### Post-Doctoral Research Fellow

- Rui Zheng, Ph.D., Construction Management, Harbin Institute of Technology, Harbin, P.R. of China (2007-08).

#### Ph.D. students - Major Professor

- Salman Azhar, "Data Warehousing in Construction," completed in 2005, currently a faculty member in the Building Science Department at Auburn University.
- Christin Perkinson, "Total Jobsite Management Tool," completed in 2008, currently employed in the industry, as a co-owner of a construction company.
- Umut Artuk, "A Model for Enterprise Resource Planning in Construction," - in progress, All but dissertation.
- Nida Azhar, ongoing.
- Muhammad Saqib, ongoing.

***Ph.D. students - Committee Member***

- Ramtin Kargarmoakhar (ongoing)
- Ivan Canino (2009)
- Elio Espino (2005)
- Javier Gonzalez (2004)
- Michael Sadighinia (2004)
- Hailing Zhang, Ph.D. (2002)
- Jeth Fogg, Ph.D. (2001)

***Masters' Students - Major Professor***

- Weihua Mao MSCM (2005)
- Anas Bataineh MSCE (2004)
- Ivan Canino MSCE (2002)
- Apinop Koolawang MSCE (2000)
- Pranas Lukauskis MSCE (1999)
- Anthony Smith MSEM (1999)
- Praveen Ommi MSCM (1995)

***Masters' Students - Committee Member***

- Deepika Nirmal (2011)
- Cetin Canbeck MSCM (2010)
- Aarti Pandit MSCM (2007)

***Projects/Independent Studies***

- Sarah Goodridge in Construction Management (2006)
- Juan Zheng in Construction Management (2005)
- Ytve Guerra, Masters in Civil Engineering (2004)
- Jack Parry, Masters in Civil Engineering (2004)
- Chris Hansen, Masters in Civil Engineering (2003)
- Quazi Masood, Masters in Civil Engineering (2003)
- Yiping Wang, Masters in Civil Engineering (2002)
- Marwan Yassine, Masters in Civil Engineering (2001)
- Roda Fawaaz, Masters in Civil Engineering (1999)

**International Conferences Organized**

Organized and co-chaired the International conference on Construction in the Twenty First

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Century (CITC I) in Miami in April 2002. The second in the series (CITC II) was organized in Hong Kong in December 2003, CITC III was held in September 2005 in Athens, Greece, and CITC IV was held in July 2007 in Australia, CITC V in 2009 in Istanbul, Turkey and CITC VI in 2011 in Kuala Lumpur, Malaysia.

### **Sessions Organized/Chaired**

1. Chaired a session in the Journal of Construction Management and Economics twenty-fifth anniversary conference, Reading, UK, July 15-17, 2007.
2. Chaired a session on construction organizations in the CIB-W65/W55 International Conference, Cincinnati, Ohio, 7-10 September, 2002.
3. Chaired a session on Information Technology in the Third International Conference on Construction Project Management in Singapore, 29-30 March, 2001.
4. Organized and chaired a session on *Implementation of TQM Principles in Construction and Building Projects* for the International Conference on Leadership and Total Quality Management in Construction and Building, Singapore, October, 1997.
5. Organized a session on *Construction Information Management* for ASCE Construction Congress V, Minneapolis, October, 1997.
6. Organized sessions on *Decision Support Systems* for ASCE Second Congress on Computing in Civil Engineering, Atlanta, Georgia, June, 1995.
7. Organized sessions on *Decision Support Systems and Constructibility* for ASCE First Congress on Computing in Civil Engineering, Washington, D.C. June, 1994.
8. Chaired session on *Decision Support Systems* at the ASCE 5th International Conference on Computing in Civil and Building Engineering, Anaheim, California, June, 1993.
9. Chaired session on *Construction Organizational Structures of the Future*, at the 1992 ASCE Annual Convention, New York, September, 1992.
10. Moderated session on *Computer Estimating* at the Ninth National Conference on Microcomputers in Civil Engineering, Held in Orlando, Florida in October, 1991.

## **4. PROFESSIONAL AND INSTITUTIONAL SERVICE**

### **4.1. PROFESSIONAL LEADERSHIP**

- Editor-in-Chief (2002-2008), *Journal of Management in Engineering*, American Society of Civil Engineers.
- Presiding Chair, Florida Infrastructure Sustainability Forum, College of Engineering and Computing, Florida International University, February 18, 2010.
- Chair (1999-2001), ASCE Publications Committee of the Management Group.
- Member, Editorial Board (2006 - ), *Leadership and Management in Engineering*, American Society of Civil Engineers.
- Served as the elected secretary of the ASCE Committee on Computing in Construction during 1993-96.
- Co-Chair and Organizer (2002), International conference on Construction in the Twenty-first Century (CITC), Miami, Florida. Subsequent conferences were organized in Hong Kong (2003), Athens, Greece (2005), Gold Coast, Australia (2007).
- A member of the ASCE Construction Research Council, and the Committee on IT in Construction.

**Reviewer** of the papers submitted in -  
*ASCE Journal of Management in Engineering*,  
*ASCE Journal of Construction Engineering and Management*,  
*ASCE Journal of Computing in Civil Engineering*,  
*Journal of Construction Management and Economics*,  
*Automaton in Construction*,  
*The Kuwait Journal of Science and Engineering*, and  
*Computer-aided Civil and Infrastructure Engineering*

#### **4.2. AFFILIATIONS**

American Society of Civil Engineers (ASCE)  
American Society of Engineering Education (ASEE)  
Honorary Faculty Member of Chi Epsilon, a Civil engineering Honor Society.  
Honorary Faculty Member of Sigma Lambda Chi, a Construction Honor Society.

#### 4.3. INSTITUTIONAL SERVICE AND LEADERSHIP

##### *University*

- Chair, Construction Management, since January 2004.
- Graduate Program Director, Civil Engineering, 1999-2003.
- Engineering Representative, University Breadth Requirement (undergraduate core curriculum) Committee. 2001-02.
- Elected University Senator, Faculty Senate, 2001-03, 1999-01, 1996-98.
- Chair of the College Faculty Council (1994-1995), College of Engineering, Florida International University.
- Senate Steering Committee Member, 2001-2003.

##### *School/College*

- Chair, Search Committee, Electrical and Computer Engineering Chair position, FIU, 2010.
- Member, Construction Management Chair Search Committee, 2002-03.
- Member, College Tenure and Promotion Committee, 1998-2000.
- Chair, College Faculty Council 1994-95.
- Vice-Chair, College Faculty Council 1993-94.
- Member, Civil Engineering Search and Screen Committee, 1992-93.
- Member, Dean's Faculty Advisory Committee 1991-93.

##### *Department*

- Chair, CEE Tenure and Promotion Committee, 1998-2000
- Chair, Civil Engineering Structures Faculty Search Committee, 2003-04.
- Chair, Department Tenure and Promotion Committee, 1998-2000.
- Chair, Construction Management Search and Screen Committee, 1995-96, 1994-95, 1993-94.
- Faculty Advisor, Sigma Lambda Chi Student's Chapter, 1991-1997.

#### 4.4. COMMUNITY SERVICE

- Member, Advisory Board, Hope Foundation to operate a hospital in Bangladesh, Miami, Florida, 2006-present.
- Member, Asian-American Advisory Board, Miami-Dade County, 2001-2007.



- Chair, Scholarship Committee, Asian-American Federation of South Florida, 1997-1999.

#### 4.5. CONSULTING

*Sep. 2005 – Mar. 2006:* Expert witness in a construction dispute lawsuit as a cost engineer.

*Mar. – June 2002:* Taught professional development courses for professional engineers on cost engineering, and wind load analysis of buildings using ASCE 7. Miami.

*Aug. 1991-Present:* Consulting in the fields of Structural Analysis and Design, Cost Engineering, Computerized Estimating, and Project Planning and Scheduling. Included several value engineering projects and design of reinforced concrete structures.

*Mar. 1991-Aug. 1991:* Project Management Consultant for Cogefarimpresit USA, Inc., an international construction company doing business in Miami. Responsible for development and maintenance of a complex project schedule using Primavera Project Planning System for Metro Mover Brickell Avenue Extension Project.

*Aug. 1984-Dec. 1986:* Worked for American Tectonics, a construction firm, as a project management consultant. The project was a six story concrete frame building utilizing post-tensioned construction in Cincinnati that had a project cost of approximately \$17,000,000.

*1979-1983:* Worked for Prasthapana Building Design Center and Stone Steel Ltd. (Bangladesh) as structural engineer. Works included design and supervision of a 120 ft. high concrete minaret of a mosque in Dhaka, a sea-food cold storage plant in Chittagong and numerous residential buildings.

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### **Professional Experience**

- President, Baier Consulting Engineers, Inc., Davie, FL, 1986-Present.
- Vice-President, Southeastern Engineering & Testing Laboratories, Inc., Davie, FL, 1973-Present.
- Vice President, Herbert M. Schwartz & Associates, Inc., Miami, FL, 1978-1986.
- Director of Structural Engineering, Craven, Thompson & Associates, Fort Lauderdale, FL, 1976-1978.
- Construction Manager, Roof Structures, Inc., Fort Lauderdale, FL, 1975-1976.
- Private Practice, Ronald A. Baier, P.E., Consulting Engineer, Fort Lauderdale, FL, 1974-1975.
- Design Engineer, Jenkins & Charland, Inc., Consulting Engineers, Fort Lauderdale, FL, 1974
- Design Engineer, Arthur L. Bromley, P.E., Consulting Structural Engineer, Fort Lauderdale, FL, 1972-1974.
- Design Engineer, Alpine Engineered Products, Pompano Beach, FL, 1971-1972.
- Field Engineer, Pittsburgh Testing Laboratory, Miami, FL, 1970-1971.
- Assembly & Test Engineer, The Boeing Company, Cape Canaveral, FL, 1967-1969.

### **Academic Experience**

- Senior Instructor & Undergraduate Advisor, OHL School of Construction, College of Engineering & Computing, Florida International University, 2002-Present.
- Adjunct Instructor, Construction Management Department, Florida International University, 1994-2002.
- Teaching Assistant, Department of Engineering Mechanics, University of Florida, 1969-1970.

### **Education Background**

- M.E., Engineering Mechanics, College of Engineering, University of Florida
- B.E., Civil Engineering, City College, City University of New York (CUNY)

### **Affiliations/Professional Associations**

- Registered Engineer, State of Florida, 1973
- Registered Engineer, State of New York, 1975 (Inactive)
- Registered Engineer, State of Georgia, 1986 (Inactive)
- Registered Engineer, State of Alabama, 1987 (Inactive)
- Member and Past President, Florida Structural Engineers Association
- Member and Past President, American Concrete Institute, South Florida Chapter
- Member, Florida Engineering Society, Broward County Chapter
- Member, National Society of Professional Engineers
- Member, National Council of Structural Engineering Organizations

### **Research**

- Under grant from the State of Florida Department of Community Affairs, assisted in various hurricane research projects for the “Hurricane Loss Mitigation Program.” (10/02-6/04)
- Under grant from the State of Florida Department of Transportation, assisted in geotechnical engineering research to investigate Compaction of Pipe Trench Backfills in Wet Conditions.” (1994)
- Under grant from the State of Florida Department of Transportation, assisted in research associated with the “District 6 Facility Condition Assessment.” (2011)

### **Teaching**

- BCN 1013 Principles of Construction Management, Florida International University
- BCN 2402 Structural Design I, Florida International University
- BCN 2210 Construction Materials, Florida International University
- BCN 3727 Construction Sitework & Equipment, Florida International University
- BCN 3761 Construction Documentation & Communication, Florida International University
- BCN 4431 Structural Design II, Florida International University
- BCN 4462 Structural Design III, Florida International University
- BCN 4465 Temporary Structures in Construction, Florida International University

### **Selected Publications**

- Ahmad, I., Dye, J. M., Mitrani, J. D., Baier, R. A. and Epstein, W. C., “Evaluation and Analysis of Current Compaction Methods for FDOT Pipe Trench Backfills in Areas of High Water Tables,” Florida International University, Miami, Florida.
- 2<sup>nd</sup> LACCEI International Latin American and Caribbean Conference for Engineering & Technology, 2-4 June 2004, Miami, Florida. Presented Paper: Farmer, E., Baier, R. A. & Mallikarjuna, S., “Re-Cyclable Emergency Shelters for Short Term Post Disaster Use.”

**Selected Publications (contd.)**

- 3<sup>rd</sup> International Conference on Construction in the 21<sup>st</sup> Century, 15-17 September 2005, Athens, Greece. Paper: Ryoo, B. & Baier, R. A., “Framework of Construction Management Task Map for Integrated Project Management Systems.”
- XXX Pan American Convention of Engineers, 19-22 September 2006, Atlanta, Georgia. Paper: Baier, R.A., Tao, Y.X., Belcher, N. & Chandler, J., “An Interdisciplinary Pedagogical Teaching Approach for Architecture, Engineering and Construction with Solar Decathlon Project.”
- 4<sup>th</sup> International Conference on Construction in the 21<sup>st</sup> Century, 11-13 July 2007, Gold Coast, Australia. Paper: Artuk, U, Ryoo, B.Y. & Baier, R.A., “An Overview of Enterprise Resource Planning (ERP) Systems in Small and Medium Sized Organizations: Case of Florida Contractors.”
- 2007 ASEE Annual Conference & Exposition, 24-27 June 2007, Honolulu, Hawaii. Paper: Baier, R.A. & Tao, Y.X., “An Interdisciplinary Pedagogical Teaching Approach for Engineering, in Conjunction with Architecture and Construction with Solar Decathlon Project.”

**College & University Service**

- Construction Management Faculty Representative participating in the 2005 Solar Decathlon Student Competition sponsored by the United States Department of Energy (DOE) through the National Renewable Energy Laboratory (NREL), which took place on the Capitol Mall in Washington, D.C.

# MEHMET EMRE BAYRAKTAR, PH.D.

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## CONTACT INFORMATION

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Cell Phone: (305) 934-3171

## EDUCATION

<u>Degree</u>	<u>Institution</u>	<u>Field</u>	<u>Dates</u>
Ph.D.	Purdue University, West Lafayette, IN	Civil Engineering	Aug. 2006
M.Sc.	Purdue University, West Lafayette, IN	Civil Engineering	Aug. 2003
B.Sc.	Bogazici University, Istanbul, TURKEY	Civil Engineering	Jul. 2001

## ACADEMIC EXPERIENCE

<u>Institution</u>	<u>Rank</u>	<u>Field</u>	<u>Dates</u>
Florida International Uni., Miami, FL	Associate Professor	OHL School of Construction	Aug. 2012 – Present
Florida International Uni., Miami, FL	Assistant Professor	OHL School of Construction	Aug. 2006 – Jul. 2012
Purdue University, West Lafayette, IN	Research Assistant	Division of Construction Eng. and Management	Jun. 2002 – Jan. 2006

## NON-ACADEMIC EXPERIENCE

<u>Placement of Employment</u>	<u>Title</u>	<u>Dates</u>
Enka Construction Company Istanbul, Turkey	Project Engineer Intern (Commercial Construction)	Jun. 2000 – Sep. 2000
Soyak Construction Company Istanbul, Turkey	Project Engineer Intern (Estimating and Bidding)	Jun. 1999 – Sep. 1999

## PUBLICATIONS IN DISCIPLINE

### Summary of Peer-Reviewed Journal Articles

<b>Published or In Press (at FIU)</b>		
<b>Title of the Journal</b>	<b>Publisher</b>	<b># of Papers</b>
Automation in Construction	Elsevier	2
Journal of Architectural Engineering	ASCE	1
Journal of Construction Eng. & Management	ASCE	3
Journal of Civil Engineering & Management	Taylor & Francis	1
Journal of Infrastructure Systems	ASCE	1
Journal of Legal Affairs & Dispute Resolution	ASCE	2
Journal of Management in Engineering	ASCE	3
Journal of Professional Issues in Eng. Edu.	ASCE	1
The International Journal of Const. Man.	CRIOCM	1
<b>Total published or in press at FIU</b>		<b>15</b>
<b>Under Review (at FIU)</b>		
Automation in Construction	Elsevier	1
Journal of Civil Engineering & Management	Taylor & Francis	1
<b>Total under review at FIU</b>		<b>2</b>
<b>TOTAL AT FIU</b>		<b>17</b>
<b>Published (prior to FIU)</b>		
Canadian Journal of Civil Engineering	NRC Res. Press	1
Journal of Infrastructure Systems	ASCE	1
Journal of Management in Engineering	ASCE	1
Journal of Transportation Engineering	ASCE	2
<b>TOTAL PRIOR TO FIU</b>		<b>5</b>
<b>GRAND TOTAL</b>		<b>22</b>

### Peer-Reviewed Journal Articles

\* A current or former graduate student advised by Dr. Bayraktar

#### At FIU

1. **Bayraktar, M. E.** and Arif\*, F. (2012). "Venture Capital Opportunities in Green Building Technologies: A Strategic Analysis for Emerging Entrepreneurial Companies." *Journal of Management in Engineering*, ASCE, accepted. (Impact factor: 0.596)
2. **Bayraktar, M. E.**, Owens\*, C., and Arif\*, F. (2012). "Holding Homebuilders Liable for Personal Injury and Property Damage Caused by Defective Material: Chinese Drywall Case." *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, ASCE, scheduled for the May 2012 issue.

3. **Bayraktar, M. E.,** Arif\*, F., Hastak, M., and Gad, N. (2012). "The Judiciary's Use of the Critical Path Method to Resolve Construction Claims." *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, ASCE, Vol. 4, No. 1, pp. 10-16.
4. Chundri, S., Zhu, Y., and **Bayraktar, M. E.,** (2011). "Improving Concept Learning in Green Building Education by Addressing Students' Learning Styles." *Journal of Professional Issues in Engineering Education and Practice*, ASCE, Vol. 137, No. 4, pp. 232-238. (Impact factor: 0.133)
5. **Bayraktar, M. E.,** Hastak, M., Gokhale, S., and Safi, B. (2011). "A Decision Tool for Selecting the Optimal Techniques for Cost and Schedule Reduction in Capital Projects." *Journal of Construction Engineering and Management*, ASCE, Vol. 137, No. 9, pp. 645-655. (Impact factor: 0.583)
6. **Bayraktar, M. E.,** Owens\*, C., and Zhu, Y. (2011). "State-of-Practice of LEED in the United States: A Contractor's Perspective." *The International Journal of Construction Management*, The Chinese Research Institute of Construction Management, Vol. 11, No. 3, pp. 1-17.
7. Papajohn, D., Cui, Q., and **Bayraktar, M. E.** (2011). "Public-Private Partnerships in U.S. Transportation: A Critical Review and the Path Forward." *Journal of Management in Engineering*, ASCE, Vol. 27, No. 3, pp. 126-135. (Impact factor: 0.596)
8. **Bayraktar, M. E.** and Hastak, M. (2010). "A Scoring Approach to Construction Bond Underwriting." *Journal of Construction Engineering and Management*, ASCE, Vol. 136, No. 12, pp. 957-967. (Impact factor: 0.583)
9. **Bayraktar, M. E.** and Owens\*, C. (2010). "A LEED Implementation Guide for Construction Practitioners." *Journal of Architectural Engineering*, ASCE, Vol. 16, No. 3, pp. 85-93.
10. Zhu, Y., **Bayraktar, M. E.,** and Chen, S. (2010). "Application of Metadata Modeling to Dispute Review Report Management." *Journal of Civil Engineering and Management*, Taylor & Francis, Vol. 16, No. 4, pp. 491-498. (Impact factor: 3.711)
11. Perkinson, C., **Bayraktar, M. E.,** and Ahmad, I. (2010). "The Use of Computing Technology in Highway Construction as a Total Jobsite Management Tool." *Automation in Construction*, Elsevier Science Publishers, Vol. 19, No. 7, pp. 884-897. (Impact factor: 1.311)
12. Cui, Q., Johnson, P., Sharma, D., and **Bayraktar, M. E.** (2010). "Determinants of Industry Acceptance for Highway Warranty Contracts: Alabama Case Study." *Journal of Infrastructure Systems*, ASCE, Vol. 16, No. 1, pp. 93-101.

13. Ossman III, G., **Bayraktar, M. E.**, and Cui, Q. (2010). "Construction Arbitration Consistency and Reliability: Empirical Study." *Journal of Management in Engineering*, ASCE, Vol. 26, No. 2, pp. 56-64. (Impact factor: 0.596)
14. **Bayraktar, M. E.** and Hastak, M. (2009). "Bayesian Belief Network Model for Decision Making in Highway Maintenance: Case Studies." *Journal of Construction Engineering and Management*, ASCE, Vol. 135, No. 12, pp. 1357-1369. (Impact factor: 0.583)
15. **Bayraktar, M. E.** and Hastak, M. (2009). "A Decision Support System for Selecting the Optimal Contracting Strategy in Highway Work Zone Projects." *Automation in Construction*, Elsevier Science Publishers, Vol. 18, No. 6, pp. 834-843. (Impact factor: 1.311)

#### Prior to FIU

16. **Bayraktar, M. E.**, Cui, Q., Hastak, M., and Minkarah, I. (2006). "An Evaluation of Warranty Contracting in the United States of America." *Canadian Journal of Civil Engineering*, Vol. 33, No. 1, pp. 1-9.
17. Sukumaran, P., Hong, T., **Bayraktar, M. E.**, and Hastak, M. (2006). "Validation of a Model for Predicting Schedule Changes in Highway Work Zones - Case Studies." *Journal of Transportation Engineering*, ASCE, Vol. 132, No. 8, pp. 638-648. (Impact factor: 0.496)
18. Sukumaran, P., **Bayraktar, M. E.**, Hong, T., and Hastak, M. (2006). "Model for Analysis of Factors Affecting Construction Schedule in Highway Work Zones." *Journal of Transportation Engineering*, ASCE, Vol. 132, No. 6, pp. 508-517. (Impact factor: 0.496)
19. **Bayraktar, M. E.**, Cui, Q., Hastak, M., and Minkarah, I. (2004). "State-of-Practice of Warranty Contracting in the United States." *Journal of Infrastructure Systems*, ASCE, Vol. 10, No. 2, pp. 60-68.
20. Cui, Q., **Bayraktar, M. E.**, Hastak, M., and Minkarah, I. (2004). "The Use of Warranties on Highway Projects: A Real Option Perspective." *Journal of Management in Engineering*, ASCE, Vol. 20, No. 3, pp. 118-125. (Impact factor: 0.596)

#### **Peer-Reviewed Journal Articles under Review**

21. Wang, Y., Zhu, Y., and **Bayraktar, M. E.** "Applying Automatic Text Categorization to the Classification of Construction Dispute Reports." *Automation in Construction*, Elsevier Science Publishers, under review as of Nov. 20, 2010. (Impact factor: 1.311)
22. **Bayraktar, M. E.** and Cinkilic\*, C. (2011). "Analysis of Disputes in Transportation Projects." *Journal of Civil Engineering and Management*, Taylor and Francis, under review as of Aug. 20, 2011. (Impact factor: 3.711)



## Peer-Reviewed Technical Notes and Forum Papers

1. **Bayraktar, M. E., Cui, Q., Hastak, M., and Minkarah, I.** (2006). "Warranty Bonds from the Perspective of Surety Companies." Peer-reviewed forum paper appeared in the *Journal of Construction Engineering and Management*, ASCE, Vol. 132, No. 4, pp. 333-337. (Impact factor: 0.583)

## Conference Articles

1. Arif\*, F., **Bayraktar, M. E.**, and Grant, S.M. (2011). "Comparison of Residential Roofing Alternatives Using Life Cycle Cost Assessment." *Proceedings of Modern Methods and Advances in Structural Engineering and Construction – ISEC-6*, June 21-26, 2011, Zurich, Switzerland.
2. **Bayraktar, M. E.**, Arif\*, F., and Cinkilic\*, C. (2010). "Assessment of Disputes in Florida Transportation Projects and Lessons Learned." *Proceedings of the Second International Conference on Construction in Developing Countries*, Aug. 3-5, 2010, Cairo, Egypt.
3. Chunduri, S., Zhu, Y., and **Bayraktar, M. E.** (2009). "Improving Concept Learning in Green Building Education by Addressing Students' Learning Styles and Prior Knowledge." *Proceedings of the 45<sup>th</sup> Annual International Conference of the Associated Schools of Construction*, April 1-4, 2009, Gainesville, FL.
4. **Bayraktar, M. E.**, Hastak, M., Gokhale, S., and Artuk, U. (2008). "An Innovative Decision Support Tool for Cost and Schedule Control in Capital Projects." *Proceedings of the 5<sup>th</sup> International Conference on Innovation in Architecture, Engineering and Construction*, June 23-25, 2008, Antalya, Turkey.
5. **Bayraktar, M. E.**, Ahmad, I., and Bangaru, V. (2007). "An Overview of the International Construction Market." *Proceedings of the 4<sup>th</sup> International Conference on Construction in the 21<sup>st</sup> Century – CITC-IV*, July 11-13, 2007, Gold Coast, Australia.
6. **Bayraktar, M. E.** and Hastak, M. (2007). "A Decision Support System for Optimal Maintenance Strategies in Highway Work Zones." *Proceedings of the 4<sup>th</sup> International Conference on Construction in the 21<sup>st</sup> Century – CITC-IV*, July 11-13, 2007, Gold Coast, Australia.
7. Cui, Q., Zhou, H., and **Bayraktar, M. E.** (2007). "A Framework for Cost Estimation of Long-Term Pavement Warranties under Performance-Based Specifications." *Proceedings of 2007 International Symposium on Integrated Life-Cycle Design and Management of Infrastructures*, May 16-18, 2007, Shanghai, China.

8. Cui, Q., **Bayraktar, M. E.**, and Hastak, M. (2005). "Bidding System with one Agent: Towards Complexity." *Proceedings of the First International Conference on Complexity, Science and the Built Environment*, September 11-14, 2005, Liverpool, UK.
9. Cui, Q., **Bayraktar, M. E.**, and Hastak, M. (2004). "A Real Option Approach to Procurement Decision on Highway Warranties." *Proceedings of the Fourth International Conference on Decision Making in Urban and Civil Engineering*, October 28-30, 2004, Porto, Portugal.
10. Cui, Q., **Bayraktar, M. E.**, Hastak, M., and Minkarah, I. (2003). "Warranty Practices on DOT Projects in the U.S." *Proceedings of the 2nd International Structural Engineering and Construction Conference – ISEC-2*, September 23-24, 2003, Rome, Italy.
11. Cui, Q., **Bayraktar, M. E.**, Hastak, M., and Minkarah, I. (2003). "Warranty as a Real Option for DOT Projects." *Proceedings of the 47<sup>th</sup> Annual Meeting of the Association for the Advancement of Cost Engineering (AACE)*, June 22-25, 2003, Orlando, Florida.

## FUNDED RESEARCH

### Active Projects

1. **Project Title: Evaluation of Vibration Limits and Mitigation Techniques for Urban Construction**

Principal Investigator: M. Emre Bayraktar

Co-Principal Investigator: Boo Nam (Uni. Of Central Florida)

Funding Agency: Florida Dept. of Transportation (FDOT)

Amount: \$149,959

Time Period: November 14, 2011 – October 14, 2013

2. **Project Title: Life Cycle Based Assessment of Sustainable Practices in the Natural Stone Industry**

Principal Investigator: M. Emre Bayraktar

Funding Agency: Stoneline Group LLC, Miami, FL.

Amount: \$10,127

Time Period: September 01, 2011 – February 29, 2012

3. **Project Title: Commercial Motor Vehicle Parking Trends at Rest Areas and Weigh Stations**

Principal Investigator: M. Emre Bayraktar

Co-Principal Investigator: Yimin Zhu (FIU Dept. of Construction Management)

Funding Agency: Florida Dept. of Transportation (FDOT)

Amount: \$100,230

Time Period: March 22, 2011 – October 01, 2012

### Completed Projects

4. **Project Title: A Study of Non-Union Wage Rates of Construction Trades in South Florida**

Investigators: M. Emre Bayraktar & Irtishad Ahmad (FIU Dept. of Const. Management)

Funding Agency: Jointly funded by Associated Builders and Contractors (ABC), Associated General Contractors of America (AGC), Construction Association of South Florida (CASF), Engineering Contractors' Association (ECA), and Florida Transportation Builders' Association (FTBA)

Amount: \$15,000

Time Period: September 01, 2010 – May 01, 2011

5. **Project Title: Venture Capital Opportunities in Green Building Technologies**

Principal Investigator: M. Emre Bayraktar

Funding Agency: FIU Eugenio Pino and Family Global Entrepreneurship Center

Amount: \$14,937

Time Period: January 26, 2010 – January 11, 2011

Note: Through this project, Dr. Bayraktar received the 2010 Kauffman Entrepreneurial Professor Award under the Kauffman Campuses gift from the Ewing Marion Kauffman Foundation to the FIU Eugenio Pino and Family Global Entrepreneurship Center.

6. **Project Title: The Development of Improved Information Management Processes for FDOT Dispute Review Board System**

Principal Investigator: Yimin Zhu (FIU Dept. of Construction Management)

Co- Principal Investigator: Mehmet Emre Bayraktar

Co- Principal Investigator: Shu-Ching Chen (FIU School of Computer Science)

Funding Agency: Florida Department of Transportation (FDOT)

Amount: \$96,480

Time Period: June 2008 – September 2009

## **TEACHING AND ADVISING**

### **Graduate Research Supervision/Advising**

#### **As Major Advisor**

##### Doctoral

1. **Farrukh Arif** (Ph.D. Candidate as of August 2011)

Degree: Ph.D. in Civil Engineering

Expected Graduation: December 2012

Dissertation Title: Integrated Modeling and Development of a Risk Based Intelligent Decision Support System for Civil Infrastructure Asset Management

Farrukh Arif is a co-author of three journal papers (one under review, two in press) and two conference papers (both published) with Dr. Bayraktar.

##### Masters

2. **Cagri Cinkilic**

Degree: M.S. in Construction Management

Graduation Date: December 2009

Thesis Title: A "Lessons-Learned" Document for the Dispute Review Board in Florida Department of Transportation Projects

Cagri Cinkilic is a co-author of one journal paper (under review) and one conference paper (published) with Dr. Bayraktar. He is currently a Ph.D. student at University of Pittsburgh.

### **3. Clayton Owens**

Degree: M.S. in Construction Management

Graduation Date: December 2007

Thesis Title: A LEED Implementation Framework for Building Contractors and Construction Managers in the United States

Clayton Owens is a co-author of three journal papers (one published, two in press) with Dr. Bayraktar. He is currently a law student at University of Miami.

### **As Committee Member**

#### Doctoral

1. Muhammad Saqib – Ph.D. in Civil Engineering, Expected Graduation: Dec. 2012
2. Rizwan Farooqui – Ph.D. in Civil Engineering, Graduation Date: May 2011
3. Kamalesh Panthi – Ph.D. in Civil Engineering, Graduation Date: Dec. 2009

#### Masters

4. Deepika Nirmal – M.S. in Construction Management, Expected Graduation: Dec. 2011
5. Cetin Canbek – M.S. in Construction Management, Graduation Date: Dec. 2010
6. Yueren Wang – M.S. in Construction Management, Graduation Date: May 2010
7. Sreelatha Chunduri – M.S. in Construction Management, Graduation Date: Dec. 2008
8. Li Wang – M.S. in Construction Management, Graduation Date: Dec. 2007
9. Beste G. Durmus – M.S. in Construction Management, Graduation Date: Dec. 2007

### **Directed Independent Studies**

1. Jason Barket – M.S. in Construction Management, Spring 2011
2. Veronica Waisberg – M.S. in Construction Management, Fall 2010
3. Stuart Grant – M.S. in Construction Management, Summer 2010
4. Farrukh Arif – Ph.D. in Civil Engineering, Summer 2010
5. Tzvi Kiwala – M.S. in Construction Management, Summer 2010
6. Alberto Ribas – M.S. in Construction Management, Fall 2009
7. Aditya Kolapalli – M.S. in Construction Management, Fall 2008
8. Balakrishnan Ponnusamy – M.S. in Construction Management, Spring 2008
9. Vivek Nakrani – M.S. in Construction Management, Spring 2008
10. Kamalakannan Balasubramanian – M.S. in Construction Management, Spring 2008
11. Vijay Bangaru – M.S. in Construction Management, Fall 2007
12. Hari Jajapuram – M.S. in Construction Management, Fall 2007
13. Chaitanya Medidi – M.S. in Construction Management, Fall 2007
14. Clayton Owens – M.S. in Construction Management, Fall 2007

## SUMMARY OF COURSES TAUGHT AT FIU

Course Number	Course Title	Graduate/Undergraduate
BCN 3240	Construction Equipment	Undergraduate
BCN 3611	Cost Estimating I	Undergraduate
BCN 3640	Economic Planning for Construction	Undergraduate
BCN 4612	Cost Estimating II	Undergraduate
BCN 5626	Construction Cost Analysis and Control	Graduate
BCN 5645	Construction Economic Analysis	Graduate
BCN 6775	Decision & Risk Analysis in Construction	Graduate
BCN 6916	Developments in Const. Technology	Graduate
BCN 6935	Seminar on Construction Management	Graduate

## STUDENT EVALUATIONS AT FIU

Overall evaluation on the question of *“Overall Assessment of Instructor”*

	Number of Students Responded	Excellent	Very Good	Good	Fair	Poor
<b>Graduate Students</b>	364	158	107	66	22	11
		43%	30%	18%	6%	3%
<b>Undergraduate Students</b>	327	159	95	51	19	3
		49%	29%	15%	6%	1%
<b>OVERALL</b>	<b>691</b>	<b>317</b>	<b>202</b>	<b>117</b>	<b>41</b>	<b>14</b>
		<b>46%</b>	<b>29%</b>	<b>17%</b>	<b>6%</b>	<b>2%</b>

## PROFESSIONAL HONORS, PRIZES AND FELLOWSHIPS

- ❖ Nominated for the **2010 American Society of Civil Engineers (ASCE) Associate Editor Award** by the Editorial Board of the *Journal of Management in Engineering*, ASCE, Sep. 2010.
- ❖ Received the **2010 Kauffman Entrepreneurial Professor Award** from the Ewing Marion Kauffman Foundation in the Eugenio Pino and Family Global Entrepreneurship Center at Florida International University, Jan. 2010.

- ❖ Awarded **departmental merit bonus** in 2009-2010.
- ❖ Appointed to **Dissertation Advisor Status** within the Graduate Faculty of Florida International University, May 2008.
- ❖ Appointed to the **American Council for Construction Education's Register of Visitors**, Apr. 2008.
- ❖ Appointed to the **Graduate Faculty of Florida International University**, Nov. 2006.

## OFFICE HELD IN PROFESSIONAL SOCIETIES

- ❖ Member of the **Editorial Board** of the *Journal of Construction Engineering and Project Management*, Korea Institute of Construction Engineering and Management (KICEM), Dec. 2010 – Present.
- ❖ **Associate Editor** and Executive Member of the Editorial Board of the *Journal of Management in Engineering*, ASCE, Sep. 2008 – Present.
- ❖ Member of the **Editorial Board** of the *Journal of Management in Engineering*, ASCE, Jan. 2008 – Sep. 2008.
- ❖ Corresponding Member of the **Editorial Board** of the *Journal of Management in Engineering*, ASCE, Jan. 2007 – Jan. 2008.

## PROFESSIONAL SERVICE

- ❖ Technical committee member and co-organizer of the **Infrastructure Management Track, 2012 Construction Research Congress**, West Lafayette, Indiana, May 21-23, 2012.
- ❖ Scientific committee member, **International Conference on Sustainable Design and Construction**, Kansas City, Missouri, Mar. 23-25, 2011.
- ❖ Scientific committee member, **National Conference on Project and Construction Management** (in Turkish), Ankara, Turkey, Sep. 29 - Oct. 1, 2010.
- ❖ International scientific committee member, **Fifth International Conference on Construction in the 21<sup>st</sup> Century**, Istanbul, Turkey, May 20-22, 2009.
- ❖ International scientific committee member, **First International Conference on Construction in Developing Countries**, Karachi, Pakistan, Aug. 4-5, 2008.
- ❖ Member of the organizing committee for the Graduate Student Poster Session in the **2007 Construction Industry Institute (CII) Annual Conference**, Jul. 31 – Aug. 2, 2007, Orlando, Florida.
- ❖ Reviewer for *Automation in Construction*, Elsevier Science Publishers.
- ❖ Reviewer for *Canadian Journal of Civil Engineering*, NRC Research Press.
- ❖ Reviewer for the *Journal of Computing in Civil Engineering*, ASCE.

- ❖ Reviewer for the *Journal of Construction Engineering and Management*, ASCE.
- ❖ Reviewer for the *Journal of Construction Engineering and Project Management*, Korea Institute of Construction Engineering and Management.
- ❖ Reviewer for the *Journal of Management in Engineering*, ASCE.
- ❖ Reviewer for the *Journal of Professional Issues in Engineering Education and Practice*, ASCE.

## **ASSOCIATIONS/AFFILIATIONS**

- ❖ Associate Member, American Society of Civil Engineers (ASCE).
- ❖ Member, Construction Research Council (CRC).
- ❖ Member, Construction Institute (CI).

## **PROFESSIONAL CERTIFICATION**

- ❖ Trained Member of the Register of Visitors, American Council for Construction Education (ACCE), Feb. 2008 – Present.
- ❖ Engineer-in-Training (EIT), Michigan, Apr. 2002 – Present.



Resume of  
**GENE FARMER, AIA, NCARB**  
12801 Southwest 74<sup>th</sup> Court  
Miami, Florida 33156  
(305) 378-1899

### **EDUCATION:**

Bachelor of Architecture, Cum Laude, University of Florida, Gainesville, June 1973.

Master of Architecture, University of Illinois, Urbana-Champaign, August 1974.

### **LICENSING AND CERTIFICATIONS: (Past and Current)**

- National Council of Architectural Registration Boards (N.C.A.R.B.) Council Certificate # 26584
- Florida State Board of Architecture License # 7565
- LEED-Accredited Professional LEED AP BD+C
- Dade County Sub-General Contractor Certificate (inactive)
- Certified Occupational Safety and Health Administration (OSHA 500) Instructor (previous certification, not current)
- Certified Standard Building Code Building Inspector # 7311
- Certified International Code Council Building Inspector #4643
- Florida Green Building Coalition Standards Certifyer

### **PROFESSIONAL ORGANIZATIONS AND ASSOCIATIONS:**

- American Institute of Architects A.I.A.
- Standard Building Code Congress International
- Florida Green Building Coalition  
Member of the Green Building Standards Committee
- American Council for Construction Education  
Member Standards Committee
- West Kendall Business Association
- University of Florida Alumni Association
- University of Illinois Alumni Association, Life Member

### **UNIVERSITY, COLLEGE AND DEPARTMENTAL COMMITTEES:**

- University Faculty Senate
- College of Engineering Faculty Council, Chairman
- Department of Construction Management Faculty Search & Screen Committee, Chairman
- College of Engineering Dean Search & Screen Committee
- College of Engineering and Computing Space and Facilities Committee

## **CAREER HISTORY:**

- 2012- Associate Professor, and Director of the Undergraduate Program in the OHL School of Construction at Florida International University. Areas of speciality include: Building Construction Drawing, Construction Matereials, Sustainable Construction, Quality Control in Construction, Legal Aspects of Construction, Building Codes and Specifications, Architectural Innovations and Design.
- 1985-2012 Associate Professor, and Director of the Undergraduate Program in the Department of Construction Management, College of Engineering, at Florida International University. Areas of speciality include: Building Construction Drawing, Construction Matereials, Sustainable Construction, Quality Control in Construction, Legal Aspects of Construction, Building Codes and Specifications, Architectural Innovations and Design.
- 1985- President, Gene Farmer and Associates, Architects, Planners and Construction Managers, an award winning architecture and planning firm.
- 1982-85 Assistant Professor of Architecture, Miami Dade Community College, South Campus.  
Areas of speciality include Architectural and Building Construction Drawing, Architectural Design and Computer Aided Design.  
Adjunct Professor in the Department of Construction, Florida International University.
- 1982-85 President of Eugene Davis Farmer- Architect. Adjunct Professor, in the Construction Department, School of Technology, Florida International University, Tamiami Campus.
- 1983 Successfully completed examination for and received Dade County Sub General Contractor's certification.
- 1982 Was granted a NCARB Certificate #26584.
- 1978 Went into private practice, establishing the firm Eugene Davis Farmer - Architect. Was also a part time instructor in the Department of Architecture at Miami Dade Community College, South Campus. Teaching responsibilities included instruction in two classes each semester.
- 1977 Was granted Florida State Board of Architecture license #7565.
- 1975-78 Was employed by Barry Sugerman- Architect P.A., A.I.A., N. Miami, Fla. Responsibilities included; client meetings, design, production of working drawings and specifications and supervision.
- 1973-74 Half-time Teaching Assistant, Dept. of Architecture, University of Illinois.

## RESEARCH

Gene Farmer has been actively involved in numerous research projects ranging from construction career awareness to hurricane shutter effectiveness research. In 1995 Mr. Farmer was co-director of the continuing education program for the Dade County Office of Building Code Compliance. This program was designed to provide 24 hours of continuing education to all 650 plus building officials, plans processors and inspectors operating in Dade County.

### FUNDED RESEARCH AND CONTINUING EDUCATION PROJECTS:

1. **Florida Department of Transportation District 6 Facilities Assessment Study**  
Principal Investigators: Professor Gene Farmer, Baier, Caballero, Marin  
Funding Agency: Florida Department of Transportation  
Funded Amount: \$156,000.00  
Dates: 2011
  
2. **Development of Methods of Reducing Water intrusion and Mold in Buildings During Construction**  
Principal Investigators: Professor Gene Farmer  
Funding Agency: Associated General Contractors of America  
Funded Amount: \$60,000.00  
Dates: 2003-2005
  
3. **Development of Installation Standards for Mobile Homes in Florida**  
Principal Investigators: Professor Gene Farmer  
Professor Jack Dye  
Professor Sayed Ahmed  
Funding Agency: National Hurricane Center  
Funded Amount: \$0,000.00  
Dates: 2002
  
4. **Development of Consumer Awareness Bulletins**  
Principal Investigator: Professor Gene Farmer  
Funding Agency: Building Construction Industry Advisory Committee  
Funded Amount: \$90,000.00  
Dates: 2001
  
5. **Field Validation of Shutter Vulnerability Function and Mitigation Effectiveness**  
Principal Investigators: Professor Gene Farmer  
Professor Jose Mitrani  
Professor Ricardo Alvarez  
Funding Agency: Idaho National Engineering Lab  
Funded Amount: \$90,000.00  
Dates: 1999
  
6. **Construction 2000 Phase Two**  
Principal Investigator: Professor Gene Farmer  
Funding Agency: Building Construction Industry Advisory Committee  
Funded Amount: \$16,000  
Dates: 1999

7. **Apprenticeship for a Better Tomorrow**  
Principal Investigators: Professor Gene Farmer  
Professor Amaury Caballero  
Funding Agency: Miami Dade Public Schools  
Funded Amount: \$18,517  
Dates: 1998
  
8. **Development of a Career Awareness Program for the Electrical Industry.**  
Principal Investigator: Professor Gene Farmer  
Funding Agency: National Electrical Foundation *ELECTRI 21*  
Funded Amount: \$18,000  
Dates: 1998
  
9. **Development of a Career Awareness Program for Students in the Eleventh and Twelfth Grades**  
Principal Investigator: Professor Gene Farmer  
Funding Agency: Florida Building Industry Advisory Committee  
Funded Amount: \$16,000  
Dates: 1998
  
10. **Apprenticeship for a Better Tomorrow**  
Principal Investigators: Professor Gene Farmer  
Professor Amaury Caballero  
Funding Agency: Miami Dade Public Schools  
Funded Amount: \$18,517  
Dates: 1997
  
11. **Dade County Building Code Official Continuing Education Program**  
Principal Instructors: Professor Gene Farmer  
Professor Jose Mitrani  
Funding Agency: Dade County Office of Code Compliance  
Funded Amount: \$108,000  
Dates: 1995
  
12. **Construction Management Short Course**  
Principal Instructors: Professor Henry Hillman  
Professor Gene Farmer  
Professor Ralph Johnson  
Funding Agency: State of Florida Department of Environmental Regulation  
Funded Amount: \$5,200.00  
Dates: June 1986

### **UNFUNDED RESEARCH AND CONTINUING EDUCATION PROJECTS:**

1. **Multidisciplinary Project-Led Learning for Improving Engineering Design Curriculum- A Sustainable Building System Certificate Program**  
Principal Investigators: Professor Yong Tao  
Professor Gene Farmer  
Professor Nathaneal Belcer  
Funding Agency: National Science Foundation  
Funded Amount: \$200,000.00  
Dates: 2006

2. **Development of Methods of Reducing Water intrusion and Mold in Buildings During Construction**  
Principal Investigators: Professor Gene Farmer  
Funding Agency: Associated General Contractors of America  
Funded Amount: \$60,000.00  
Dates: 2003-2005
  
3. **High School Technology Training Program**  
Principal Investigator: Professor Gene Farmer  
Professor Jose Mitrani  
Professor Amaury Caballero  
Funding Agency: U.S. Government  
Funded Amount: \$1,212,550  
Dates: 1998
  
4. **Improving Teaching for Service Systems in Buildings**  
Principal Investigators: Professor Gene Farmer  
Professor Jose Mitrani  
Professor Amaury Caballero  
Funding Agency: Florida International University  
Funded Amount: \$17,750  
Dates: 1998
  
5. **Building Code Enforcement: Scope and Extent of Problem and Recommendations for Solution.**  
Principal Investigators: Professor Gene Farmer  
Professor Howard Shaw  
Funding Agency: Building Construction Industry Advisory Committee.  
Funding Requested: \$9,950.00  
Dates: June 1, 1990 thru May 31, 1991
  
6. **A Study to Determine Ways to Use Ground Rubber From Used Tires in Roofing Materials and Other Construction Products**  
Principal Investigators: Professor Julio Otazo  
Professor Gene Farmer  
Professor Jose Mitrani  
Funding Agency: Building Construction Industry Advisory Committee.  
Funding Requested: \$48,828.00
  
7. **The Development of a Series of Television Commercials Warning Homeowners of the Dangers of Dealing with Unlicensed Construction Companies.**  
Principal Investigator: Professor Gene Farmer  
Funding Agency: Building Construction Industry Advisory Committee  
Funding Requested: \$11,527.00  
Date: 1993
  
8. **A Study of the Integration of the Standard Building Code and the NFPA 101 Life Safety Code: Target Counties; Monroe and Palm Beach.**

Principal Investigators: Professor Gene Farmer  
Professor Gabe Aurioles  
Funding Agency: Building Construction Industry Advisory Committee.  
Funding Requested: \$20,686.00

9. **Procedures and Specifications for Determining a Net Square Footage**  
to Gross Square Footage Ration in Florida's Public Schools and Community Colleges.

Principal Investigators: Professor Wilson Barnes  
Professor Gene Farmer  
Funding Agency: State of Florida Department of Education  
Funding Requested: \$42,917.00

10. **Study to Determine the Feasibility of a Construction Industry  
Recovery Fund**

Principal Investigators: Professor Jose Mitrani  
Professor Gene Farmer  
Funding Agency: Building Construction Industry Advisory Committee  
Funding Requested: \$9,945.00

11. **Preliminary Study of Building Code Enforcement**

Principal Investigators: Professor Gene Farmer  
Professor Howard Shaw  
Funding Agency: Building Construction Industry Advisory Committee  
Funding Requested: \$9,950.00

12. **South Florida Community Design Center**

Principal Investigator: Professor Gene Farmer  
Funding Agency: Florida Atlantic University, Florida International University  
Funding Requested: \$7,000.00  
Date: July 7, 1986

## **PUBLICATIONS**

Professor Farmer is actively involved in both research and writing, with research proposal topics ranging from, building code enforcement issues to construction materials and techniques. In addition to his book entitled Architectural Detailing for Commercial Construction, which was published by McGraw Hill in the spring of 1991, Professor Farmer has had articles published in a variety of construction related publications. The following is a list of his publications.

### **BOOKS:**

1. **Architectural Detailing for Commercial Construction**

Author: Gene Farmer  
Publisher: McGraw Hill  
Publication Date: 1991

2. **A Contractor's Guide to LED Certified Construction**

Author: Gene Farmer  
Publisher: Delmar Cengage  
Publication Date: 2013

## **PUBLISHED DESIGN WORK:**

1. **Miami Art Central**  
Designer: Gene Farmer, A.I.A.  
Publication: Interior Design  
Publication Date: 2005  
Jury: Reviewed and selected by an Editorial Board
2. **Miami Art Central**  
Designer: Gene Farmer, A.I.A.  
Publication: Florida International Design  
Publication Date: March-April 2004  
Jury: Reviewed and selected by an Editorial Board
3. **The Sanctuary at Key Largo**  
Designer: Gene Farmer, A.I.A.  
Publication: South Florida Home and Design  
Publication Date: January 1990  
Jury: Reviewed and selected by an Editorial Board
4. **The Weiss Residence**  
Designer: Gene Farmer, A.I.A.  
Publication: Design South Magazine  
Publication Date: May 1989.  
Jury: Reviewed and selected by an editorial board of professionals in both South Florida and Atlanta.

## **PAPERS PRESENTED OR PUBLISHED:**

1. **Development of a Lightweight, Portable, Recyclable Emergency Shelter Unit**  
Authors: Gene Farmer, Ronald Bair, Suneetha Mallikarjuna  
Publication: Second International Conference on Post Disaster Construction, Coventry University  
Date: April 2004
2. **Sustainable Construction the Move towards a more Environmentally Friendly Way of Building**  
Author: Gene Farmer  
Publication: The Second Annual Latin American Conference for Engineering and Technology  
Date: June 2004
3. **Re-Cyclable Emergency Shelters for Short Term Post Disaster Use**  
Authors: Gene Farmer, Ronald Bair, Suneetha Mallikarjuna  
Publication: The Second Annual Latin American Conference for Engineering and Technology  
Date: June 2004
4. **The Development of a Career Awareness Program for High School Students**

Author: Gene Farmer  
Publication: Association Proceedings  
Date: 1998

5. **The Development of a Career Awareness Program for High School Students**

Author: Gene Farmer  
Event: National Meeting of the Associated Schools of Construction  
Publication: Association Proceedings  
Date: June 1997

6. **Design for Aging: People, Process and Architecture**

Author: Gene Farmer  
Event: 13th World Congress of the International Association for Housing Science  
Organization: International Association for Housing Science  
Publication: Congress Proceedings  
Date: December 14-20, 1986

7. **The Development of an Introductory Course in Construction Management**

Author: Gene Farmer  
Event: Southern Regional Meeting of the Associated Schools of Construction  
Publication: Association Proceedings  
Date:

**NON REFEREED PUBLICATIONS:**

1. **The Polstein Residence**

Designer: Gene Farmer, A.I.A.  
Publisher: The Miami Herald Home and Design Section  
Publication Date: March 24, 1991

2. **The Sanctuary at Key Largo: A Case Study in Environmentally Sensitive Design**

Author: Gene Farmer, A.I.A.  
Publisher: Florida Builder  
Anticipated Publication Date: October 1990

3. **1988 South Florida Building Code: Handicapped Accessibility Section 515**

Contribution: All graphics for the new Handicapped Accessibility Section of the South Florida Building Code.  
Publisher: Dade County Board of Rules and Appeals  
Publication Date: January 1989

4. **The SFX System- A Viable System for More Affordable Housing**

Author: Gene Farmer, A.I.A.  
Publication: Florida Construction Industry  
Publication Date: April 1983

5. **Saferooms, An Alternative to Evacuation**

Author: Gene Farmer  
Publication: West Kendall Gazette



## TELEVISION FEATURES

In 1995 Gene Farmer was asked by WLRN Television and the Dade County Office of Building Code Compliance to create, produce and host a weekly television show. The show titled "Construction Today" began as a half hour taped show soon expanded into a live one hour weekly program. The following is a listing of these programs.

1. **Construction Today**

Topic: How to Select a Design Professional

Guests: Roney Mateu, Architect

President

American Institute of Architects, Miami South Chapter

Alene Workman, Interior Designer

President

American Society of Interior Designers, South Florida Chapter

Date: April 29, 1993

2. **Construction Today**

Topic: How to Select a Contractor

Guests: Eduardo Camet

President

Builders Association of South Florida

Ronald C. Shafer, Jr.

President

Associated General Contractors, South Florida Chapter

Date: April 29, 1993

3. **Construction Today**

Topic: Being an Owner Builder; Risks and Benefits

Guests: Donna Rometo, Supervisor

Permit Records

Garry Giordano, Coordinator

Owner Builder program at Miami Dade Community College

Date: April 29, 1993

4. **Construction Today**

Topic: Living with Construction; How to survive the construction process both physically and mentally.

Guests: Dr. Eric Goldstein, PhD

Psychologist and stress expert

Date: April 29, 1993

5. **Construction Today**

Topic: Construction contracts; What owners should know.

Guests: Mr. Larry Leiby, Attorney

Partner, Leiby, Ferencik, and Libanoff, P.A.

Bill Barnes, Assistant Professor

Department of Construction Management, Florida International University

Date: May 11, 1993

6. **Construction Today**

Topic: Dispute Resolution in Construction.

Guests: Mr. Larry Leiby, Attorney  
Partner, Leiby, Ferencik, and Libanoff, P.A.  
Bill Barnes, Assistant Professor  
Department of Construction Management, Florida International University  
Date: May 11, 1993

7. **Construction Today**

Topic: Inspecting your home for hurricane resistance; what to look for.  
Guests: Jose Mitrani, Engineer  
Chairman  
Department of Construction Management, Florida International University  
John Pistorino, Engineer  
Principal  
Pistorino and Alum Consulting Engineers  
Date: May 11, 1993

8. **Construction Today**

Topic: Landscaping your home.  
Guests: Ted Baker, Landscape Architect  
Assistant Professor, Landscape Architecture,  
Florida International University  
Date: May 11, 1993

9. **Construction Today**

Topic: Hurricane preparedness.  
Guests: Kate Hale, Director  
Metro Dade County, Emergency Management Office  
Date: June 8, 1993

10. **Construction Today**

Topic: Women in Construction; Opportunities for Growth.  
Guests: Linda Forrest, President  
Forrest Construction Management  
Linda Levine  
General Contractor  
Date: June 8, 1993

11. **Construction Today**

Topic: Construction Education.  
Guests: Jose Mitrani, Chairman  
Department of Construction Management, Florida International University  
Bill Barnes, Professor  
Department of Construction Management, Florida International University  
Date: June 8, 1993

12. **Construction Today**

Topic: Women will Rebuild  
Guests: Lisa Versacci, Founder  
Women will Rebuild  
Linda Forrest, President  
Forrest Construction Management

Date: June 8, 1993

1. **Construction Today Live**

Topic: Hurricane Preparedness

Guests: Kate Hale, Director

Dade County Office of Emergency Management

Jose Mitrani, P.E.

Chairman, Construction Management Department, Florida Int'l University

Date: July 12, 1993

2. **Construction Today Live**

Topic: Landscaping your home; exterior and interior.

Guests: Flora Green, Owner and President

Foliage by Flora

Bill Rosenberg, ASLA

President

Rosenberg Design Group

Date: July 19, 1993

3. **Construction Today Live**

Topic: Swimming Pools: Design, Construction, and Maintenance

Guests: Dorothy McKinney, President

Dadeland Pool Corp.

Irving Chazen, President

Custom Pools

Mark Millman, Vice President

Dadeland Pool Corp.

Date: July 26, 1993

4. **Construction Today Live**

Topic: Swimming Pool Safety

Guests: Mark Thompson, Executive Director

Southwest Y.M.C.A.

Daniel Aksel, Member

Parents of Near Drowning (POND)

Rob McKay, Owner and President, Lifestyle Swim School

5. **Construction Today Live**

Topic: Condominium Associations and You

Guests: Miles Moss, President

Kendall Homeowners Federation

Brian Pariser, Attorney

Date: August 9, 1993

6. **Construction Today Live**

Topic: Hurricane Preparedness

Guests: Toni Carpenter, Author

Date: August 16, 1993

7. **Construction Today Live**

Topic: Home Security

Guests: Travis Ogle, Detective  
Metro Dade County Police Department  
Randal Atlas  
Atlas Safety & Security  
Date: August 23, 1993

8. **Construction Today Live**

Topic: Swimming Pools: Design, Construction, and Maintenance Part Two  
Guests: Irving Chazen, President  
Custom Pools  
Dorothy McKinney, President  
Dadeland Pools  
Date: August 30, 1993

9. **Construction Today Live**

Topic: Hurricane Shutters  
Guests: Jeff Robinson, President  
Robinson Shutters  
Jose Mitrani  
Chairman, Construction Management Department, Florida Int'l University  
Date: September 13, 1993

10. **Construction Today Live**

Topic: Air Conditioning Duct Cleaning  
Guests: Deane Ellis  
Florida Air Conditioning Contractors Association  
Irtishad Ahmad, PhD  
Assistant Professor, DCM/FIU  
Date: September 20, 1993

11. **Construction Today Live**

Topic: Painting: Materials and Techniques  
Guests: John Schultz, Vice President  
O'Gee Paint  
Date: September 27, 1993

12. **Construction Today Live**

Topic: Hazardous Materials in Construction  
Guests: Julio Otazo, Vice President  
MCO Environmental  
Charlie Evans, President  
EE&G Science & Management  
Date: October 4, 1993

13. **Construction Today Live**

Topic: Owner Builder  
Guests: Cliff Kearsley, Director  
Owner Buidler Center, MDCC, Kendall Campus  
Date: October 11, 1993

**14. Construction Today Live**

Topic: Owner Builder

Guests: Cliff Kearsley, Director  
Owner Builder Center, MDCC, Kendall Campus  
Al Smith  
Carpenter

Date: October 18, 1993

**15. Construction Today Live**

Topic: Home Electrical Systems and Wiring

Guests: Cliff Kearsley, Director  
Owner Builder Center, MDCC, Kendall Campus  
Jerry Peters  
Electrician

Date: October 25, 1993

**16. Construction Today Live**

Topic: Residential Repairs

Guests: Cliff Kearsley, Director  
Owner Builder Center, MDCC, Kendall Campus

**TELEVISION INTERVIEWS:**

**1. The Re-Development of Coconut Grove a thirty minute television special interview.**

Participants: Professor Gene Farmer, F.I.U., David Alexander, Coconut Grove Development Authority, Two students active in the project.

Station: WSVN Channel 7

Airing Dates: April and June 1986

**2. F.I.U. Students Re-Design Coconut Grove featured on the evening news.**

Station: WTVJ Channel 4

Airing Dates: April 16, 1986

**3. F.I.U. Students Re-Design Coconut Grove featured on the evening news.**

Station: WCIX Channel 6

Airing Date: April 16, 1986

**RADIO INTERVIEWS:**

**1. The Re-Development of Coconut Grove A live radio Interview.**

Participants: Gene Farmer

Station: WNWS News Radio 710

Airing Date: April 2, 1986

**OTHER MEDIA:** The following is a list of articles or news features written about Gene Farmer:

**1. Gene Farmer Wins FAME and Up and Comer Award**

Publication: The Florida Specifier  
Publication Date: May 1990

2. **Up and Comer Gets Two Awards in Architecture**

Publication: The Miami Herald, Business Monday  
Publication Date: April 16, 1990

3. **1990 Up and Comer Award Winners**

Publication: The South Florida Business Journal  
Publication Date: April 2, 1990

4. **Judges Select Up and Comer Finalists**

Publisher: The South Florida Business Journal  
Publication Date: March 19, 1990

5. **Architect is Up and Comer Finalist**

Publication: Kendall Gazette  
Publication Date: May 4, 1989

6. **1989 Up and Comer Nominees**

Publication: The South Florida Business Journal  
Publication Date: February 27, 1989

7. **Architect Selected for TOPA Committee**

Publication: Interiors and Sources  
Publication Date: December/ January 1989

8. **Architect To Serve on TOPA Panel**

Publication: Kendall Gazette Real Estate  
Publication Date: January 5, 1989

9. **Elderly Need Barrier Free Shelter**

This was an article based on the presentations of the 13th World Congress of the International Association of Housing Science in which I was repeatedly quoted.

Writer: Jo Werne

Publication: The Miami Herald  
Publication Date: December 28, 1986

10. **Gene Farmer Awarded Redevelopment Award of Excellence**

Publication: Miami Today  
Publication Date: May 15, 1986

11. **Gene Farmer Awarded Redevelopment Award of Excellence**

Publication: The Miami Herald, Business Monday  
Publication Date: April 28, 1986

12. **F.I.U. Students get to Design Bahamian Motif City Project**

Publication: The Miami News  
Publication Date: April 21, 1986

13. **F.I.U. Students Redesign Coconut Grove**

Publication: F.I.U. Faculty Newspaper

## **AWARDS**

### **JURIED DESIGN AWARDS:**

1. **Florida Award for Marketing Excellence FAME**

Project: The Sanctuary at Key Largo

Architect: Gene Farmer

Developer: Large Key Corp. / The Kessler Group

Issuer of Award: Builders Association of South Florida

Jury: A group of nationally prominent Architects, Landscape Architects, Builders and Marketing experts.

Date: March 17, 1990

2. **Redevelopment Award of Excellence**

Project: Fifty State Security Building

Architect: Gene Farmer

Issuer of Award: City of North Miami

Jury: City of North Miami Downtown Development Authority and the City Council

Date: March 1986

3. **Florida Award for Marketing Excellence FAME**

Project: Aspen Townhouses

Architect: Gene Farmer

Developer: Westbrooke Homes

Issuer of Award: Builders Association of South Florida

Jury: A group of nationally prominent Architects, Landscape Architects, Builders and Marketing experts.

Date: February 16, 1985

### **JURIED NON DESIGN AWARDS:**

1. **1990 Up and Comer in Architecture and Engineering**

Awarded for Excellence in Professional and Community Service

Gene Farmer Winner

Issuer of Award: Price Waterhouse and the South Florida Business Journal

Jury: A 10 member jury of South Florida Business and Community Leaders.

Date: April 2, 1990

2. **1989 Up and Comer in Architecture and Engineering**

Awarded for Excellence in Professional and Community Service

Gene Farmer Finalist (one of three in this category)

Issuer of Award: Price Waterhouse and the South Florida Business Journal

Jury: A 10 member jury of South Florida Business and Community Leaders.

Date: March 29, 1989

### **UNIVERSITY AWARDS:**

1. Outstanding Faculty Award for Advising

Issuer of Award: Florida International University

Date: October 4, 1991

2. **Outstanding Achievement Award**

Issuer of Award: Florida International University

For: Outstanding achievement in the diligent pursuit of excellence.

Date: November 29, 1990

3. **TIP Award for Outstandig Teaching**

Issuer of Award: Florida International University

For: Outstanding teaching.

Date: April 1995

**SERVICE AWARDS:**

1. **Certificate of Appreciation**

Issuer of Award: Dade County, Florida

For: Service on the Citizens Transportation Advisory Committee.

Date: May 26, 1988

2. **Certificate of Appreciation**

Issuer of Award: City of Miami, Florida

For: The Coconut Grove Re-development Project

Date: June 26, 1986

3. **Certificate of Appreciation**

Issuer of Award: Coconut Grove Development Corporation.

For: The Coconut Grove Re-development Project

Date: June 26, 1986

4. **Commendation (accepted for the Construction Department)**

Issuer of Award: City of Miami, Florida

For: The Coconut Grove Re-development Project.

Date: June 26, 1986



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# José A. Faria, Ph.D., PMP, A.M.ASCE, CDT

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**Research Interests** Operations Research and Management Science, Project Management, Multi-objective Optimization, Genetic Algorithms, Object Oriented Database, Integer Programming, Computer Algorithms, Information Technology, Wireless Networks.

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## Education

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- 2005**      ■ Ph.D. Civil Engineering with Specialization in Operations Research, University of Maryland College Park, MD
- 2001**      ■ M.S. Systems Engineering, University of Maryland College Park, MD
- 1990**      ■ B.S. Industrial Engineering, Universidad Católica Andrés Bello Caracas, Venezuela
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## Certifications

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- 2012 CSI's Construction Documents Technologist
  - 2011 OSHA OTI 500 Construction Trainer ID. USF-10614
  - 2005 PMP: Project Management Professional from the Project Management Institute
  - PMP 286.458
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## Professional Affiliations

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- 1990**      ■ C.I.V.: Colegio de Ingenieros de Venezuela (Professional Engineer)
- C.I.V. 82.568
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## Work Experience

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- 2006 – Present**      2006 – Assistant Professor  
**OHL School of Construction College of Engineering and Computing Florida International University Miami, Florida**
- Course: Safety in Construction (Graduate and undergrad levels)
  - Course: Environmental Control for Buildings I
  - Course: Estimating II
  - Course: Principles of Construction Estimating
  - Course: Productivity in Construction
  - Course: Construction Cost Analysis & Control
  - Advisor of Master Student multi-objective project selection under uncertainty
  - Advisor for all student organizations of the School
- 

- 2001 – 2006**      2006 – Adjunct Professor  
**Civil and Environmental Engineering, and Institute for Systems Research University of Maryland College Park, MD USA**
- Course: Life Cycle Cost Estimation
- Teaching tools and techniques to create a successful cost estimate
- 2004 – Lecturer
- Course: Life Cycle Cost Estimation
- Teaching tools and techniques to create a successful cost estimate
- Course: Project Performance Measurements
- Introductory course to operations research applied to project management
- 2001 Faculty Research Assistant
- Support principal investigator in research activities
- Research Projects
- Decomposition techniques for large optimization problems
  - Smart Growth, a Multi-objective approach for land development.
  - Optimization of portfolio selection under uncertainty
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- 2005**      Fall 2005 – Adjunct Assistant Professor  
**Kogod School of Business**
- Course: Quantitative Methods for IT Management
  - Introductory course to operations research and project management applied to
-

<b>American University Washington D.C. 20016-8044 USA</b>	information technology
<b>2001 – 2004 Civil and Environmental Engineering, and Institute for Systems Research University of Maryland College Park, MD USA</b>	2001 – 2004 Teaching Assistant <ul style="list-style-type: none"> <li>▪ Multi-objective Optimization</li> <li>▪ Decision Analysis for Engineers.</li> <li>▪ Life Cycle Cost Estimation</li> <li>▪ Project Performance Measurements</li> </ul>
<b>Summer 2001, 2002 U.S. Department of Energy Washington D.C.</b>	2001 and 2002 – Research Assistant <ul style="list-style-type: none"> <li>▪ Accelerating Convergence in NEMS. FORTRAN subroutine analysis, convergence criteria evaluation, parameter testing and documentation.</li> </ul>
<b>1993 – 2000 AMBEC Owings Mills, MD USA</b>	1995-2000 Process Engineer / Project Manager <ul style="list-style-type: none"> <li>▪ Design, integration, fabrication supervision, programming, installation and commissioning of pasteurization systems for beverages equipment in the United States and Latin America. Project designer using AutoCAD.</li> <li>▪ PLC programming, Graphic User Interface design and system integration.</li> </ul> 1994 – 1995 Latin America Region Sales Manager <ul style="list-style-type: none"> <li>▪ Established representation relationships with industry partners.</li> </ul> 1993 – 1994 Systems Engineer <ul style="list-style-type: none"> <li>▪ Design of conveyor systems and complete bottling line layouts.</li> </ul>
<b>1990 – 1993 Pepsi Cola Caracas, Venezuela</b>	Project Engineer <ul style="list-style-type: none"> <li>▪ Responsible to maintain accurate AutoCAD drawings of all 19 plants.</li> <li>▪ Mechanical design for piping systems and new production line design.</li> </ul>
<b>Publications</b>	
<ul style="list-style-type: none"> <li>▪ S.A. Gabriel, J.F. Ordóñez, and J.A. Faria. “Contingency Planning in Project Selection Using Multiobjective Optimization and Chance Constraints,” August 2005, ASCE Journal of Infrastructure Systems.</li> <li>▪ S. A. Gabriel, J.A. Faria, G.E. Moglen 2005. A Multi-objective Optimization Approach to Smart Growth in Land Development. Socio-Economic Planning Sciences.</li> <li>▪ Moglen, G.E., S.A. Gabriel and J.A. Faria. A Framework for Quantitative Smart Growth in Land Development. Journal of The American Water Resources Association, Vol. 39, No. 4, August 2003</li> </ul>	
<b>Referee Experience</b>	
<b>2005 - Present Reviewer</b>	<ul style="list-style-type: none"> <li>▪ Network and Spatial Economics – Springer</li> <li>▪ ASCE Journal of Infrastructure Systems</li> <li>▪ Automation in Construction</li> </ul>
<b>Conferences</b>	
<b>2002 - 2004</b>	<ul style="list-style-type: none"> <li>▪ INFORMS 2005 – San Francisco, California. Session Chair of : “Applications to Land Development”. Talks:</li> <li>▪ INFORMS 2004 - Denver, Colorado. Minimum Spanning Trees and Multi-objective Optimization for Smart Growth Land Development Planning.</li> <li>▪ INFORMS 2002 - San Jose, California. Smart Growth as a Multi-objective optimization problem.</li> </ul>

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**Workshops Taken**

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- 2006           ▪     Maryland Real Estate course for salesperson
  - 2005           ▪     Teaching Management Science Workshop. Sponsored by INFORMS.
  - 2003           ▪     Maryland Smart Growth Leadership Program. Sponsored by the National Center for Smart Growth Research and Education. University of Maryland.
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**Scholarship Awards**

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- 2005           ▪     INFORMS – Institute for the Operations Research and the Management Sciences
  - 2003           ▪     CMAA - Construction Management Association of America Mid-Atlantic
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**Memberships**

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- ABC: Associated Builders and Contractors of America (Faculty Advisor for FIU Chapter)
  - AGC: The Associated General Contractors of America (Faculty Advisor for FIU Chapter)
  - ASCE: Associate Member of American Society of Civil Engineers
  - ASPE: American Society of Professional Estimators (Faculty Advisor for FIU Chapter)
  - Omega Rho: International Honor Society – INFORMS
  - Sigma Lambda Chi: Construction Management Honors Society (Faculty Advisor for FIU Chapter)
  - USGBC: U.S. Green Building Council
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**Software Experience**

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- @Risk for Projects: Simulation tool added to MS Project
  - @Risk: Statistical tool for decision analysis and simulation
  - AutoCAD - Computer Assisted Drawing software.
  - Expert Choice – Decision analysis software using the Analytical Hierarchy Process.
  - Fortran programming
  - Frontline’s Solver for EXCEL – Mathematical Add-in to solve optimization problems
  - LINDO/LINGO – Mathematical Programming Language for optimization modeling
  - MATLAB – A high level technical computing language
  - Microsoft .NET framework programming in Visual Basic
  - Microsoft Access – General database application and programming software.
  - Microsoft Project – Project management tool software.
  - MOSEL - A Mathematical Programming Language for optimization modeling
  - MPL – Mathematical Programming Language for optimization modeling
  - OnScreen Takeoff
  - QuickBid
  - RSLogix500 - Industrial SLC ladder logic software for industrial controls.
  - VisualBasic. NET – Programming language.
  - Wonderware - Graphical user interface design software.
  - WBS Pro – Software to create work breakdown structures
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**Languages**

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- Spanish: Fluent - Native language
  - English: Fluent - Second language
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## AYMAN A. MORAD, Ph.D.

8356 SW 158<sup>th</sup> AVE  
Miami, FL 33193  
Tel: (786) 371-5812  
email: [morada@fiu.edu](mailto:morada@fiu.edu)  
email: [morada@alum.mit.edu](mailto:morada@alum.mit.edu)

### EDUCATIONAL DETAILS:

**Ph.D. (1990)**, *Virginia Polytechnic Institute & State University (VPI & SU)*  
Department of Civil Engineering, Construction Engineering & Management Division

Courses: Construction Process Design, Construction Company Management, Project Management, Management and Construction Failure, CAD in Project Control, Contract Law and Administration, Construction Cost Control, Construction Performance Improvement, Construction Design and Systems Integration, Operation Research Methodology, Simulation Languages, Quantitative Analysis and Synthesis in Business Decisions, Fundamentals of Finance, Introduction to CAD/CAM, CAD/CAM I, and CAD/CAM II.

**S.M. (1984)**, *Massachusetts Institute of Technology (MIT)*  
Department of Civil Engineering, Center for Construction Research and Education

Courses: Construction Technology, Project Control, Construction Engineering and Management Seminar, Construction Economy, Legal Aspects of Construction, Risk Assessment Engineering I, Financial Management and Accounting, Management of Information Technology, and Engineering Risk Benefit Analysis.

**B.Sc. (1982)**, *Kuwait University - Kuwait*  
Department of Civil Engineering

### PROFESSIONAL EXPERIENCE:

**May 1997 - Present:** *President, Management Consultants International, Inc. Miami - Florida*  
Providing management consulting services including: **Claim and Delay Analysis** (schedule reconstruction, performance impact analysis, change order impact analysis, acceleration and interruption impact analysis, etc.); **Construction Management; Program Management; Project Planning and Scheduling** (baseline schedules, progress updates, as-built schedules, budgeting, resource management, submittal and procurement schedules, etc.); **Project Control Systems Implementations**; Earned Value Management; and **Management Development Training Programs**.

**June 1995 - August 1998:** *Technical Program Director*  
Organizing Technology Transfer and Management Development Training Programs in cooperation with Arabian-Gulf based organizations (Center for Advanced Management Programs, Inc. - Saudi Arabia and Project Management Systems, Inc. - Kuwait). Programs offered include:

- *Information Technology 1998: Building an Infrastructure for the New Millennium (Orlando, FL).*
- *Re-engineering the Organization 1998: An Emerging Management Approach for Organization*

- Transformation (Orlando, FL)*
- *Strategic Planning & Management >98: Applications to Improve Organizational Performance 1998 (London, UK).*
  - *Tech 2000: Enterprise-Wide Computing for the New Millennium 1997 (Miami, FL).*
  - *Organizational Strategic Planning & Structural Changes for New Millennium 1997 (Miami, FL).*
  - *Total Quality Management Training Program 1996 (Miami, FL).*
  - *Information Technology 1996: Applications for Effective Management (Miami, FL).*
  - *Enterprise-Wide Computing 1996: State-of-the-Art Emerging Technologies (Miami, FL).*
  - *Project Management Control Systems 1996: State-of-the-Art Applications (Anaheim, CA).*
  - *Information Technology Conference 1995: Applications for Effective Management (Miami, FL).*

**July 1994 - April 1997: Management Consultant**

Providing construction and project management consulting services

**August 1989 - May 1990: CAE Lab Manager, VPI & SU**

Managing and administering the computer facilities of the Computer Aided Engineering (CAE) laboratory at the Department of Civil Engineering.

**July 1988 - August 1988: System Analyst, Bechtel Power Co.**

Involved in developing the "Path Optimization Routine" for Bechtel's Walkthru visual simulation system. The routine is an AI-based system for finding the trajectory of moving objects in a collision-free environment. The system utilizes visual simulation and animation techniques.

**April 1985 - August 1987: Time & Cost Controller (Contract Administrator), Kuwaiti Engineer's Office (K.E.O.) - Kuwait**

Worked as an assistant to resident engineers of construction projects

*Responsibilities:* Time analysis, project progress monitoring and reporting, payment certificates, bid evaluation, negotiation, change orders evaluation, contract administration, substantial completion certificates, coordination with contractors/owners, and legal aspects and claim analysis.

*Projects:* Kuwait Stock Exchange FF&E Project \$6M, Kuwait Stock Exchange Parking \$9M, Al-Jalal Project \$7M, Al-Muthana project \$72M, Kuwait Institute for Scientific Research Reclamation Project \$8M, Kuwait Institute for Scientific Research Project \$49M, and Mishref Community-Center Project \$18M.

**August 1984 - April 1985: Control Systems Manager, Al-Rakaez Management Consultants, Inc. - Kuwait**

*Responsibilities:* Marketing a project management package called PROMIS, planning services, software development for Contractors, Owners and Engineers, and office automation.

**October 1982 - August 1983: Time & Cost Engineer, Kuwaiti Engineer's Office (K.E.O.) - Kuwait.**

Worked as an assistant to contract administrators

*Responsibilities:* Payment certificates, progress reports, change orders evaluation, contract administration, and claim and delay analysis.

*Projects:* Kuwait Institute for Scientific Research Project \$49M, and Kuwait Stock Exchange Project \$50M.

## TEACHING EXPERIENCE:

**August 2010 - Present:** Professor of Construction Management, OHL School of Construction, Florida International University, Miami - Florida

**January 2003 – August 2010:** *Adjunct Professor*, Department of Construction Management, Florida International University, Miami - Florida

**August 1990 - April 1997:** *Assistant Professor*, Department of Construction Management, Florida International University, Miami, Florida.

**August 1987 - May 1989:** *Graduate Teaching Assistant* at VPI & SU.

Assisting in the development of course syllabus and materials, lecturing, grading, offering tutorials and administering the computer facilities of the Construction Engineering and Management Division at the Department of Civil Engineering

### Courses Taught at Florida International University:

Construction Claims, Management of Construction Organizations, Management of Construction Projects, Construction Financial Management, Construction Economic Analysis Economical Planning for Construction, Advanced Planning and Simulation Techniques for Construction, Construction Scheduling I, Construction Scheduling II, Principles of Construction Scheduling, Construction Information Systems, Construction Drawing I, Construction Drawing II, Construction Research and Seminar, Artificial Intelligence Applications in Construction Management, Advanced Computer Applications in Construction.

## RESEARCH EXPERIENCE:

**August 1990 - July 1997:**

- 1) *The Local Licensing System in the State of Florida:* Studying the local licensing system in the State of Florida. This research was funded by the Building Construction Industry Advisory Committee of the State of Florida.
- 2) *Intelligent Retrieval System for Condition of Contracts and Specifications:* Development of an intelligent system that utilizes **Hypermedia** environment integrated with **Artificial Intelligence** to provide an intelligent way for retrieving and searching information through an electronic version of conditions of contracts documents.
- 3) *A Knowledge Based System for Estimating Durations and Selecting Crew Composition of Construction Activities:* Development of an artificial intelligence based system that uses expertise, judgment and heuristic to select the necessary crews and to estimate the duration of cast-in-place concrete activities of construction projects, taking into consideration many of constant and time-dependent factors that affect the productivity of construction processes.
- 4) *Alternative Bid-Evaluation and Contract-Award Systems:* This research was funded by the Building Construction Industry Advisory Committee of the State of Florida.

**August 1987 - May 1990:** *Graduate Research Assistant* at VPI & SU

Involved in the following research efforts:

- 1) *Automated Positioning and Control*: A research project funded by an NSF grant. The purpose of the project was to integrate positioning information into a CAD graphics animation system for construction projects.
- 2) *CAD in Project Control*: A research project studying image identification and processing utilizing multiple CCD cameras. The thrust of the research was to provide real-time data about the as-built data as it relates to the as-designed environment.

**June 1982 - August 1982:** *Research Associate*, Kuwait University and Kuwait Foundation for Advancement of Science (KFAS): *Problem of Housing in Kuwait* - Study of the problems of publicly funded housing projects.

#### **Thesis and Dissertation Research:**

**Ph.D.** Dissertation at VPI & SU: Development of an advanced planning system. The title of the dissertation was: "*Geometric-Based Reasoning System for Project Planning Utilizing AI and CAD Technologies.*"

**S.M.** Thesis at MIT: Development of a computerized model for bid evaluation. The title of the thesis was: "*Optimal Selection of Project Bid: Computer Aided Approach.*"

**B.Sc.** Project at Kuwait University: Development of a computer program to design multi-storey buildings according to the "Direct Design Method of the ACI Code."

#### **JOURNAL PUBLICATIONS:**

*Received the 1994 Best Paper Award from the Technical Council on Computer Practices of the American Society of Civil Engineers for the journal paper (#5 listed below) published in the ASCE Journal of Computing in Civil Engineering.*

- 1) **Morad, A.**, and Beliveau, Y. (1991). "*Knowledge-Based Planning System*," Journal of Construction Engineering and Management, ASCE, Vol 117 (1), March, pp. 1-12.
- 2) **Morad, A.**, Cleveland, A., Beliveau, Y., Francisco, V., and Dixit, S. (1992). "*PATH-FINDER: AI-Based Path Planning System*," Journal of Computing in Civil Engineering, ASCE, Vol 6(2), April, pp.114-128.
- 3) **Morad, A.**, and Vorster, M. (1993). "*Network-Based versus AI-Based Techniques in Planning*," Project Management Journal, PMI, Vol. 24(1), March, pp. 23-36.
- 4) Beliveau, Y., Dixit, S., Dal, T., and **Morad, A.** (1993). "*MULTI-TASK Motion Planning (MTMP) for Material Handling in Construction*," Journal of Construction Engineering and Management, ASCE, Vol. 119 (1), March, pp. 180-191.
- 5) **Morad, A.**, and Beliveau, Y. (1994). "*Geometric Based Reasoning System for Project Planning*," Journal of Computing in Civil Engineering, ASCE, Vol. 8(1), Jan., pp. 52-71.
- 6) Arif, F., and **Morad, A.** (2013). "*Concurrent Delays in Construction: An International Legal Perspective.*" Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, ASCE (Under Review).

## PEER-REVIEWED CONFERENCE PROCEEDINGS:

- 1) Thabet, W., **Morad, A.**, and Beliveau, Y. (1994). "*An Intelligent Interactive Graphic-Based System for Scheduling Multi-Story Projects*" AIENG 1994, Applications of Artificial Intelligence in Engineering, Penn State Great Valley, PA, July.
- 2) Thabet, W., Beliveau, Y., and **Morad, A.** (1994). "*Automatic Generation of Work-Space Demand for Space-Based Scheduling*" AIENG 1994, Applications of Artificial Intelligence in Engineering, Penn State Great Valley, PA, July.
- 3) Arif, F., **Morad A.**, Bayraktar, M.E. (2012). "*Concurrent Delays – A Comparative Analysis of U.S. and Australian Construction Legal Environment*" The First Australasia and South-East Asia Structural Engineering and Construction Conference- Research, Development, and Practice in Structural Engineering and Construction. Perth, Australia, Nov 28-Dec 2, 2012.

## CONFERENCE PROCEEDINGS:

- 1) **Morad, A.**, and Beliveau, Y. (1989). "*Visual Scheduling,*" Construction Congress I, ASCE, San Francisco, CA, March, pp. 391-397.
- 2) **Morad, A.**, and Cleveland, A. B. (1989). "*Path Optimization Algorithm for Constructability Improvement,*" Proc. of the 6th Computing in Civil Engineering Conference, ASCE, Atlanta, GA, Sept., pp. 498-506.
- 3) **Morad, A.**, and Beliveau, Y. (1989). "*CAD/CPM Data Interaction,*" Proc. of the 6th Computing in Civil Engineering Conference, ASCE, Atlanta, GA., Sept., pp. 588-596.
- 4) Skolnick, J., **Morad, A.**, and Beliveau, Y. (1990). "*Development of a CAD-Based Construction Visual Schedule Simulation System,*" Proc. of the PMI '90 Conference, Project Management Institute, Calgary, Canada, Oct., pp. 334-340.
- 5) **Morad, A.** (1991). "*A Database Approach for CAD/KBES Integration for Construction Planning,*" Proc. of the 7th Computing in Civil Engineering Conference, ASCE, Washington, D.C., May. pp. 859-869.
- 6) Ahmad, I., and **Morad, A.** (1992). "*Computer-Aided Decision and Risk Analysis in Construction,*" CIB '92 Symposium, Montreal, Canada, May.
- 7) **Morad, A.**, and Arditi-Rocha, L. (1992). "*Intelligent Retrieval System for Conditions of Contracts and Specifications Documents in Construction,*" Proc. of the 8th Computing in Civil Engineering Conference, ASCE, Dallas, TX, June, pp. 737-745.
- 8) **Morad, A.**, and Diaz, G. (1992). "*A Knowledge-Based System for Duration Estimating and Crew Selection for Construction Activities,*" Proc. of the 8th Computing in Civil Engineering Conference, ASCE, Dallas, TX, June, pp. 190-198.
- 9) Thabet, W., **Morad, A.**, and Beliveau, Y. (1992). "*Work Space Constraints Modeling for Process Planning Using Artificial Intelligence and 3D Computer Modeling Technologies,*" Proc. of the 8th Computing in Civil Engineering Conference, ASCE, Dallas, TX, June, pp. 727-736.
- 10) Arditi-Rocha, L., and **Morad, A.** (1993). "*Intelligent Systems for Information Retrieval in Construction,*" The 5th International Conference on Computing in Civil and Building



Engineering, ASCE, Anaheim, CA, June.

- 11) Ahmad, I., and **Morad, A.** (1993). "*Computer-Aided Decision Model for Selecting a Contractual System*," The 5th International Conference on Computing in Civil and Building Engineering, ASCE, Anaheim, CA, June.
- 12) Ahmad, I., and **Morad, A.** (1993). "*Alternative Bid Evaluation and Contract-Award Systems*," CIB 93, the 7th International Symposium on the Organization and Management of Construction, Trinidad, Sept.
- 13) Thabet, W., Beliveau, Y., and **Morad, A.** (1994). "*An Integrated Computer Model for On-Site Project Schedule Updating*," Proc. of the First Congress on Computing in Civil Engineering, ASCE, Washington, D.C., June.
- 14) **Morad, A.** (1995). "*Introduction to Organizational Structure and Behavior*," Proc. of the Information Technology Conference '95: Applications for Effective Management, Miami, FL., Dec.
- 15) **Morad, A.** (1995). "*Artificial Intelligence Technology*," Proc. of the Information Technology Conference '95: Applications for Effective Management, Miami, FL., Dec.
- 16) **Morad, A.** (1995). "*Object-Oriented Technology*," Proc. of the Information Technology Conference '95: Applications for Effective Management, Miami, FL., Dec.
- 17) **Morad, A.** (1995). "*Hypermedia and Multimedia Technology*," Proc. of the Information Technology Conference '95: Applications for Effective Management, Miami, FL., Dec.
- 18) **Morad, A.** (1996). "Remote Project Communication and Control," Proc. of the Project Management Control Systems Training Program: State-of-the-Art Applications, Anaheim, CA, June.
- 19) **Morad, A.** (1996). "Introduction to the Internet," Proc. of the Project Management Control Systems Training Program: State-of-the-Art Applications, Anaheim, CA, June.
- 20) **Morad, A.** (1996). "Emerging Information Technologies: Internet, Intranet, and Data Warehousing," Proc. of the Information Technology Training Program 1996: Applications for Effective Management, Miami, FL., July.

#### **OTHER PUBLICATIONS AND PRESENTATIONS:**

- 1) **Morad, A.** (1984). "*Optimal Selection of Project Bid: Computer Aided Approach*," Thesis submitted to the faculty of Massachusetts Institute of Technology in partial fulfillment of the requirements for the degree of Masters of Science in Civil Engineering, June.
- 2) Beliveau, J., **Morad, A.**, and Haddad, F. (1987). "*Project Scheduling /CPM*," Virginia Builders Continuing Education Workshop, Lynchburg, VA, Dec.
- 3) **Morad, A.**, and Beliveau, Y. (1989). "*Dynamic Sequencing for the Construction Process Using an Expert System*," Proc. of the 6th Computing in Civil Engineering Conference, ASCE, Atlanta, GA, Sept.
- 4) **Morad, A.** (1989). "*Knowledge-based System for Construction Planning Using CAD Technology*," Submitted to the Project Management Institute for the 1989 Student Paper Award." It was one of the three finalists.

- 5) **Morad, A.** (1990). "*Geometric-Based Reasoning System for Project Planning Utilizing AI and CAD Technologies*," Dissertation submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Civil Engineering, May.
- 6) **Morad, A.** (1990). "*Expert Systems in Construction Management*," Handbook for the Florida International University / Building Construction Industry Advisory Committee Workshops on Expert Systems, Dec. 1990, Mar. 1991, and Apr. 1991, Miami, FL.
- 7) **Morad, A.** (1991). "*Artificial Intelligence in Construction Planning*," Presented at the Dept. of Civil Engineering, University of Maryland, College Park, MD, May.
- 8) **Morad, A.** (1991). "*Solving the Path Planning Problem Using AI and 3D Computer Modeling*," Presented at the Dept. of Mechanical and Aerospace Engineering, University of Central Florida, Orlando, FL, Oct.
- 9) **Morad, A.** (1992). "*Computer Modeling for Construction*," Presented at the Computer Applications in Design Workshop, held at Florida International University, March.
- 10) **Morad, A.,** and Mitrani, J. (1992). "*Local Licensing in the State of Florida*," Technical Publication #106, Florida International University. Report submitted to the Building Construction Advisory Committee of the State of Florida, Dec.
- 11) Ahmad, I., and **Morad, A.** (1993). "*Alternative Bid-Evaluation and Contract-Award Systems*," Technical Publication #111, Florida International University, Report submitted to the Building Construction Advisory Committee of the State of Florida, Dec.
- 12) **Morad, A.,** and Jolibios, S. (1994). "*Round Table Discussion: Opportunities of Economic Growth and Sustainable Development in the Americas: The T Factor - Transportation, Trade, Tourism and Telecom*," 2nd Annual Caribbean Americas Business Network, Miami, Oct.

## PROFESSIONAL AFFILIATIONS AND SERVICES:

### Member of:

- The American Society of Civil Engineers(ASCE)
- The ASCE Construction Research Council
- The ASCE Committee on Computing in Construction
- The ASCE Committee on Artificial Intelligence and Expert Systems in Civil Engineering
- The ASCE TCCP Database Committee, and The Arab Scientists and Technologist Abroad Network.

### Reviewer for:

- The ASCE Journal of Construction Engineering and Management
- The ASCE Journal of Legal Affairs and Dispute Resolution in Engineering and Construction
- The ASCE Journal of Computing in Civil Engineering
- The Journal of Computer-Aided Civil and Infrastructure Engineering

# WALLIED ORABI, Ph.D.

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Florida International University  
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## EDUCATION

<u>Degree</u>	<u>Institution</u>	<u>Field</u>	<u>Dates</u>
Ph.D.	University of Illinois at Urbana-Champaign	Civil Engineering	August 2010
M.Sc.	American University in Cairo	Construction Engineering	February 2004
Diploma	American University in Cairo	Construction Engineering	June 2002
B.Sc.	Cairo University	Civil Engineering	July 1996

## FULL-TIME ACADEMIC EXPERIENCE

<u>Institution</u>	<u>Rank</u>	<u>Field</u>	<u>Dates</u>
Florida International University	Assistant Professor	Construction Management	August 2010 – Present

## PART-TIME ACADEMIC EXPERIENCE

<u>Institution</u>	<u>Rank</u>	<u>Field</u>	<u>Dates</u>
University of Illinois at Urbana-Champaign	Graduate Research Assistant	Civil Engineering	August 2005 – August 2010
University of Illinois at Urbana-Champaign	Sargent and Lundy Pre-Doctoral Fellow	Civil Engineering	August 2004 – August 2005
American University in Cairo	Teaching Assistant	Interdisciplinary Engineering	September 2001 – May 2002

## NON-ACADEMIC EXPERIENCE

<u>Place of Employment</u>	<u>Title</u>	<u>Dates</u>
Arab Contractors, Egypt	Senior Project Controls Engineer	2003 – 2004
Archirodon Construction Co., Egypt	Contract Administrator	2003
Arab Contractors, Egypt	Project Control Engineer	2002 – 2003
Arab Contractors, Egypt	Project Control Eng and Contract Administrator	1997 – 2002
Ferrometalco (DSD Egypt), Egypt	Estimator	1996 – 1997

## EMPLOYMENT RECORD AT FIU

<u>Rank</u>	<u>Dates</u>
Assistant Professor	August 2010 - Present

## **PUBLICATIONS IN DISCIPLINE**

### **Papers in Professional Journals**

1. **Orabi, W.**, and El-Rayes, K. (2012). "Optimizing the Rehabilitation Efforts of Aging Transportation Networks," *Journal of Construction Engineering and Management*, ASCE, 138(4), 529-539.
2. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2010). "Optimizing Resource Utilization during the Recovery of Civil Infrastructure Systems," *Journal of Management in Engineering*, ASCE, 26(4), 237-246.
3. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2009). "Optimizing Post-Disaster Reconstruction Planning for Damaged Transportation Networks," *Journal of Construction Engineering and Management*, ASCE, 135(10), 1039-1048. **Winner of the 2009 Best Paper Award from the ASCE Journal of Construction Engineering and Management.**
4. El-Anwar, O., Ye, J., and **Orabi, W.** "An Innovative Linear Formulation for Transportation Reconstruction Planning." *Journal of Automation in Construction*, Under Review, submitted in February 2013.
5. El-Anwar, O., Ye, J., and **Orabi, W.** "Efficient Optimization of Post-Disaster Reconstruction of Transportation Networks." In Progress, to be submitted to the *Journal of Computing in Civil Engineering*.
6. **Orabi, W.**, Sheykhi, R., and El-Anwar, O. "Optimizing Construction Project Portfolios under Uncertainty." In Progress, to be submitted to the *Journal of Construction Engineering and Management*.

### **Conference Proceedings**

7. **Orabi, W.**, Sheykhi, R., and El-Anwar, O. "Using Probabilistic Crew Productivity to Simulate Schedule-Related Risks in Construction Projects," *Proceeding of the CSCE 2013 Annual Conference / 4th Construction Specialty Conference*, Montreal, Quebec, Canada, June 2013.
8. El-Anwar, O., Ye, J., and **Orabi, W.** (2013). "Efficient Analysis and Optimization of Reconstruction Plans for Damaged Transportation Networks Following Disasters." *Proceedings of the 2013 ASCE International Workshop on Computing in Civil Engineering*, Los Angeles, CA. **Ranked among top three papers in the Intelligent Transportation track and invited for presentation in a general session with no parallel sessions.**
9. **Orabi, W.**, Zhu, Y., and Ozcan-Deniz, G. (2012). "Minimizing Greenhouse Gas Emissions from Construction Activities and Processes." *Proceedings of the 2012 Construction Research Congress*, West Lafayette, IN.
10. Zhu, Y. and **Orabi, W.** (2012). "Application of systems modeling and particle swarm optimization to the analysis of time, cost and carbon emissions for building design and construction planning." *Proceedings of the 1st International Conference on Building Sustainability Assessment*, Porto, Portugal.
11. **Orabi, W.** (2011). "A Web-Based Resource Management System for Damaged Transportation Networks." *Proceedings of the 2011 ASCE International Workshop on Computing in Civil Engineering*, Miami, FL.
12. **Orabi, W.** and El-Rayes, K. (2011). "Maximizing Rehabilitation Benefits of Aging Transportation Networks." *Proceedings of the 3rd International/ 9th Construction Specialty Conference*, Ottawa, Ontario, Canada.
13. **Orabi, W.**, El-Rayes, K., Senouci, A., and Al-Derham, H. (2009). "Planning Post-Disaster Reconstruction Efforts of Damaged Transportation Networks." *Proceedings of the 2009 Construction Research Congress*, Seattle, WA.

## **Chapters in Books**

14. Ezeldin, A. S., and Orabi, W. (2006). "Risk Identification and Response Methods: Views of Large Scale Contractors Working in Developing Countries." *Advances in Engineering Structures, Mechanics & Construction, Solid Mechanics and its Applications*, Springer Netherlands, 781-792.

## **PRESENTED PAPERS, LECTURES, EXHIBITIONS, AND PERFORMANCES**

- "Minimizing Greenhouse Gas Emissions from Construction Activities and Processes," The 2012 Construction Research Congress: Construction Challenges in a Flat World, West Lafayette, IN, May 2012.
- "A Web-Based Resource Management System for Damaged Transportation Networks," The 2011 ASCE International Workshop on Computing in Civil Engineering, Miami, FL, June 2011.
- "Maximizing Rehabilitation Benefits of Aging Transportation Networks," The 3rd International/ 9th Construction Specialty Conference, Ottawa, Ontario, Canada, June 2011.
- "Planning Post-Disaster Reconstruction Efforts of Damaged Transportation Networks," The 2009 Construction Research Congress: Building a Sustainable Future, Seattle, WA, April 2009.

## **GRANT PROPOSALS**

- "Zone-Related Environmental and Economic Analysis for using Substitute Aggregates," NCHRP IDEA Program, Transportation Research Board, Amount: \$149,998.33, Role: PI, submitted on March 1, 2013.
- "Coastal SEES (Track 1), Collaborative: Integrating Spatial, Temporal and Environmental Analysis for Built Environment Adaptation in Coastal Regions and Hot and Humid Climate Zones," National Science Foundation, Amount: \$514,775, Role: Co-PI, PI: Dr. Yimin Zhu, submitted on January 17, 2013.
- "Capacity Building for Energy Smart Buildings in Pakistan through Research, Education, Training and Demonstration," Pakistan-US Science and Technology Cooperation Program 2012, Amount: \$258,699, Role: Co-PI, PIs: Dr. Rizwan Farooqui and Yimin Zhu, submitted on November 30, 2012.
- Summary Proposal: "Optimizing Electrical Design to Maximize Building LEED Ratings," ELECTRI International, Amount: \$45,241, Role: PI, submitted on November 17, 2012.
- Letter of Intent: "Incorporating sustainability in the evaluation of construction bids," NPRP Program, Qatar National Research Fund, Amount: \$0, Role: PI, submitted on November 6, 2012.
- "Flexible and Rapid Decision Making Related to Public-Private Partnerships (P3) Funding Models in Transportation," Florida Department of Transportation, Amount: \$158,362.89, Role: PI, submitted on April 13, 2012.
- "Towards a Systematic Framework and Optimization Decision Support Tool for the Future of Sustainable Cities," Faculty Research Support Program, Florida International University, Amount: \$29,999.88, Role: Co-PI, PI: Dr. Jin Xia, submitted on March 1, 2012.
- "Analyzing the Impact of Building Types on Energy Consumption and Greenhouse Gas Emissions," Faculty Research Support Program, Florida International University, Amount: \$29,831.87, Role: PI, submitted on February 28, 2012.
- "Impact of Location on the Environmental and Economic Sustainability in using Substitute Aggregates in Roadway Construction," National Science Foundation, Amount: \$324,582, Role: PI, submitted on February 15, 2012.
- "Use of High Intensity Reflective Sheeting in-lieu of External Lighting of Overhead Roadway Signs," Florida Department of Transportation, Amount: \$149,686, Role: PI, submitted on February 9, 2012.

- “Solar Decathlon China 2013,” Solar Decathlon China, Amount: \$100,000, Role: Co-PI, PI: Dr. Yimin Zhu, submitted on November 30, 2011.
- “Environmental and Economic Impacts of using Recycled Materials and Industrial By-Products in Roadway Construction,” National Science Foundation, Amount: \$327,555, Role: PI, submitted on October 3, 2011.

### **PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS**

- 2009 Best Paper Award from the ASCE Journal of Construction Engineering and Management
- Paper ranked among top three in the Intelligent Transportation track of the 2013 ASCE International Workshop on Computing in Civil Engineering
- Citation in Who’s Who of Emerging Leaders, 1st Edition, 2007
- Citation in Who’s Who in Science and Engineering, 8th Edition, 2005 - 2006

### **University**

- Appointed to “Dissertation Advisor Status” within the Graduate Faculty

### **UNIVERSITY SERVICE**

#### **School**

- **Coordinator**, Construction Seminar Series, Spring 2012 – Present
- Participated in the redesign and maintenance of the OHL School of Construction website

#### **College**

- **Alternate Representative** of OHL School of Construction, Faculty Council on Governance, August 2012 – Present
- **Representative** of OHL School of Construction, Information Technology Committee, August 2011 – Present
- **Representative** of OHL School of Construction, Library Committee, August 2010 – Present

### **OFFICES HELD IN PROFESSIONAL SOCIETIES**

- **Member**, American Society of Civil Engineers (ASCE)
- **Member**, ASCE Construction Institute
- **Member**, ASCE Construction Research Council (CRC)
- **Member**, Education Sub-Committee, ASCE Technical Council on Computing in Civil Engineering (TCCIT)
- **Member**, Data Sensing and Analysis (DSA) Sub-Committee, ASCE Technical Council on Computing in Civil Engineering (TCCIT)
- **Member**, Visualization, Information Modeling, and Simulation (VIMS) Sub-Committee, ASCE Technical Council on Computing in Civil Engineering (TCCIT)

### **OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE**

- **Reviewer**, Journal of Computing in Civil Engineering, ASCE, 2012 to present.
- **Reviewer**, Journal of Automation in Construction, Elsevier, 2012 to present.

- **Reviewer**, The 2012 Construction Research Congress: Construction Challenges in a Flat World, West Lafayette, IN, May 21-23, 2012.
- **Reviewer**, The Sixth International Conference on Construction in the 21st Century (CITC-VI), Kuala Lumpur, Malaysia, July 5-7, 2011.
- **Member of Technical Committee**, 2011 ASCE Workshop on Computing in Civil Engineering, Miami, FL, June 19-22, 2011.
- **Reviewer**, The 3rd International/ 9th Construction Specialty Conference, Ottawa, Ontario, Canada, June 14-17, 2011.
- **Reviewer**, Journal of Management in Engineering, ASCE, 2011 to present.
- **Reviewer**, Journal of Construction Engineering and Management, ASCE, 2007 to present.
- **Reviewer**, Construction Management and Economics 25th Anniversary Conference, Reading, UK, July 16-18, 2007.
- **Reviewer**, Journal of Construction Management and Economics, UK, 2005 to present.

**Nipesh Pradhananga, Ph.D.**  
**OHL School of Construction**  
**Florida International University**  
**Miami, FL 33174**

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**a. Professional Preparation**

Ph. D., Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA, 2014.  
M.S., Computational Science and Engineering, Georgia Institute of Technology, Atlanta, GA, 2013.  
M.S., Construction Management, University of Nevada Las Vegas, Las Vegas, NV, 2009.  
B.E., Civil Engineering, Tribhuvan University, Kathmandu, Nepal, 2006.

**b. Academic Appointments**

- Assistant Professor - tenure track, (August 2014 -), OHL School of Construction, College of Engineering and Computing, Florida International University, Miami, FL.
- Graduate Research Assistant, (August 2010- July 2014), Georgia Institute of Technology, Atlanta, GA.
- Visiting Lecturer, (May 2010 - July 2010), Khwopa Engineering College, Purbanchal University, Bhaktapur, Nepal.
- Graduate Research Assistant, (August 2008 - December 2009), University of Nevada Las Vegas, Las Vegas, NV.

**c. List of Publications**

Vasenev, A., Pradhananga, N., Bijleveld, F., Hartmann, T., Teizer, J. and Doree, A. (2014) "An Information Fusion Approach for Filtering GNSS Data Sets Collected During Construction Operations", *Advanced Engineering Informatics*.

Shrestha, P.P., Pradhananga, N. and Mani, N. (2014) "Correlating Quantity and Bid Cost of Unit Price Items of Public Road Projects", *KSCE Journal of Civil Engineering*.

Pradhananga, N. and Teizer, J. (2014) "Congestion Analysis for Construction Site Layout Planning using Real-time Data and Cell-based Simulation Model", *International Society for Computing in Civil and Building Engineering (ISCCBE)*, Orlando, Florida, June 23-25, 2014.

Wang, J., Pradhananga, N. and Teizer, J. (2014) "Automatic Fall Risk Identification using Point Cloud Data in Construction Excavation", *International Society for Computing in Civil and Building Engineering (ISCCBE)*, Orlando, Florida, June 23-25, 2014.

Pradhananga, N. and Teizer, J. (2014) "Development of a Cell-based Simulation Model for Earthmoving Operation using Real-time Location Data", *Construction Research Congress*, Atlanta, Georgia, May 19-21, 2014.

Costin, A., Pradhananga, N. and Teizer, J. (2014) "Passive RFID and BIM for Real-Time Visualization and Location Tracking", *Construction Research Congress*, Atlanta, Georgia, May 19-21, 2014.

Wang, J., Pradhananga, N. and Teizer, J. (2014) "Automatic Cave-in Safety Risk Identification in Construction Excavation", *Construction Research Congress*, Atlanta, Georgia, May 19-21, 2014.



Pradhananga, N. and Teizer, J. (2013) "Automatic Spatio-Temporal Analysis of Construction Equipment Operations using GPS Data", *Automation in Construction*, 29, 107-122.

Cheng, T., Pradhananga, N., and Teizer, J. (2013) "Automated Evaluation of Proximity Hazards Caused by Workers Interacting with Equipment", *The 30th International Symposium on Automation and Robotics in Construction and Mining*, Montreal, Canada, August 11-15, 2013.

Costin, A., Pradhananga, N. and Teizer, J. (2012) "Leveraging Passive RFID Technology for Construction Resource Field Mobility and Status Monitoring in a High-Rise Renovation Project", *Automation in Construction*, 24, 1-15.

Pradhananga, N. and Teizer, J. (2012) "GPS-Based Framework towards more Realistic and Real-time Construction Equipment Operation Simulation", *Proceedings of the 2012 Winter Simulation Conference*, Berlin, Germany, December 9-12, 2012.

Costin, A., Pradhananga, N. and Teizer, J. (2012) "Integration of Passive RFID Location Tracking in Building Information Models", *International Workshop: Intelligent Computing in Engineering*, Herrsching (Munich), Germany, July 4-6, 2012.

Pradhananga, N. and Teizer, J. (2012) "Spatio-Temporal Safety Analysis of Construction Site Operations using GPS Data", *Construction Research Congress*, West Lafayette, Indiana, May 21-23, 2012.

Shrestha, P.P., Pradhananga, N. and Mani, N. (2012) "Impact of Quantity on Bid Cost of Unit Price Items in Design-Bid-Build Public Road Projects", *Transportation Research Board 91st Annual Meeting*, Washington D.C., January 22-26, 2012.

Shrestha, P. P., Shields, D.R., Oparagua, D., and Pradhananga, N. (2011) "Comparative Study of Information Technology Use by Architects, Engineers and Contractors", *Journal of Civil Engineering and Architecture*, 5 (5), 375-388.

Shrestha, P.P. and Pradhananga, N. (2010) "Correlating Bid Price with Number of Bidders and Final Construction Cost of Public Street Projects", *Transportation Research Record (Journal of Transportation Research Board)*, 2151-01, 3-10.

Shrestha, P. P., Shields, D. R., and Pradhananga, N. (2010) "Information Technology in Southern Nevada A/E/C Industries", *Associated Schools of Construction 46th Annual International Conference*, Boston, Massachusetts, April 7-10, 2010.

Shrestha, P.P. and Pradhananga, N. (2010) "Correlating Bid Price with Number of Bidders and Final Construction Cost of Public Street Projects", *Transportation Research Board 89th Annual Meeting*, Washington D.C., January 10-14, 2010.

Shrestha, P. P. and Pradhananga, N. (2009) "GIS-Based Road Maintenance Management", *International Workshop on Computing in Civil Engineering*, Austin, Texas, June 24-27, 2009.

#### **d. Synergistic Activities**

- Reviewer (2012 - ), *Automation in Construction*, Elsevier.
- Member, Scientific Committee, 14<sup>th</sup> International Conference on Construction Applications of Virtual Reality in Construction and Conference on Islamic Architecture (CONVR), to be held - November, 16 - 18, 2014, Sharjah, UAE.

#### **e. Research Involvement**

- Student Investigator, NSF Award Number 1030472, "Automated Vision-Based Sensing for Site Operations Analysis", Principal Investigator: Dr. Patricio Vela (Former PI: Dr. Jochen Teizer).

# Youngjib Ham

3143 Newmark Civil Engineering Laboratory  
205 N. Mathews, Urbana, IL 61801  
T: (217) 259-5498; F: (217) 265-8039  
E-mail: yham4 [at] illinois [dot] edu

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## EDUCATION

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<b>University of Illinois at Urbana-Champaign</b> <b>Doctor of Philosophy in Civil and Environmental Engineering</b> (Expected graduation date: August 2015) <i>Dissertation Title:</i> “Multi-modal Visual Sensing and Analytics for Building Energy Analyses using 3D Thermography and BIM” <i>Dissertation Advisor:</i> Prof. Mani Golparvar-Fard	2011-present
<b>University of Illinois at Urbana-Champaign</b> <b>Master of Computer Science</b> Computer Vision, Machine Learning, and Mobile Computing	2013-2014
<b>Seoul National University, South Korea</b> <b>Master of Science in Architectural Engineering</b> Construction Engineering & Management <i>Dissertation Title:</i> “Constructability Implementation Model using Dependency Structure Matrix” <i>Dissertation Advisors:</i> Prof. Moonseo Park	2009-2011
<b>Seoul National University, South Korea</b> <b>Bachelor of Science in Rural Systems Engineering (Civil Engineering)</b> <b>Graduated with honors (Cum Laude)</b>	2003-2009

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## HONORS AND AWARDS

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<b>FIATECH CETI Award</b> <i>FIATECH, Boca Raton, FL</i> An award presented to an outstanding student research project in recognition of advancing innovation in research	2015
<b>FIATECH Scholarship</b> <i>FIATECH, Boca Raton, FL</i> A scholarship awarded to the most deserving students to attend and participate in the Annual FIATECH Technology Conference and Showcase	2015
<b>Chester P. Siess Award</b> <i>University of Illinois at Urbana-Champaign</i> An award presented to an outstanding graduate student on the basis of scholastic achievement, interest, and promise in research	2014
<b>Best Poster Award, Third-Place</b> <i>2014 ASCE Construction Research Congress, Atlanta, GA</i> The third-place award to the poster entitled “Vision-based Building Energy Diagnostics and Retrofit Analysis using 3D Thermography and BIM”	2014

- Construction Management Association of America (CMAA)'s Scholarship** 2014  
*CMAA Chicago Chapter, Chicago, IL*  
 A merit based scholarship awarded to the most deserving student in Construction Management in Illinois
- FIATECH Scholarship** 2013  
*FIATECH, Austin, TX*  
 A merit based scholarship awarded to the most deserving students to attend and participate in the Annual FIATECH Technology Conference and Showcase
- Best Paper Award Runner-up** 2012  
*2012 ASCE International Workshop on Computing in Civil Engineering, Clearwater Beach, FL*  
 The second-place runner-up for the best paper award from the Data Sensing and Analysis (DSA) committee to the paper entitled "Identification of Potential Areas for Building Retrofit using Thermal Cameras, Digital Imagery, and CFD Models"
- CMAA National Foundation Scholarship (*Nationally competitive\**)** 2012  
*CMAA Foundation, McLean, VA*  
 A merit based scholarship awarded to the most deserving winner among the CMAA local chapter awards across the entire U.S.
- CMAA Scholarship** 2012  
*CMAA National Capital Chapter, Washington, D.C.*  
 A merit based scholarship awarded to the most deserving student in Construction Management in Virginia
- Korean-American Scientists and Engineers Association Graduate Scholarship** 2012  
*Korean-American Scientists and Engineers Association, VA*  
 To recognize outstanding graduate students in the U.S. who excel in academics as well as in services to the community, and have demonstrated potential to become future leaders of the society for closer cooperation between the U.S. and Korea
- Vecellio Fellowship** 2011  
*Virginia Tech*  
 A fellowship awarded to the most deserving graduate student based on academic achievements in the Vecellio Construction Engineering and Management Program
- Cum Laude Bachelor's Degree** 2009  
*Seoul National University, Seoul, South Korea*
- Best Paper Award** 2008  
*5th Korea Institute of Construction Engineering and Management (KICEM) Annual Conference for undergraduate*  
 The best paper award to the paper entitled "A Building Portal-based KMS for Small and Medium-sized Construction Companies"
- National Science & Technology Scholarship** 2004  
*Korea Student Aid Foundation (KOSAF), Seoul, South Korea*  
 A merit based scholarship awarded to outstanding undergraduates in South Korea

**Seoul National University Merit-based Scholarship***Seoul National University, Seoul, South Korea*

A merit based scholarship awarded to outstanding students in Seoul National University

2003-  
2010**RESEARCH PROPOSALS****Energy Performance Augmented Reality Models for Building Diagnostics Using a Hybrid of RGBD/Thermal Cameras and CFD Models**

2013

Actively participated in writing this National Center for Supercomputing Application (NCSA) research proposal

PI: Mani Golparvar-Fard (**Successfully funded in the first review**).**Algorithmic Development and Validation of a Computer Vision based Framework for Rapid 3D Energy Modeling & Retrofit Analysis of Existing Buildings Using Thermal & Digital Imagery**

2012

Actively participated in writing this National Science Foundation (NSF) research proposal

PI: Mani Golparvar-Fard

**RESEARCH AND INDUSTRY EXPERIENCE****Research Assistant**

Aug. 2011- present

*Real-time and Automated Monitoring and Control Lab*, Prof. Mani Golparvar-Fard  
University of Illinois at Urbana-Champaign

- Multi-modal 3D visual sensing and analytics for improving building energy efficiency
  - Developed a new computer vision-based method for reconstructing actual 3D spatio-thermal models of building environments using a set of thermography
  - Developed a new method for creating Energy Performance Augmented Reality (EPAR) environment which jointly models actual and expected building energy performance, automatically calculates performance deviations, visualizes potential performance problems, and geo-registers associated digital and thermal images in 3D
  - Developed a new method for thermography-based quantitative assessment of as-is building conditions that can explore the actual thermal resistance at 3D points, detect condensation problems, and visualize the outcomes in an intuitive 3D form
  - Developed a new method that can calculate the amount of unnecessary heat transfer through defective building areas with potential performance problems and estimate the associated energy cost
  - Developed a new method that maps actual thermal property measurements at the level of 3D points to the associated BIM elements and automatically update their corresponding thermal properties in gbXML schema for reliable energy performance modeling of existing buildings
  - Initiated and conducted 10 thermographic inspection case studies (VA and IL)
  - Observed and surveyed current best practices on building energy analyses
- Actively participate in experiments on creating and validating autonomous vision-based systems for civil infrastructure condition assessment using aerial robots (UAVs)
- Developed a new probabilistic infrastructure-free method for 3D event localization

using commodity smartphones for ubiquitous context-aware application (e.g., field reporting of operational issues) in civil infrastructure engineering

- Actively participated in writing several research proposals

### Research Assistant

Mar. 2011 - Jul. 2011

*Seoul National University Engineering Research Institute, Seoul, Korea*

- Super Tall Buildings Research & Business Development Center (Sponsor: Ministry of Land, Transport and Maritime Affairs of Korea):
  - Participated in development of the framework of integrated project control system for super tall buildings using BIM and monitoring technology
- Smart Blackbox based Building Crisis Response Technology Research Center:
  - Participated in writing the research proposals for ‘Integrated Smart Blackbox System against Building Crisis’, ‘Building Crisis Response Strategy and Decision-making Data Warehouse’ and ‘Building Crisis Monitoring Sensing and Networking Technology’ using BIM and Real-Time Locating System

### Research Assistant

Mar. 2009 - Feb. 2011

*Construction Engineering & Management Lab, Prof. Moonseo Park and Prof. Hyunsoo Lee  
Seoul National University*

- Web-Based Distributed Lean Construction Information System (Sponsor: Ministry of Land, Transport and Maritime Affairs of Korea)
  - Participated in development and commercialization of web-based distributed lean construction knowledge management system using blog based-portal system and construction ontology for small and medium construction companies

### Project Monitoring Assistant (University of Illinois)

2014 - Present

*Turner Construction Company, Chicago, IL*

Ikenberry Commons Residence Hall No. 3, Champaign, IL.

- Conduct weekly project monitoring using aerial robots (UAVs) equipped with visual sensors

### Project Monitoring and Control Intern

Summer 2008

*Hyundai Engineering & Construction Company, South Korea*

Seongnam City Hall Project, Seongnam, South Korea

- Conducted project control activities (scheduling/cost/labor/safety)
- Conducted progress monitoring and digital asset management (Construction daily, weekly, and monthly reports as well as BIM)

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## PUBLICATIONS AND PATENTS

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### 1. Refereed Journal Papers (\* Corresponding author)

#### 1.1. Journal papers published or accepted

- J10. Cho, Y., **Ham, Y.**, and Golparvar-Fard, M. (2015). “3D As-is Building Energy Modeling and Diagnostics: A Review of the State-of-the-Art.” *Advanced Engineering Informatics, Special Issue*

- on Infrastructure Computer Vision*, Elsevier. (accepted)
- J9. Yoon, H.<sup>†</sup>, **Ham, Y.\*<sup>†</sup>**, Golparvar-Fard, M., and Spencer Jr, B. F. (2015). "Forward-Backward Approach for 3D Event Localization using Commodity Smartphones for Ubiquitous Context-Aware Applications in Civil and Infrastructure Engineering." *Journal of Computer-Aided Civil and Infrastructure Engineering*, Wiley. (accepted)
- J8. **Ham, Y.\***, and Golparvar-Fard, M. (2015). "Mapping Actual Thermal Properties to Building Elements in gbXML-based BIM for Reliable Building Energy Performance Modeling." *Automation in Construction*, Elsevier, 49, 214-224. **(Invited Paper from 30th International Symposium on Automation and Robotics in Construction (ISARC))**
- J7. **Ham, Y.\***, and Golparvar-Fard, M. (2014). "3D Visualization of Thermal Resistance and Condensation Problems using Infrared Thermography for Building Energy Diagnostics." *Visualization in Engineering*, Springer, 2(1), 1-15.
- J6. **Ham, Y.\***, and Golparvar-Fard, M. (2014). "3D Thermography-based Method for Cost-Benefit Analysis of Energy Efficiency Building Envelope Retrofits." *Journal of Computing in Civil Engineering*, ASCE. 10.1061/(ASCE)CP.1943-5487.0000406, B4014009. **(Invited Paper from 2013 ASCE International Workshop on Computing in Civil Engineering)**
- J5. Golparvar-Fard, M., and **Ham, Y.\*** (2014). "Automated Diagnostics and Visualization of Potential Energy Performance Problems in Existing Buildings using EPAR - Energy Performance Augmented Reality - Models." *Journal of Computing in Civil Engineering*, ASCE, *Special Issue on Computational Approaches to Understand and Reduce Energy Consumption in the Built Environment*. 28(1), 17-29. **(Invited Paper from 2012 ASCE International Workshop on Computing in Civil Engineering)**.
- J4. **Ham, Y.**, and Golparvar-Fard, M. (2013). "EPAR: Energy Performance Augmented Reality Models for Identification of Building Energy Performance Deviations between Actual Measurements and Simulation Results." *Energy and Buildings*, Elsevier, 63, 15-28.
- J3. **Ham, Y.**, and Golparvar-Fard, M. (2013). "An Automated Vision-based Method for Rapid 3D Energy Performance Modeling of Existing Buildings using Thermal and Digital Imagery." *Advanced Engineering Informatics*, Elsevier, 27(3), 395-409. **(One of the most downloaded Advanced Engineering Informatics Articles in 2013)**
- J2. Park, M., Ingawale-Verma, Y., Kim, W., and **Ham, Y.** (2011), "Construction Policymaking: With an Example of Singaporean Government's Policy to Diffuse Prefabrication to Private Sector." *KSCE Journal of Civil Engineering*, Springer, 15(5), 771-779.
- J1. Park, M., **Ham, Y.\***, Lee, H. S., and Kim, W. (2010), "Development of Design Process Management Model using Dependency Structure Matrix for Constructability." *Korean Journal of Construction Engineering and Management*, Korean Institute of Construction Engineering and Management, 11(5), 65-74.

### 1.2. Journal papers in review

- J1r. Choi, H. <sup>†</sup>, **Ham, Y.** <sup>†</sup>, and Popovics, J. S. (2015). "Visualization of Internal Defects from Full-Scale Concrete Column using Non-Contact Ultrasonic Tomography and Image-based 3D Reconstruction." *Construction and Building Materials*, Elsevier.

### 1.3. Journal papers in preparation

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<sup>†</sup> These authors contributed equally to this work

- J3p. **Ham, Y.**, and Golparvar-Fard, M. "3D Localization of Energy Performance Problems of Building Systems using Commodity Smartphones." To be submitted to *ASCE Journal of Construction Engineering and Management*.
- J2p. **Ham, Y.**, and Golparvar-Fard, M. "The Impact of Modeling Actual Thermal Properties of Building Elements on Energy Performance Simulation for Existing Buildings." To be submitted to *ELSEVIER Energy and Buildings*.
- J1p. **Ham, Y.**, and Golparvar-Fard, M. "Automated Vision-based Condition Assessment of Building Roofing Systems using Unmanned Aerial Vehicles." To be submitted to *ASCE Journal of Computing in Civil Engineering*.

## 2. Refereed Conference Papers

### 2.1. Papers appeared in conference proceedings (I presented all papers at the conference.)

- C13. **Ham, Y.**, and Golparvar-Fard, M. (2014), "Updating R-values of BIM Elements using 3D Thermography for Accurate Building Energy Performance Simulation." International Conference for Computing in Civil and Building Engineering (ICCCBE), 23-25 June, Orlando, FL.
- C12. **Ham, Y.**, and Golparvar-Fard, M. (2014), "Evaluating the Value of Investment in Building Insulation Retrofits based on EPAR - Energy Performance Augmented Reality- Models." ASCE Construction Research Congress, 19-21 May, Atlanta, GA.
- C11. **Ham, Y.**, and Golparvar-Fard, M. (2013), "Automated Cost Analysis of Energy Loss in Existing Buildings through Thermographic Inspections and CFD Analysis." 30th International Symposium on Automation and Robotics in Construction (ISARC), 11-15 August, Montreal, Canada. **(Recognized as a top paper and invited to special issue in ELSEVIER Automation in Construction)**
- C10. **Ham, Y.**, and Golparvar-Fard, M. (2013), "Calculating the Cost of Heating and Cooling Loss for Building Diagnostics using EPAR -Energy Performance Augmented Reality- Models." ASCE International Workshop on Computing in Civil Engineering, 23-25 June, Los Angeles, CA. **(Recognized as a top paper and invited to special issue in ASCE Journal of Computing in Civil Engineering)**
- C9. **Ham, Y.**, and Golparvar-Fard, M. (2013), "EPAR V2.0: Automated Monitoring and Visualization of Potential Areas for Building Retrofit using Thermal Cameras and Computational Fluid Dynamics (CFD) Models." 5th International Conference on Construction Engineering and Project Management (ICCEPM), 9-11 January, Anaheim, CA. **(Recognized as a top paper and invited to special issue in Journal of Construction Engineering and Project Management)**
- C8. **Ham, Y.**, and Golparvar-Fard, M. (2012), "Vision-based 3D Building Energy Performance Modeling." US-KOREA Conference 2012, 8-11 August, Los Angeles, CA.
- C7. **Ham, Y.**, and Golparvar-Fard, M. (2012), "Identification of Potential Areas for Building Retrofit using Thermal Cameras, Digital Imagery, and CFD Models." 2012 ASCE International Workshop on Computing in Civil Engineering, 17-20 June, Clearwater Beach, FL, 642-649. **(Recognized as a top paper and invited to special issue in ASCE Journal of Computing in Civil Engineering) – Runner-up for Best Paper Award**
- C6. **Ham, Y.**, and Golparvar-Fard, M. (2012), "Rapid 3D Energy Performance Modeling of Existing Buildings using Thermal and Digital Imagery." 2012 ASCE Construction Research Congress, 21-23 May, West Lafayette, IN, 991-1000.
- C5. **Ham, Y.**, Park, M., and Lee, H. S. (2011), "Constructability Implementation Model using Dependency Structure Matrix." 4th International Conference on Construction Engineering and

Project Management (ICCEPM), 16-18 February, Sydney, Australia.

- C4. **Ham, Y.**, Park, M., Lee, H. S., and Jung, M. (2010), "Modeling Information Dependencies based on BIM for Constructability Implementation." BuildingSMART Korea BIM Academic Conference 2010, 2-4 December, Pyeongchang, Korea.
- C3. **Ham, Y.**, Lee, H. S., and Park, M. (2010), "Application of Dependency Structure Matrix for Constructability in Design Phase." 8th International Symposium on Architectural Interchanges in Asia (8th ISAIA), 9-12 November, Kitakyushu, Japan.
- C2. **Ham, Y.**, Park, M., Lee, H. S., and Jang, Y. (2009), "A Framework for Construction IT System Management using Data Envelopment Analysis." 10th Korea Institute of Construction Engineering and Management (KICEM) Annual Conference, 19-20 November, Daejeon, Korea.
- C1. **Ham, Y.**, Lee, H. S., Park, M., and Kwon, S. (2008), "A Building Portal-based KMS for Small and Medium-sized Construction Companies." 5th Korea Institute of Construction Engineering and Management (KICEM) Annual Conference for undergraduate, 7-8 November, Seoul, Korea. **(Best Student Paper Award)**

## 2.2. Conference papers in review

- C1r. **Ham, Y.**, and Golparvar-Fard, M. (2015), "Multi-modal 3D visual sensing and analytics for improving building energy efficiency." The 6<sup>th</sup> International Conference on Construction Engineering and Project Management, 11-14 October, Busan, South Korea.

## 3. Book Chapters/ Technical Reports

- B3. Golparvar-Fard, M., and **Ham, Y.** (2014). "Poster session booklet of the 2014 construction research congress." PhD Student Research Poster Session in 2014 Construction Research Congress, 19 May, Atlanta, GA.
- B2. Golparvar-Fard, M., Lee, S., Kamat, V., Lucko, G., Cai, H., Kandil, A., **Ham, Y.**, and Anderson, K. (2012). "Poster session booklet of the 2012 construction research congress." PhD Student Research Poster Session in 2012 Construction Research Congress, 21 May, West Lafayette, IN.
- B1. **Ham, Y.**, and Golparvar-Fard, M. (2012), "Rapid 3D Energy Modeling for Retrofit Analysis of Existing Buildings Using Thermal and Digital Imagery." LIDAR Magazine, Volume 2, Issue 4, 2012, Pages 57-60.

## 4. Posters

- P5. **Ham, Y.** (2014), "Vision-based Building Energy Diagnostics and Retrofit Analysis using 3D Thermography and BIM." 2014 Construction Industry Institute (CII) Annual Conference, 21-23 July, Indianapolis, IN. **(Recognized as one of the top 10 posters and invited to the 2014 CII annual conference)**
- P4. **Ham, Y.** (2014), "Vision-based Building Energy Diagnostics and Retrofit Analysis using 3D Thermography and BIM." PhD Student Research Poster Session in 2014 Construction Research Congress, 19 May, Georgia Institute of Technology, Atlanta, GA. **(Recipient of the Third Place Poster Award)**
- P3. **Ham, Y.** (2013), "Energy Performance Augmented Reality for Automated Building Energy Analyses." 2013 Computational Science and Engineering (CSE) Annual Meeting at University of Illinois at Urbana-Champaign, 24-25 April, Urbana, IL.
- P2. **Ham, Y.** (2012), "Rapid Diagnostic and Retrofit Analysis of Existing Buildings with EPAR – Energy Performance Augmented Reality – Models." PhD Student Research Poster Session in 2012



Construction Research Congress, 21 May, Purdue University, West Lafayette, IN.

- P1. **Ham, Y.** (2012), "Application of Infrared Thermography for 3D Building Energy Performance Modeling." Annual CEE Research Day at Virginia Tech, 13 April, Blacksburg, VA.

## 5. News/ Non-Refereed Publications

- N2. **Ham, Y.**, and Golparvar-Fard, M. (2014), "Energy Performance Augmented Reality: Automated Diagnostics and Visualization of Potential Energy Performance Problems in Existing Buildings", Seoul National University Construction Engineering & Management (SNUCEM) Annual Research Report, Seoul National University, Seoul, South Korea.
- N1. Golparvar-Fard, M., and **Ham, Y.** (2013), "Energy Performance Augmented Reality Models." 2013-2014 Research Highlights, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Pages 14-15.

## 6. Patents

- S1. Golparvar-Fard, M., and **Ham, Y.** (2013). "Energy Performance Modeling System (Serial No. 61/868,734), United States. (Provisional Patent)

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## TEACHING AND MENTORSHIP EXPERIENCE

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### Certificate in Foundations of Teaching 2015

*Center for Innovation in Teaching and Learning (CITL)*

University of Illinois at Urbana-Champaign

- Develop teaching skills and reflective practices and prepare for responsibilities in an academic setting

### Teaching Assistant Fall 2014

*[CEE 320] Construction Management*

University of Illinois at Urbana-Champaign

- Assisted an instructor with the preparation of course lecture materials, assignments, and quizzes with i-clickers
- Hold 3 hours per week for office hours to interact with students for HWs and exams
- Grade assignments & exams and provide feedback

### Teaching Assistant Spring 2013

*[CEE 598] Visual Sensing for Civil Infrastructure Engineering and Management*

University of Illinois at Urbana-Champaign

- Assisted an instructor with the preparation of course lecture materials, Machine Problems (MPs), and final term projects
- Instructed one session on computer vision-based 3D spatio-thermal modeling
- Hold 3 hours per week for office hours to interact and discuss with students for both MPs and final term project

### Mentoring graduate and undergrad students in Civil Engineering, 2013 - present Computer Science, and Electrical and Computer Engineering

University of Illinois at Urbana-Champaign

- Mentored graduate and undergraduates in research on the application of computer vision-based 3D modeling and analytics for
  - As-is building geometrical and thermal condition assessment
  - Building energy analyses using a thermal camera and building energy simulation tools such as EnergyPlus and Ecotect
- Objectively evaluated student progress and consistently provided informative feedback
- List of the students that I have worked with
  - Yu Liu (yuliu5@illinois.edu): Master Student in Civil Engineering
  - Avinash Anand Ahuja (aaahuja2@illinois.edu): Master Student in Civil Engineering
  - Simon Peter (speter3@illinois.edu): Undergraduate in Computer Science
  - Hongyang Bai (hbai4@illinois.edu): Undergraduate in Electrical and Computer Engineering
  - Hardik Sodhani (sodhani2@illinois.edu) : Undergraduate in Electrical and Computer Engineering
  - Faisal Rashed (rashed2@illinois.edu): Undergraduate in Civil Engineering

**Instructor and Tutor**, South Korea

2003 - 2010

*Linear Algebra, Analytical Geometry and Calculus*

- Tutored more than 10 senior high-school students on subjects of Linear Algebra, Analytical Geometry, and Calculus for the nationwide university examination

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## PROFESSIONAL TALKS/ INVITED TALKS/ OTHER TEACHING ACTIVITIES

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|--|------|
| <b>FIATECH Technology Showcase</b> , Boca Raton, FL<br>"Multi-modal Visual Sensing and Analytics for 3D Building Energy Diagnostics and Retrofit Analysis."  | 2015 |
| <b>Invited Talk, Virginia Tech</b> , "Multi-modal Visual Sensing and Analytics for Sustainable Built Environments: Building Energy Diagnostics and Retrofit Analyses using 3D Thermography and BIM"  | 2014 |
| <b>Guest Lecture, University of Illinois at Urbana-Champaign</b> , Department of Civil and Environmental Engineering<br>[CEE320] Construction Management   | 2014 |
| <b>Guest Lecture, University of Illinois at Urbana-Champaign</b> , Department of Civil and Environmental Engineering<br>[CEE598] Visual Sensing for Civil Infrastructure Engineering and Management<br>"EPAR: Energy Performance Augmented Reality for Automated Vision-based Building Energy Performance Analysis." | 2013 |
| <b>FIATECH Technology Showcase</b> , San Antonio, TX<br>"EPAR: Energy Performance Augmented Reality for Automated Vision-based Building Energy Performance Analysis."  | 2013 |

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## PROFESSIONAL AND UNIVERSITY SERVICE

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### 1. Leadership Activities

<b>Graduate Student Advisory Committee (GSAC)</b> , Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL	2014 - present
<ul style="list-style-type: none"> <li>Organize academic and social activities that engage the entire CEE department</li> <li>Assist CEE graduate students by providing them with resources and information on academic success, personal and mental health, and advice on conflict resolutions</li> </ul>	
<b>Member of Organizing Committee</b> , PhD Student Poster Session, 2014 ASCE Construction Research Congress, Atlanta, GA	2014
Secretary of Korean Student Association, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL	2014
<b>Member of Organizing Committee</b> , PhD Student Poster Session, 2012 ASCE Construction Research Congress, West Lafayette, IN	2012
Member of Virginia Tech Korean Student Association, Blacksburg, VA	2011 - 2012

## 2. Official Review Services \*

Reviewer, <b>ELSEVIER Automation in Construction</b>	2014 - present
Reviewer, <b>ASCE Journal of Construction Engineering and Management</b>	2014 - present
Reviewer, <b>ASCE Journal of Computing in Civil Engineering</b>	2014 - present
Reviewer, <b>SPRINGER KSCE Journal of Civil Engineering</b>	2014 - present
Reviewer, <b>ELSEVIER Energy and Buildings</b>	2013 - present
Reviewer, <b>ELSEVIER Applied Energy</b>	2013 - present
Reviewer, <b>IEEE Proceedings of the IEEE</b>	2013 - present
Reviewer, 2014 Construction Research Congress, ASCE, Atlanta, GA	2014
Reviewer, 2012 Construction Research Congress, ASCE, West Lafayette, IN	2012

## 3. Professional Affiliations

Student Member, <b>ASCE Technical Council on Computing and Information Technology (TCCIT) Data Sensing and Analysis (DSA) Committee</b>	2013 - present
Student Member, <b>ASCE Technical Council on Computing and Information Technology (TCCIT) Visualization, Information Modeling and Simulation (VIMS) Committee</b>	2013 - present
Student Member, American Society of Civil Engineers (ASCE)	2013 - present
Member of Construction Management Association of America (CMAA)	2012 - present
Member of Korean-American Scientists and Engineers Association (KSEA)	2011 - present

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## COMPUTER SKILLS/ QUALIFICATION

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\* Officially invited by editorial boards or technical committee chair(s) to conduct the review

- Engineer Civil engineering, South Korea (License No. 08201010476R), 2008
- Programming Languages: Java, C, C++, and MATLAB
- Web Technologies: HTML, Javascript
- Development Toolkits: Microsoft Visual Studio and Eclipse
- BIM Packages:
  - Proficient in Revit Family (Architecture/Structure/MEP), Autodesk Navisworks Manager, ArchiCAD
  - Good Familiarity with IFC and gbXML
- Building Energy Performance Modeling and Analysis Tools: EnergyPlus, Ecotect, eQuest
- General purpose numerical analysis program: ANSYS Fluent and Gambit

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## LANGUAGES

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- English: Fluent
- Korean: Native Language

## **Appendix D**

### **Patrons Group Letters of Support**

**FIU** | Office of the Provost  
FLORIDA INTERNATIONAL UNIVERSITY

May 6, 2015

National Steering Committee  
Concrete Industry Management Program  
900 Spring Street  
Silver Spring, Maryland 20910

Esteemed Members of the Committee,

On behalf of President Mark B. Rosenberg and myself, we want to confirm FIU's commitment to move forward with the proposed Concrete Industry Management program to be established at FIU's College of Engineering and Computing. We appreciate your taking the time to visit with us to discuss and review the CIM program.

At FIU, we are fully committed to deliver a top quality CIM program that will not only adhere to the standards and requirements set forth by the National Steering Committee, but will make every effort to go beyond. As discussed during your recent site visit at FIU, the CIM program will be offered through the OHL School of Construction, a nationally preeminent construction management program. The local and national construction industries view the school as one of the best in the world. The School houses a state-of-the-art Construction Process Laboratory that facilitates hands-on learning by the students. Our graduates are highly valued in the industry because of the quality education and training the school provides to its students.

We are also very pleased to know that FIU's application received overwhelming support from the local concrete coalition, Florida Concrete & Products Association (FCPA). The financial support, guidance, and collaboration FIU will receive from the National Steering Committee and the FCPA are vitally important to the success of the program. With your guidance and financial support, and the FCPA's patronage, we are confident that we will be able to establish a nationally distinguished CIM program at FIU.

The investment from the Steering Committee during the first five years will be necessary to develop and deliver the new program with the required courses to help recruit students and to provide advising and counseling to students. A portion of the fund will also be used to offer scholarships to qualified students.

In order to move forward in a timely manner with adherence to the University rules and procedures to establish a new degree program, we need your approval of our application as soon as possible. We hope to begin this program with the first class of students in the fall of 2016.

President Rosenberg and I submit this letter of commitment to establish the Concrete Industry Management program at FIU in the OHL School of Construction. Our thanks to each member of the Committee for their consideration.

Sincerely,



Kenneth G. Furton  
Provost and Executive Vice President  
Florida International University

**Kenneth G. Furton**  
**Provost and Executive Vice President**  
*Modesto A. Maidique Campus, PC 526, 11200 SW 8 Street, Miami, FL 33199*  
*Tel 305-348-2151 • Fax 305-348-2994 • provost.fiu.edu*



February 23, 2016

Attn. Dr. Irtishad Ahmad, P.E., F. ASCE

Professor and Founding Director  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

On behalf of CEMEX, we are writing this letter in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

Our company is committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

As in the past, our company will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert A. Cardonne".

Robert A. Cardonne  
Vice President / G.M Cement Sales – Ready Mix  
11100 NW. 138<sup>th</sup> Street  
Miami, Florida 33178  
Office: 305-552-0317

**Florida Region**

11100 NW 138 Street, Miami, FL 33178. USA, (305) 558-0315, Fax (305) 558-8830



**Florida Independent Concrete and Associated Products, Inc.**

February 26, 2016

Dr. Irtishad Ahmad, P.E., F. ASCE  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

Dear Mr. Ahmad:

I write this letter as Executive Director of the Florida Independent Concrete and Associated Products Association for the new program Bachelor in Science in Concrete Industry Management.

We will participate with the Patrons Group to develop statewide industry network for communication and promotion of the CIM Program, assist in state wide recruitment of students and help to develop links between State and local governments in support of the CIM Program. We will also provide internships to students during their time in the CIM Program.

We will gladly provide opportunities for students and or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e. ready mix, block, precast/prestressed, cement, etc.

Our doors will always be open to have an active and interactive presence with the CIM Program students, including marketing and counseling.

Our association fully supports the CIM program and look forward to a future of Florida Concrete Industry Management Graduates.

Sincerely,

**Michele Stropoli**  
Executive Director

PO Box 953905  
Lake Mary, FL 32795-3905  
[www.ficap.org](http://www.ficap.org)





February 23, 2016

OHL School of Construction  
Attn. Dr. Irshad Ahmad, P.E., F. ASCE  
Professor and Founding Director  
10555 W. Flagler St. C 2900  
Miami, FL 33174

Dear Dr. Ahmad:

As Vice President of Quality Precast Company, I am writing this letter in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

We are committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development, i.e., lab equipment, computer programs teaching aids etc. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

Quality Precast Company will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe, etc. Assist with Guest Lecturers - both local and recognized national industry figures. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Regards,

C. Preston Sparkman  
Vice President

*"Strong" on Service For Over Thirty-Five Years*

Phone 813.685.5615 • Fax 813.653.3240 • P.O. BOX 11 Brandon, FL. 33509 • [www.qualityprecast.com](http://www.qualityprecast.com)

Hillsborough • Pinellas • Manatee • Sarasota • Pasco • Hernando • Charlotte • Citrus • Marion • Polk • Lake • Osceola • Orange • Seminole • Volusia



Titan Florida LLC  
455 Fairway Drive, Suite 200  
Deerfield Beach, FL 33441  
Telephone (954) 481-2800

February 25, 2016

Dr. Irtishad Ahmad, P.E., F. ASCE  
Professor and Founding Director  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

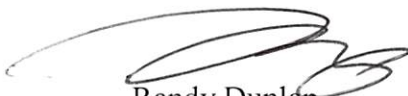
Dear Dr. Ahmad,

I write this letter as President of Titan Florida LLC in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

We are committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development, i.e., lab equipment, computer programs teaching aids etc. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

Titan Florida LLC will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe, etc. Assist with Guest Lecturers - both local and recognized national industry figures. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Sincerely,



Randy Dunlap  
President



Titan Florida LLC  
455 Fairway Drive, Suite 200  
Deerfield Beach, FL 33441  
Telephone (954) 481-2800

February 2, 2016

Attn. Dr. Irtishad Ahmad, P.E., F. ASCE  
Professor and Founding Director  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

Dear Sir,

I write this letter as Vice President of Titan Florida Materials in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

We are committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development, i.e., lab equipment, computer programs teaching aids etc. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

Titan Florida will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe, etc. Assist with Guest Lecturers - both local and recognized national industry figures. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Kuebler", written in a cursive style.

Timothy Kuebler  
VP Titan Florida Materials  
455 Fairway Dr. #200  
Deerfield Beach, Florida 33441  
C: 954-304-3704/ O: 954-425-4180  
E: [tjkuebler@titanamerica.com](mailto:tjkuebler@titanamerica.com)



Titan Florida LLC  
455 Fairway Drive, Suite 200  
Deerfield Beach, FL 33441  
Telephone (954) 481-2800

February 25, 2016

Dr. Irtishad Ahmad, P.E., F. ASCE  
Professor and Founding Director  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

Dear Dr. Ahmad,

I write this letter as Vice President of Concrete Products of Titan Florida LLC in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

We are committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development, i.e., lab equipment, computer programs teaching aids etc. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

Titan Florida LLC will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe, etc. Assist with Guest Lecturers - both local and recognized national industry figures. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kevin Baird".

Kevin Baird  
Vice President of Concrete Products



## E. R. JAHNA INDUSTRIES, INC.

---

P.O. Drawer 840 • Lake Wales, Florida 33859-0840 • (863) 676-9431

Attn. Dr. Irtishad Ahmad, P.E., Ph.D  
Director OHL School of Construction  
Florida International University  
10555 W. Flagler St. C 2900  
Miami, FL 33174

Subject: Support for Concrete Industry Management Degree

Dear Dr. Ahmad:

I write this letter as President of E.R. Jahna Industries Inc. (Jahna) in support of your proposal to initiate a Bachelor of Science degree program in the area of Concrete Industry Management at Florida International University. Jahna is a third generation fine aggregates mining company based in Lake Wales, FL. We supply sand materials to ready mix concrete and concrete product companies throughout Florida and Georgia. We at Jahna believe that a CIM degree program at FIU will aid in the efforts of meeting regional workforce demands in the concrete products industry by attracting, cultivating, and propelling talented into a vibrant and integral industry.

E.R. Jahna Industries will provide opportunities for students and/or faculty to participate in site visits to industry production facilities, more specifically commercial sand mining operations and assist with guest lecturers. Our doors will always be open to have an interactive presence with the CIM Program students.

Sincerely,

Sam Morrone

Attn. Dr. Irtishad Ahmad, P.E., F. ASCE

Professor and Founding Director  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

I write this letter as Frank Suarez of Grace Construction & Packaging in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

We are committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development, i.e., lab equipment, computer programs teaching aids etc. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

(Company name) will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe, etc. Assist with Guest Lecturers - both local and recognized national industry figures. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Sincerely,

A handwritten signature in black ink, appearing to be 'FS' with a stylized flourish extending to the right.

Frank Suarez



Lehigh Cement Company  
Lehigh South  
2600 Eisenhower Blvd.  
Pt. Everglades, FL 33316  
Dispatch Office (954) 523-2180  
Dispatch Office (800) 432-0135  
Dispatch Fax (954) 523-1490  
[www.lehighcement.com](http://www.lehighcement.com)

Attn. Dr. Irtishad Ahmad, P.E., F. ASCE

Professor and Founding Director  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

I write this letter as Vice President of Lehigh Cement Company in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

We are committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years, and additional funds, as determined by the Patrons Group for CIM programs, scholarships, etc. We will also provide internships when available to students during their time in the CIM Program, and additional in-kind support to assist in the CIM Program development, i.e., lab equipment, computer programs, teaching aids etc. We will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program

Lehigh Cement Company will provide opportunities for students and/or faculty to participate in site visits to industry production facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/pre-stressed, pipe, etc. We will assist with guest lecturers - both local and recognized national industry figures. Our doors will always be open to have an active and interactive presence with the CIM Program students, including mentoring/counseling.

Sincerely,

A handwritten signature in black ink, appearing to read "Jorge L. Armenteros".

Jorge L. Armenteros  
VP Cement Sales Florida / S.E. Georgia  
2600 Eisenhower Blvd  
Slip #3  
Port Everglades, Florida, 33316  
C: 786-367-6500  
O: 954-425-4180  
Email Jarmenteros@lehighcement.com



February 23, 2016

Dr. Irtishad Ahmad, P.E., F. ASCE  
OHL School of Construction  
10555 W. Flagler St. C 2900  
Miami, FL 33174

Dear Dr. Ahmad:

I write this letter as Chairman of the Board for the Florida Concrete and Products Association in support of your proposal to FIU for the new program Bachelor in Science in Concrete Industry Management.

The Association is committed to provide funding to the FIU CIM Patrons Group to support the endowments the group will commit over the years. The Association will participate with the patrons group to develop state wide industry network for communication and promotion of the CIM Program, provide ambassadors/speaker's bureau to assist in state wide recruitment of students and help to develop links between state and local governments in support of the CIM Program.

The Association will provide opportunities for students and/or faculty to participate in site visits to member facilities in all concrete-related segments, i.e., cement, ready mix, block, precast/prestressed, pipe, etc. Assist with Guest Lecturers – both local and recognized national industry figures.

The Association will be an advocate of the program and stand ready to assist as needed.

Regards,

FLORIDA CONCRETE & PRODUCTS ASSOCIATION

Cary O. Cohrs  
Chairman of the Board



## **Appendix E**

### **Proposal for New and Modified Courses**

## OHL School of Construction New and Modified Courses

1. Introduction to the Concrete Industry
2. Fundamentals of Concrete
3. Concrete Construction Methods
4. Applications of Concrete in Construction
5. Management of Concrete Products I
6. Management of Concrete Products II
7. Concrete Problems: Prevention, Diagnosis, and Resolution
8. Industry Internship



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

<b>DO NOT TYPE IN THIS BOX</b>
Bulletin # : _____
Academic Year : _____

1. School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction
2. 

<u>BCN</u>	<u>3</u>	<u>XXX</u>	<u>3</u>	CIP Code (Leave this blank): _____
Alpha Prefix	1st Digit	Last 3 Digits	"C"-lec-lab "L"-Lab	Cr. Hrs.
3. Grading Method (select one):  Graded  Pass/Fail
- 4a. Course Title Introduction to the Concrete Industry
- b. Abbreviated course Title (for computer class schedules, transcripts) Intro Concrete Industry  
LIMITED TO 25 Characters (including spaces)
5. Statewide Course Numbering Subject Matter Area Building Construction
6. Catalog Description/Major Topics (not to exceed 200 characters including spaces)  
College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.  

Overview of the history, careers, job functions, and professional organizations in the concrete industry. Topics include: overview of the concrete industry, history, components, production and uses.
7. Attach detailed syllabus course outline and course justification on separate page(s).
8. Prerequisite(s): None
9. Corequisite(s): None
10. Objective(s) of Course:  

Students will obtain an understanding of the history and current uses of concrete, they also will gain insight on design criteria and careers in the concrete industry.
11. Does this course duplicate/overlap other courses at FIU?  No  Yes  
If yes, please explain: \_\_\_\_\_
12. What other closely related department(s) have been consulted about this course?  
The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact	<u>Dr. Jose A. Faria</u>		<u>4, 13, 20, 16</u>
	(Type name)	(Signature)	
	<u>fariaj@fiu.edu</u>	<u>305-348-3541</u>	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	<u>Dr. Irtishad Ahmad</u>		<u>4, 13, 20, 16</u>
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	<u>Dr. Bilal El-Zahab</u>	_____	<u>1 / 20</u>
	(Type name)	(Signature)	
College/School Dean	<u>Dr. Ranu Jung</u>	_____	<u>1 / 20</u>
	(Type name)	(Signature)	

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

Overview of the history, careers, job functions, and professional organizations in the concrete industry. Topics include: overview of the concrete industry, history, components, production and uses.

**ACCE CATEGORY: CONSTRUCTION SCIENCE****PREREQUISITES**

None

**REQUIRED TEXTBOOKS**

None

**COURSE TOPICS**

1. The history of concrete use in construction
2. Tools and equipment employed in concrete construction
3. Principles and practices of safety when using concrete
4. An introduction to current concrete practices in construction
5. History of masonry use in construction
6. Tools and equipment employed in masonry construction
7. Introduction country quality
8. Fundamentals of concrete estimating
9. Introduction to codes and standards governing concrete construction
10. Introduction to codes and standards governing masonry

**STUDENT LEARNING OUTCOMES**

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;	X	
b	Contemporary concrete mixing, transport, placement, and finishing processes;	X	

c	Fundamental behavior of basic concrete materials	X	
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;	X	
e	Contemporary computer applications, and software packages common-place to the industry;	X	
f	How to effectively communicate ideas in oral, written, and graphical form;	X	
g	Ability to collaboratively work in teams and small group settings;	X	
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.		
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.		



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

<b>DO NOT TYPE IN THIS BOX</b>
Bulletin # : _____
Academic Year : _____

- School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction
- BCN 3 XXX C 4 CIP Code (Leave this blank): \_\_\_\_\_  
Alpha Prefix 1st Digit Last 3 Digits "C"-lec-lab "L"-Lab Cr. Hrs.
- Grading Method (select one):  Graded  Pass/Fail
- Course Title Fundamentals of Concrete Properties and Testing
- Abbreviated course Title (for computer class schedules, transcripts) Fundamentals of Concrete  
LIMITED TO 25 Characters (including spaces)
- Statewide Course Numbering Subject Matter Area Building Construction
- Catalog Description/Major Topics (not to exceed 200 characters including spaces)  
*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*  

This course examines effects of concrete-making materials on the properties of fresh and hardened concrete. Topics include: cement and aggregates properties and testing; analysis of concrete strength
- Attach detailed syllabus course outline and course justification on separate page(s).
- Prerequisite(s): BCN 3XXX Introduction to the concrete industry or departmental approval
- Corequisite(s): None
- Objective(s) of Course:  

Students will obtain an understanding of how concrete materials and products are engineered, produced, used, and tested, and gain basic technical knowledge to design a concrete mix and analyze experimental results.
- Does this course duplicate/overlap other courses at FIU?  No  Yes  
If yes, please explain: \_\_\_\_\_
- What other closely related department(s) have been consulted about this course?  
The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact	Dr. Jose A. Faria		4 / 13 / 20 16
	(Type name)	(Signature)	
	fariaj@fiu.edu	305-348-3541	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	Dr. Irtishad Ahmad		4 / 13 / 20 16
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	Dr. Bilal El-Zahab		___ / ___ / 20 ___
	(Type name)	(Signature)	
College/School Dean	Dr. Ranu Jung		___ / ___ / 20 ___
	(Type name)	(Signature)	

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

This course examines effects of concrete-making materials on the properties of fresh and hardened concrete. Topics include: cement and aggregates properties and testing; analysis of concrete strength.

**ACCE CATEGORY: CONSTRUCTION SCIENCE****PREREQUISITES**

BCN 3XXX Introduction to the Concrete Industry

**REQUIRED TEXTBOOKS**

S.H. Kosmatka and M. Wilson (2011) Design and Control of Concrete Mixtures. 15th edition, Portland Cement Association.

**COURSE TOPICS**

1. Review of concrete types
2. Selection and use of aggregates and concrete
3. Selection and use of concrete admixtures
4. Testing methodologies for concrete
5. ACI Field 1 Certification preparation
6. Selection and use of cement mortar
7. Fundamentals of concrete mixes

**STUDENT LEARNING OUTCOMES**

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;	X	
b	Contemporary concrete mixing, transport, placement, and finishing processes;	X	
c	Fundamental behavior of basic concrete materials	X	
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;		

e	Contemporary computer applications, and software packages common-place to the industry;		
f	How to effectively communicate ideas in oral, written, and graphical form;		
g	Ability to collaboratively work in teams and small group settings;	X	
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.		
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.		





**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

**DO NOT TYPE IN THIS BOX**

Bulletin # : \_\_\_\_\_

Academic Year : \_\_\_\_\_

1. School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction

2. BCN 3 XXX 3 CIP Code (Leave this blank): \_\_\_\_\_  
Alpha Prefix 1st Digit Last 3 Digits "C"-lec-lab "L"-Lab Cr. Hrs.

3. Grading Method (select one):  Graded  Pass/Fail

4a. Course Title Concrete Construction Methods

b. Abbreviated course Title (for computer class schedules, transcripts) Concrete Const Methods

LIMITED TO 25 Characters (including spaces)

5. Statewide Course Numbering Subject Matter Area \_\_\_\_\_

6. Catalog Description/Major Topics (not to exceed 200 characters including spaces)

*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*

This course covers forming, shoring, placing and reinforcing operations.  
Cast-in-place foundations, pavements, slabs, structural frames, and others.

7. Attach detailed syllabus course outline and course justification on separate page(s).

8. Prerequisite(s): BCN 3XXX Fundamentals of Concrete

9. Corequisite(s): \_\_\_\_\_

10. Objective(s) of Course:

Students at the end of the semester should be able to explain the properties of concrete, the process to cast in place concrete and explain the components of reinforced concrete

11. Does this course duplicate/overlap other courses at FIU?  No  Yes

If yes, please explain: \_\_\_\_\_

12. What other closely related department(s) have been consulted about this course?

The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact	Dr. Jose A. Faria		4, 13, 20 16
	(Type name)	(Signature)	
	fariaj@fiu.edu	305-348-3541	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	Dr. Irtishad Ahmad		4, 19, 20 16
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	Dr. Bilal El-Zahab	_____	____ / ____ / 20 ____
	(Type name)	(Signature)	
College/School Dean	Dr. Ranu Jung	_____	____ / ____ / 20 ____
	(Type name)	(Signature)	

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

This course covers forming, shoring, placing and reinforcing operations. Cast-in-place foundations, pavements, slabs, structural frames, and others.

**ACCE CATEGORY: CONSTRUCTION SCIENCE****PREREQUISITES**

BCN 3XXX Introduction to the Concrete Industry

**REQUIRED TEXTBOOKS**

Woods, W.R., Andres, C.K. & Smith, R.C. (2013), "Principles and practices of commercial construction," 9th Edition, Upper Saddle River, NJ: Prentice Hall.

-Pelava, Joseph K., ACI Certification Concrete Flatwork Finisher Workbook, Second Edition;  
ACI International

**RECCOMENDED TEXTBOOKS**

None

**COURSE TOPICS**

1. Forming and shoring materials and methods
2. Reinforcing materials and methods
3. Transporting concrete (pumps, conveyors, crane and bucket)
4. Placing concrete (avoiding segregation)
5. Consolidating concrete (vibrating screeds, immersion vibrators, external vibrators)
6. Finishing and curing concrete (tools and methods)
7. Jointing (grooved, sawed and formed joints – timing, spacing and joint depth)
8. Hot and cold weather concreting
9. Erecting pre-cast and pre-stressed concrete members (crane operations, planning)
10. ACI Flatwork Technician Certification preparation

## STUDENT LEARNING OUTCOMES

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;	X	
b	Contemporary concrete mixing, transport, placement, and finishing processes;	X	
c	Fundamental behavior of basic concrete materials		
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;		
e	Contemporary computer applications, and software packages common-place to the industry;		
f	How to effectively communicate ideas in oral, written, and graphical form;		
g	Ability to collaboratively work in teams and small group settings;		
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.		
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.		



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

<b>DO NOT TYPE IN THIS BOX</b>
Bulletin # : _____
Academic Year : _____

1. School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction
2. 

<u>BCN</u>	<u>3</u>	<u>XXX</u>	<u>3</u>	CIP Code (Leave this blank): _____
Alpha Prefix	1st Digit	Last 3 Digits	"C"-lec-lab "L"-Lab	Cr. Hrs.
3. Grading Method (select one):  Graded  Pass/Fail
- 4a. Course Title Applications of Concrete in Construction
- b. Abbreviated course Title (for computer class schedules, transcripts) 

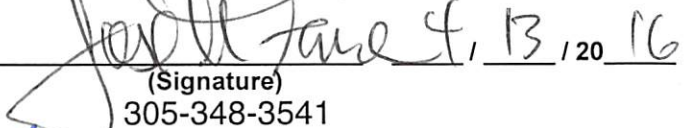

<u>App of Concrete in Const</u>
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LIMITED TO 25 Characters (including spaces)
5. Statewide Course Numbering Subject Matter Area Building Construction
6. Catalog Description/Major Topics (not to exceed 200 characters including spaces)  
*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*  

A detailed study of the many uses of concrete in the construction of buildings, and other facilities. Unique problems faced by materials suppliers, contractors and design professionals
--
7. Attach detailed syllabus course outline and course justification on separate page(s).
8. Prerequisite(s): BCN 3XXX Concrete Construction Methods
9. Corequisite(s): None
10. Objective(s) of Course:  

Students will obtain an understanding of the uses of concrete in construction, describe and analyze the advantages, disadvantages and unique problems of supply chain
---
11. Does this course duplicate/overlap other courses at FIU?  No  Yes  
If yes, please explain: \_\_\_\_\_
12. What other closely related department(s) have been consulted about this course?  
The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact	<u>Dr. Jose A. Faria</u>		<u>4, 13, 20 16</u>
	(Type name)	(Signature)	
	<u>fariaj@fiu.edu</u>	<u>305-348-3541</u>	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	<u>Dr. Irtishad Ahmad</u>		<u>4, 19, 20 14</u>
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	<u>Dr. Bilal El-Zahab</u>		<u> / / 20</u>
	(Type name)	(Signature)	
College/School Dean	<u>Dr. Ranu Jung</u>		<u> / / 20</u>
	(Type name)	(Signature)	

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

A detailed study of the many uses of concrete in the construction of buildings, pavements and other facilities. Unique problems faced by materials suppliers, contractors and design professionals.

**ACCE CATEGORY: CONSTRUCTION SCIENCE****PREREQUISITES**

BCN 3XXX Concrete Construction Methods

**REQUIRED TEXTBOOKS**

None.

**RECOMMENDED TEXTBOOKS**

Allen, E. & Iano, J. (2009). "Fundamentals of building construction: materials and methods," 5th Edition. New York: John Wiley & Sons.

**COURSE TOPICS**

1. Simplified behavior of concrete construction
2. Introduction to the mechanical properties of concrete
3. The use and function of steel reinforcing and concrete
4. Introduction to reinforced concrete systems (not a structural design course)
5. Introduction to precast concrete systems (not a structural design course)
6. Introduction to prestressed concrete systems (not a structural design course)
7. Fundamentals of estimating concrete systems

**STUDENT LEARNING OUTCOMES**

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;		
b	Contemporary concrete mixing, transport, placement, and finishing processes;		
c	Fundamental behavior of basic concrete materials	X	

d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;		
e	Contemporary computer applications, and software packages common-place to the industry;		
f	How to effectively communicate ideas in oral, written, and graphical form;	X	
g	Ability to collaboratively work in teams and small group settings;		
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.		
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.		



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

**DO NOT TYPE IN THIS BOX**

Bulletin # : \_\_\_\_\_

Academic Year : \_\_\_\_\_

1. School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction
2. 

<u>BCN</u>	<u>3</u>	<u>XXX</u>	<u>3</u>	CIP Code (Leave this blank): _____
Alpha Prefix	1st Digit	Last 3 Digits	"C"-lec-lab "L"-Lab	
			Cr. Hrs.	
3. Grading Method (select one):  Graded  Pass/Fail
- 4a. Course Title Management of Concrete Products I
- b. Abbreviated course Title (for computer class schedules, transcripts) Mgmt Concrete Products I  
LIMITED TO 25 Characters (including spaces)
5. Statewide Course Numbering Subject Matter Area Building Construction
6. Catalog Description/Major Topics (not to exceed 200 characters including spaces)  
*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*  

This course provides students with a basic understanding of managing the ordering and delivery process common to all concrete products including planning, organizing and controlling schedule
7. Attach detailed syllabus course outline and course justification on separate page(s).
8. Prerequisite(s): BCN XXX Applications of Concrete in Construction or departmental approval
9. Corequisite(s): None
10. Objective(s) of Course:  

Obtain understanding of the concrete supply chain, decision variables and cost factors associated with supply chain decisions, financial implications of supply chain alternatives and the importance of scheduling and forecasting to the concrete industry
11. Does this course duplicate/overlap other courses at FIU?  No  Yes  
If yes, please explain: \_\_\_\_\_
12. What other closely related department(s) have been consulted about this course?  
The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact

Dr. Jose A. Faria

(Type name)

fariaj@fiu.edu

(Email address)

4, 13, 2016

(Signature)

305-348-3541

(Phone number)

Chairperson (Dept./Div.)

Dr. Irtishad Ahmad

(Type name)

Dr. Bilal El-Zahab

(Type name)

Chairperson (Curr. Comm.)

College/School Dean

Dr. Ranu Jung

(Type name)

(Signature)

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

This course provides students with a basic understanding of managing the ordering and delivery process common to all concrete products including planning, organizing and controlling schedule.

**ACCE CATEGORY: CONSTRUCTION****PREREQUISITES**

BCN 3XXX Applications of Concrete in Construction

**REQUIRED TEXTBOOKS**

Kosmatka, Kerkhoff, and Panarese. Design and Control of Concrete Mixtures 14th Edition, 2006. Portland Cement Association: Illinois.

James R. Wagner. The Handbook of Ready-Mixed Concrete Dispatching 2nd Edition, 2008. Hanley-Wood: Illinois.

**RECCOMENDED TEXTBOOKS**

None

**COURSE TOPICS**

1. Introduction to concrete mix design
2. Management of inbound material transportation
3. Inventory management in the concrete industry
4. Basic accounting principles
5. Fundamentals of concrete ready mix dispatch
6. Management of outbound material transportation
7. Fundamentals of management on the concrete project site

**STUDENT LEARNING OUTCOMES**

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;	X	



b	Contemporary concrete mixing, transport, placement, and finishing processes;	X	
c	Fundamental behavior of basic concrete materials		
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;		
e	Contemporary computer applications, and software packages common-place to the industry;	X	
f	How to effectively communicate ideas in oral, written, and graphical form;		
g	Ability to collaboratively work in teams and small group settings;		
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.	X	
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.	X	



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

<b>DO NOT TYPE IN THIS BOX</b>
Bulletin # : _____
Academic Year : _____

1. School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction
2. 

<u>BCN</u>	<u>3</u>	<u>XXX</u>	<u>3</u>	CIP Code (Leave this blank): _____
Alpha Prefix	1st Digit	Last 3 Digits	"C"-lec-lab "L"-Lab	Cr. Hrs.
3. Grading Method (select one):  Graded  Pass/Fail
- 4a. Course Title Management of Concrete Products II
- b. Abbreviated course Title (for computer class schedules, transcripts) Mgmt Concrete Products II  
LIMITED TO 25 Characters (including spaces)
5. Statewide Course Numbering Subject Matter Area Building Construction
6. Catalog Description/Major Topics (not to exceed 200 characters including spaces)  
*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*  

This course provides basic understanding of managing the manufacturing process common to all concrete products production facilities including planning, organizing, and controlling production.
7. Attach detailed syllabus course outline and course justification on separate page(s).
8. Prerequisite(s): BCN 3XXX Applications of concrete in construction or departmental approval
9. Corequisite(s): None
10. Objective(s) of Course:  

Develop a working understanding of the manufacturing process of concrete products, the various levels on the organization, resources and managerial positions, importance of scheduling and forecasting
11. Does this course duplicate/overlap other courses at FIU?  No  Yes  
If yes, please explain: \_\_\_\_\_
12. What other closely related department(s) have been consulted about this course?  
The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact	<u>Dr. Jose A. Faria</u>	
	(Type name)	(Signature)
	<u>fariaj@fiu.edu</u>	<u>305-348-3541</u>
	(Email address)	(Phone number)
Chairperson (Dept./Div.)	<u>Dr. Irishad Ahmad</u>	
	(Type name)	(Signature)
Chairperson (Curr. Comm.)	<u>Dr. Bilal El-Zahab</u>	_____/_____/20
	(Type name)	(Signature)
College/School Dean	<u>Dr. Ranu Jung</u>	_____/_____/20
	(Type name)	(Signature)

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

This course provides basic understanding of managing the manufacturing process common to all concrete products production facilities including planning, organizing, and controlling production.

**ACCE CATEGORY: CONSTRUCTION****PREREQUISITES**

BCN 3XXX Applications of concrete in construction

**REQUIRED TEXTBOOKS**

James R. Wagner. The Handbook of Ready-Mixed Concrete Dispatching 2nd Edition, 2008. Hanley-Wood: Illinois.

**RECOMMENDED TEXTBOOKS**

None

**COURSE TOPICS**

1. The roles and location of concrete industry participants
2. Principles of concrete manufacturing processes
3. The application of safety to the concrete manufacturing process
4. Productivity and resource allocation employed in the concrete industry
5. Analysis supply chain in the concrete industry
6. Managing a concrete related firm
7. Principles of ethical behavior
8. Introduction of software used in concrete industry

**STUDENT LEARNING OUTCOMES**

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;	X	
b	Contemporary concrete mixing, transport, placement, and finishing processes;	X	

c	Fundamental behavior of basic concrete materials		
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;	X	
e	Contemporary computer applications, and software packages common-place to the industry;	X	
f	How to effectively communicate ideas in oral, written, and graphical form;		
g	Ability to collaboratively work in teams and small group settings;		
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.	X	
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.	X	



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a New Course*

<b>DO NOT TYPE IN THIS BOX</b>
Bulletin # : _____
Academic Year : _____

1. School/College Engineering and Computing  
Div./Dept. in Which Taught OHL School of Construction
2. 

<u>BCN</u>	<u>3</u>	<u>XXX</u>	<u>3</u>	CIP Code (Leave this blank): _____
Alpha Prefix	1st Digit	Last 3 Digits	"C"-lec-lab "L"-Lab	Cr. Hrs.
3. Grading Method (select one):  Graded  Pass/Fail
- 4a. Course Title Concrete Problems: Prevention, Diagnosis and Resolution
- b. Abbreviated course Title (for computer class schedules, transcripts) 

Concrete Problems
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LIMITED TO 25 Characters (including spaces)
5. Statewide Course Numbering Subject Matter Area Building Construction
6. Catalog Description/Major Topics (not to exceed 200 characters including spaces)  
*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*  

Course involves preventing and diagnosing problems related to concrete production, testing, construction and performance. Identification of causes of concrete problems, and resolution methods
---
7. Attach detailed syllabus course outline and course justification on separate page(s).
8. Prerequisite(s): BCN 3Xxx Applications of Concrete in Construction or departmental permission
9. Corequisite(s): None
10. Objective(s) of Course:  

Identify and describe problems that may occur with fresh or hardened concrete, diagnose and evaluate a specific problems on concrete and describe common materials and methods used to repair concrete.
---
11. Does this course duplicate/overlap other courses at FIU?  No  Yes  
If yes, please explain: \_\_\_\_\_
12. What other closely related department(s) have been consulted about this course?  
The Department of Civil and Environmental Engineering

**PROPOSAL REQUESTED BY:**

Faculty Contact	Dr. Jose A. Faria		<u>4 / 13 / 20 16</u>
	(Type name)	(Signature)	
	fariaj@fiu.edu	305-348-3541	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	Dr. Irtishad Ahmad		<u>4 / 13 / 20 16</u>
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	Dr. Bilal El-Zahab		____ / ____ / 20 ____
	(Type name)	(Signature)	
College/School Dean	Dr. Ranu Jung		____ / ____ / 20 ____
	(Type name)	(Signature)	

Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.

**CATALOG DESCRIPTION**

Course involves preventing and diagnosing problems related to concrete production, testing, construction and performance. Identification of causes of concrete problems, and resolution methods.

**ACCE CATEGORY: CONSTRUCTION SCIENCE****PREREQUISITES**

BCN 3XXX Applications of Concrete in Construction

**REQUIRED TEXTBOOKS**

Textbook: Peter H. Emmons, Concrete Repair and Maintenance Illustrated, Construction Publishers & Consultants, Latest Edition

**RECCOMENDED TEXTBOOKS**

None

**COURSE TOPICS**

1. Identifying common problems in reinforced concrete construction
2. Identifying common problems in precast concrete construction
3. Identifying, problems in prestressed concrete construction
4. The review of ACI testing requirements
5. Methods and use of nondestructive testing techniques
6. Protection of concrete components during transportation and handling
7. Protection of concrete components installed in buildings
8. An introduction to common methodologies of concrete repair
9. Prevention of common problems encountered in concrete construction

## STUDENT LEARNING OUTCOMES

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;		
b	Contemporary concrete mixing, transport, placement, and finishing processes;		
c	Fundamental behavior of basic concrete materials	X	
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;		
e	Contemporary computer applications, and software packages common-place to the industry;		
f	How to effectively communicate ideas in oral, written, and graphical form;		
g	Ability to collaboratively work in teams and small group settings;		
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.		
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.		



**FLORIDA INTERNATIONAL UNIVERSITY  
UNIVERSITY CURRICULUM COMMITTEE**  
*Proposal for a Course Change*

**DO NOT TYPE IN THIS BOX**

Bulletin #: \_\_\_\_\_

Academic Year: \_\_\_\_\_

**PART I. FILL OUT THIS SECTION COMPLETELY**

1. School/College Engineering and Computing  
 Div./Dept. in Which Taught OHL School of Construction
2. BCN 3 949 1-3  
 Alpha Prefix 1st Digit Last 3 Digits "C"-lec-lab "L"-Lab Cr. Hrs.
3. Present Course Title Construction Management Internship

**PART II. FILL OUT CHANGE INFORMATION ONLY**

Change Effective 01 / 09 / 2017

- 4a. New Course Title Industry Internship
- b. New Abbreviated course Title (for computer class schedules, transcripts) Industry Internship  
LIMITED TO 25 Characters (including spaces)

- 5a. 

New Alpha Prefix	New 1st Digit	New Last 3 Digits	Change "C"-lec-lab "L"-Lab

 5b. Change Credit Hours: From \_\_\_\_\_ To \_\_\_\_\_

6. **New Catalog Description/Major Topics** (not to exceed 200 characters including spaces)  
*College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.*
- This course provides an opportunity for students to gain supervised, practical work experience in their particular field of interest within the industry.

7. New Prerequisite(s): \_\_\_\_\_
8. New Corequisite(s): \_\_\_\_\_
9. Explain Reclassification Request:  

Provides a broader experience for students not limited to Construction Management

**PROPOSAL REQUESTED BY:** Dr. Jose A. Faria  4, 13, 2016  
 Faculty Contact \_\_\_\_\_ (Type name) \_\_\_\_\_ (Signature)  
fariaj@fiu.edu \_\_\_\_\_ (Email address) \_\_\_\_\_ (Phone number) 305-348-3541

Chairperson (Dept./Div.) Dr. Irtishad Ahmad  4, 13, 2016  
 \_\_\_\_\_ (Type name) \_\_\_\_\_ (Signature)

Chairperson (Curr. Comm.) Dr. Bilal El-Zahab \_\_\_\_\_ / \_\_\_\_\_ / 20\_\_\_\_  
 \_\_\_\_\_ (Type name) \_\_\_\_\_ (Signature)

College/School Dean Dr. Ranu Jung \_\_\_\_\_ / \_\_\_\_\_ / 20\_\_\_\_  
 \_\_\_\_\_ (Type name) \_\_\_\_\_ (Signature)

**Submit one original form. Attach one copy of the course syllabus containing: course description, objectives, learning outcomes, major topics and textbooks.**



**CATALOG DESCRIPTION**

This course provides an opportunity for students to gain supervised, practical work experience in their particular field of interest within the industry.

**ACCE CATEGORY: CONSTRUCTION SCIENCE****PREREQUISITES**

Permission from the department

**REQUIRED TEXTBOOKS**

None

**STUDENT LEARNING OUTCOMES**

The outcomes of the internship program are the following:

- Provide the student with early “immersion” experiences in industry and business to cover such areas as technical work, corporate culture, dress code, ethical concerns and reporting structures.
- Participate in problem-solving activities in a real world setting under the mentorship of an industrial supervisor.
- Enable students to become better learners by establishing the link between industrial and business practices and academic theories and concepts.
- To improve student retention by providing them with an opportunity to work and learn together in a community of practice.
- Identify hazards in the industry and accident prevention methods in a work setting

**STUDENT LEARNING OUTCOMES**

	CIM Student Learning Outcomes	Mark X if Applies	Description
a	How concrete materials and products are produced, used, and tested;	X	
b	Contemporary concrete mixing, transport, placement, and finishing processes;	X	

c	Fundamental behavior of basic concrete materials	X	
d	How project, quality, and safety management methods impact the financial and economic aspects of concrete products, and services;	X	
e	Contemporary computer applications, and software packages common-place to the industry;	X	
f	How to effectively communicate ideas in oral, written, and graphical form;	X	
g	Ability to collaboratively work in teams and small group settings;	X	
h	Legal and ethical implications of their work and an awareness of the impact of their actions and decision-making on individuals, society, and the environment.	X	
i	Ability to apply basic concepts in accounting, economics, finance, management, information systems, ethics, business law, and marketing.	X	