



MEMORANDUM

To: Julio Frenk
University President

From: Linda L. Neider
Chair, Faculty Senate

Date: October 31, 2019

Subject: Faculty Senate Legislation #2019-29(B) – Revision of Degree Requirements for the Master of Science in Construction Management (MS in CM) Program, College of Engineering

The Faculty Senate, at its October 30, 2019 meeting, had no objections to the approval of the College of Engineering's revision of degree requirements for the MS in Construction Management Program. These changes are being made to reflect changes in course offerings as well as improvements in the program. No changes are being made to the program length.

These changes are being made in response to changes in existing courses housed in other schools and to integrate with new programs and courses that have been developed recently. The Program would also like to make a capstone project a required component of the program and has created a new course, CAE 769, to address this required component. To accommodate the additional 3-credit-hour requirement, the program is reducing the number of credit hours for electives from 12 to 9 credit hours.

The proposal is enclosed for your reference.

This legislation is now forwarded to you for your action.

LLN/ss/rh

cc: Jeffrey Duerk, Executive Vice President and Provost
Daniel Berg, Interim Dean, College of Engineering
Esber Andiroglu, Associate Professor of Practice, College of Engineering

CAPSULE: Faculty Senate Legislation #2019-29(B) – Revision of Degree Requirements for the Master of Science in Construction Management (MS in CM) Program, College of Engineering

PRESIDENT'S RESPONSE

APPROVED:  DATE: 11/14/19
(President's Signature)

OFFICE OR INDIVIDUAL TO IMPLEMENT: Daniel Berg, Interim Dean, Engineering

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

NOT APPROVED AND REFERRED TO: _____

REMARKS (IF NOT APPROVED): _____



UNIVERSITY OF MIAMI

Proposal Submission Checklist

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

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

FORM INSTRUCTIONS:

1. Save/download the form as a pdf.
2. After completing the information below, print and scan the form.
3. Insert it with the background materials that are specified, in the order listed, and submit to facsen@miami.edu.

Please note: only scanned versions can be accepted.

Include this checklist at the beginning of each proposal.

KEY CONTACT PERSONNEL INFORMATION

First Name

Esber

Last Name

Andiroglu

Proponent's Title

Associate Professor of Practice
Director of MS - CM Program

Department, if applicable

Civil, Arch. & Environ. Engineering

School/College

College of Engineering

E-mail

e.andiroglu@miami.edu

Phone

305-284-2587

Title of Proposal

Notice for review of curriculum updates as a result of new course offerings for the MS in Construction Management Program in the College of Engineering

(-continue to next page-)

MANDATORY MEMORANDA AND FORMAT

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

Only proposals conforming to this format will be accepted.

1. This completed checklist.

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

Yes No

If no, explain why:

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

Yes No

If no, explain why:

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

Yes No

If no, explain why:

The newly added courses were approved by relevant school / College Council during 2018/2019 academic year and are currently listed on the academic bulletin and Canelink. There is no change to program content and degree requirements.

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

Yes No

If no, explain why:

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

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

Applicable Not applicable.

If not, explain why:

7. A memo from the Graduate School Dean signifying approval of the Graduate Council (for graduate programs only).

(To be submitted to the Faculty Senate by the Graduate Council.)

Applicable Not applicable.

If not, explain why:

An updated memo will be provided following the next Graduate Council meeting scheduled for August 20th, 2019.

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

Yes No

If no, explain why:

This is an existing program and notice submitted does not involve changes to interdisciplinary issues.

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

List additional documents included:

None

End form.

Notice for review of curriculum updates as a result of new course offerings for the MS in Construction Management Program in the College of Engineering

This notice is submitted to request the review and approval to make modifications to the curriculum of the CoE MS in Construction Management program, in order to be able to accommodate the enrollment needs of the students in the program as well as to further improve the quality and impact of education delivered in the MS in CM Program. Several new courses have been developed by the Department of Civil, Architectural & Environmental Engineering and as part of Master of Science Degree in Sustainable Business (Miami Business School) as well as the Master of Construction Management Degree (School of Architecture). The proposed curriculum updates for the MS in CM Program capture the relevant new courses offered by the noted Graduate Degree programs, further emphasizing the interdisciplinary strengths of the curriculum.

The originally approved and the proposed updated curriculum versions for the MS in CM Program is summarized below; when comparing the originally approved version with the proposed version, the changes can be summarized as follows:

1. A new 3 credit course titled "Construction Management Capstone Project" (CAE 769) has been added as a CORE course; this change was the result of feedback from Industry Advisory Board members and faculty in an effort to improve the curriculum.

2. **New courses titled :**

 “Construction Accounting and Finance – 3 credits (CAE 765)” and

 “Construction Management Seminar – 1 credit (CAE 669)”

 have been developed and added as CORE courses as replacement option for:

 “BUS 630: Fundamentals of Economics, Accounting and Finance – 4 credits”

 since Miami Business School is no longer offering BUS 630 during Fall or Spring

 semesters. It is now offered as a 2 week long course at the end of Summer B only.

3. **“CAE 790 – Special Topics – 3 credits” which was a temporary course number for**

 “Construction Project Management” course when it was offered for the first time, have

 been renumbered with a permanent number as CAE 762.

4. **“ARC 685 – Sustainable Design in Context” previously listed as an alternate for “CAE 660**

 – Sustainable Construction” has been removed as an alternate, since the School of

 Architecture is no longer offering this course. Instead, CMA 644 – Sustainable Design

 and Construction (2 credits) with ARC 659 – Sustainability and LEED Exam Prep (1 credit)

 has been added as an alternate.

5. **CMA 640 – Virtual Design and Construction as well as a future course titled “CAE 761 -**

 Advanced Building Information Modeling” have been added as alternate courses for

 CAE 661

6. **CMA 601 – Fundamentals of Construction Management has been added as an alternate course for CAE 762 – Construction Project Management.**
7. **CMA 644 – Sustainable Design and Construction coupled with ARC 659 – Sustainability and LEED Exam Prep have been added as alternate courses for CAE 660.**
8. **Under Electives, the following newly developed CAE courses have been added:**

CAE 665 – Facility Operations and Management (3 credits)

CAE 744 – Risk Management and Resilience (3 credits)

CAE 766 – Forensic Engineering and Law (3 credits – Future course)

CAE 691 – Special Topics in Construction (1 -3 credits)

CAE 695 – Special Problems (1-3 credits)

CAE 791 – Advanced Topics in Construction (1-3 credits)

CAE 795 – Special Problems (1-3 credits)

9. **Under Technical Electives and Global Awareness Electives, number of new course options offered by MS in Sustainable Business, Masters in Construction Management, and Executive Masters in Construction Management programs have been added.**

This action was reviewed and acknowledged as acceptable by the Graduate Council without having to require a formal vote on August 20th 2019 meeting. An email memo noting the same was issued by Dean Prado following the meeting on August 29th, 2019.

ORIGINAL APPROVED CURRICULUM:

Curriculum for full time students:

Semester (15 credits):

| Course # | Title | Credits |
|-------------------------------|---|---------|
| CAE 762 or IEN 763 | Construction Project Management or Project management techniques | 3 |
| CAE 660 or ARC 685 or ARC 630 | Sustainable Construction ¹ or Sustainable design in Context ¹ Building Technology: Materials and Methods ² | 3 |
| CAE 661 | Computer Aided Architectural Engineering Design | 3 |
| | Track 1 electives | 6 |

¹ For Architecture & Engineering students

² For non- A/E students

Spring Semester (15 credits):

| Course # | Title | Credits |
|----------|--|---------|
| RED 670 | Construction and Project Management ¹ | 3 |
| CAE 765 | Construction case studies | 3 |
| LAW 257 | Construction Law | 3 |
| BUS 630 | Fundamentals of economics Accounting & Finance | 4 |
| | Track 1 elective ² | 3 |
| | Global awareness elective | 2 |

¹ For students who have not taken CAE 762 or IEN 763 during Fall Semester

² Not required if enrolled in RED 670 during Spring Semester

Elective offering schedules

- **Track 1: Sustainable and Resilient Construction (fall semester courses)**

| Course # | Title | Credits |
|----------|--|---------|
| IEN 612 | Statistical Quality Control and Quality Management | 3 |
| IEN 672 | Management of Technological Innovation | 3 |
| ARC 628 | Historic Preservation | 3 |
| ARC 662 | Environmental Building Systems I | 3 |
| ARC 663 | Environmental Building Systems II | 3 |
| RED 601 | Introduction to Real Estate Development and Urbanism | 3 |

- **Track 1: Sustainable and Resilient Construction (Spring semester courses)**

| Course # | Title | Credits |
|----------|--|---------|
| IEN 761 | Engineering Cost Management | 3 |
| ARC 613 | Computing | 3 |
| ARC 617 | Construction Documents | 3 |
| ARC 631 | Building Technology II: Structural Systems | 3 |
| CAE 681 | Energy-Efficient Building Design | 3 |
| RED 660 | Urban Infill, Preservation and Redevelopment | 3 |

- **Electives with a Focus on Global Awareness (fall semester courses)**

| Course # | Title | Credits |
|----------|--------------------------|---------|
| MGT 691 | International Management | 2 |

- **Electives with a Focus on Global Awareness (spring semester courses)**

| Course # | Title | Credits |
|----------|-----------------------------|---------|
| MGT 617 | Leading Across Cultures | 2 |
| MGT 621 | High Performance Leadership | 2 |
| MGT 624 | Negotiation Strategies | 2 |

Proposed Updated Curriculum for MS in Construction Management Program:

(30 credits in total)

Core Courses:

1. BUS 630: Fundamentals of Economics, Accounting and Finance; **or** **4 credits**
 - 1a. CAE 765: Construction Accounting & Finance; (3 credits) **&**
 - 1b. CAE 669: Construction Management Seminar; (1 credit)

2. CAE 661: Building Information Modeling; **or** **3 credits**
 - 2a. CAE 790 (future 761): Advanced Building Information Modeling, (3 credits); **or**
 - 2b. CMA 640: Virtual Design and Construction (3 credits);

3. CAE 762: Construction Project Management; **or** **3 credits**
 - 3a. IEN 763: Project Management Techniques, 3 credits; **or**
 - 3b. CMA 601: Fundamentals of Construction Management, 3 credits

4. LAW 257: Construction Law; **3 credits**

5. CAE 769: Construction Management Capstone Project **3 credits**

6. CAE 660: Sustainable Construction; **or** **3 credits**
 - 6a. ARC 630: Building Technology I: Materials and Methods (3 credits); **or**
 - 6b. CMA 644: Sustainable Design and Construction (2 credits) **with**
ARC 659: Sustainability and LEED Exam Prep (1 credits)

Technical Electives:

Choose 9 credits from the following

9 credits

- CAE 665: Facility operations and management; 3 credits
- CAE 681: Energy Efficient Building design; 3 credits
- CAE 690: Special Topics; 1-3 credits
- CAE 691: Special Topics in Construction; 1-3 credits
- CAE 695: Special Problems; 1-3 credits
- CAE 744: Risk Management & resilience, 3 credits
- CAE 766: Forensic Engineering and Law, 3 credits (future course)
- CAE 790: Advanced Topics; 1-3 credits
- CAE 791: Advanced Topics in Construction; 1-3 credits
- CAE 795: Special Problems; 1-3 credits
- CMA 632: Construction Risk Analysis and Control; 2 credits
- CMA 678: Value Engineering and Constructability; 2 credits
- CMA 690: Advanced Productivity and Lean Construction; 2 credits
- CMA 701: Operating and Managing a Construction Organization; 3 credits
- ACC 666: Accounting for Sustainability; 2 credits
- ECO 613: Microeconomics of Sustainability; 2 credits
- ECO 614: Valuing Public Goods; 2 credits
- RED 601: Introduction to Real Estate Dev & Urbanism; 3 credits
- RED 660: Urban Infill, Preservation and Mixed Use Development; 3 credits
- ARC 613: Advanced Visual Representation; 3 credits
- ARC 617: Construction Documents; 3 credits
- ARC 620: Responsible Architecture; 3 credits
- ARC 621: Housing, Infrastructure and Transportation; 3 credits
- ARC 631: Building Technology II; Structural Systems; 3 credits
- ARC 659: Sustainability and LEED Exam Prep; 1-3 credits

ARC 662: Environmental Building Systems I; 3 credits

ARC 663: Environmental Building Systems II; 3 credits

IEN 612: Statistical Quality Control and Quality Management; 3 credits

IEN 672: Management of Technological Innovation; 3 credits

IEN 761: Engineering Cost Management; 3 credits

MKT 653: Sustainable Marketing of Goods and Services; 2 credits

Global Awareness / Construction Leadership Electives :

2 credits

(1 course from the following):

MGT 617: Leading Across Cultures, 2 credits

MGT 621: High Performance Leadership, 2 credits

MGT 624: Negotiation Strategies, 2 credits

MGT 646: Sustainable Supply Chains, 2-3 credits

MGT 667: Leadership for Sustainable Organizations, 2-3 credits

MGT 691: International Management, 2 credits

UNIVERSITY OF MIAMI



Assessment and Accreditation
Gables One Tower 1320 S. Dixie Hwy
Coral Gables, Florida 33146

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Fax: 305-284-4929
oaa.miami.edu

MEMORANDUM

DATE: August 12, 2019

TO: Esber Andiroglu, MS-CM Program Director
College of Engineering

FROM: Patty Murphy, Associate Provost for University Accreditation
Office of Assessment and Accreditation *P. B. M.*

RE: Revision of Degree Requirements for the MS in Construction Management Program

[NOTE: This memo replaces my memo dated April 15, 2019 since the first proposed revisions were changed after the Graduate Council meeting.]

On August 9, 2019, the College of Engineering notified my office of its intent to revise the degree requirements for the Master of Science (MS) in Construction Management program (Academic Plan Code: CSMG_MS). These changes are being made to reflect changes in course offerings as well as improvements in the program. No change is being made to the program length.

These changes are being made in responses to changes in existing courses housed in other schools and to integrate with new programs and courses that have been developed recently, such as the MS in Sustainable Business. In addition, based on feedback from the program faculty and Industry Advisory Board, the program would now like to make a capstone project a required component of the program and has created a new course, CAE 769 Construction Management Capstone Project (3 credit hours). To accommodate this additional 3-credit-hour requirement, the program is reducing the number of credit hours required for electives from 12 to 9 credit hours. The revised curriculum will be as follows:

Revised MS in Construction Management Curriculum (30 credit hours):

- Core Courses (19 credit hours)
 - Choose one of the following options (4 credit hours):
 - BUS 630: Fundamentals of Accounting (4 credit hours)
 - CAE 765: Construction Accounting & Finance (3 credit hours) & CAE 669: Construction Management seminar (1 credit hour)
 - Choose one of the following options (3 credit hours):
 - CAE 661: Building Information Modeling (3 credit hours)
 - CAE 790: (to become CAE 761) Advanced Building Information Modeling (3 credit hours)
 - CMA 640: Virtual Design and Construction (3 credit hours)
 - Choose one of the following options (3 credit hours):
 - CAE 762: Construction Project Management (3 credit hours)

- IEN 763: Project Management Techniques (3 credit hours)
- CMA 601: Fundamentals of Construction Management (3 credit hours)
- LAW 257: Construction Law (3 credit hours)
- CAE 769: Construction Management Capstone Project (3 credit hours)
- Choose one of the following options (3 credit hours):
 - CAE 660: Sustainable Construction (3 credit hours)
 - ARC 630: Building Technology I: Materials and Methods (3 credit hours)
 - CMA 644: Sustainable Design and Construction (2 credit hours) & ARC 659: Sustainability and LEED Exam Prep (1 credit hour)
- Electives (choose 9 credit hours from the following)
 - CAE 665: Facility operations and management (3 credit hours)
 - CAE 681: Energy Efficient Building design (3 credit hours)
 - CAE 690: Special Topics (1-3 credit hours)
 - CAE 691: Special Topics in Construction (1-3 credit hours)
 - CAE 695: Special Problems (1-3 credit hours)
 - CAE 744: Risk & Resilience (3 credit hours)
 - CAE 766: Forensic Engineering and Law (3 credit hours) (new course)
 - CAE 790: Advanced Topics (1-3 credit hours)
 - CAE 791: Advanced Topics in Construction (1-3 credit hours)
 - CAE 795: Special Problems with advanced focus (1-3 credit hours)
 - CMA 632: Construction Risk Analysis and Control (2 credit hours)
 - CMA 678: Value Engineering and Constructability (2 credit hours)
 - CMA 690: Advanced Productivity and Lean Construction (2 credit hours)
 - CMA 701: Operating and Managing a Construction Organization (3 credit hours)
 - ACC 666: Accounting for Sustainability (2 credit hours)
 - ECO 613: Microeconomics of Sustainability (2 credit hours)
 - ECO 614: Valuing Public Goods (2 credit hours)
 - RED 601: Introduction to Real Estate Dev & Urbanism (3 credit hours)
 - RED 660: Urban Infill, Preservation and Mixed Use Development (3 credit hours)
 - ARC 613: Advanced Visual Representation (3 credit hours)
 - ARC 617: Construction Documents (3 credit hours)
 - ARC 620: Responsible Architecture (3 credit hours)
 - ARC 621: Housing, Infrastructure and Transportation (3 credit hours)
 - ARC 631: Building Technology II; Structural Systems (3 credit hours)
 - ARC 659: Sustainability and LEED Exam Prep (1-3 credit hours)
 - ARC 662: Environmental Building Systems I (3 credit hours)
 - ARC 663: Environmental Building Systems II (3 credit hours)
 - IEN 612: Statistical Quality Control and Quality Management (3 credit hours)
 - IEN 672: Management of Technological Innovation (3 credit hours)
 - IEN 761: Engineering Cost Management (3 credit hours)
 - MKT 653: Sustainable Marketing of Goods and Services (2 credit hours)
- Global Awareness/Construction Leadership Elective (2 credit hours from the following):
 - MGT 617: Leading Across Cultures (2 credit hours)
 - MGT 621: High Performance Leadership (2 credit hours)
 - MGT 624: Negotiation Strategies (2 credit hours)
 - MGT 646: Sustainable Supply Chains (2-3 credit hours)
 - MGT 667: Leadership for Sustainable Organizations (2-3 credit hours)
 - MGT 691: International Management (2 credit hours)

The proposed changes do not "represent a significant departure, either in content or method of delivery" from what we are currently approved by SACSCOC to offer due to the following:

- The proposed changes meet the SACSCOC requirement of a minimum of 30 credit hours for a graduate program.
- While the proposed changes involve the creation of new courses, they do represent a significant change in content from currently approved offerings.
- The proposed changes will not require the hiring of new faculty.
- The majority of the program will not be offered via distance education and, in any case, the University is approved to offer 100% distance education programs.
- The program will be offered on the University's Coral Gables campus.
- The graduate program covers the literature in the field through its required coursework.
- The graduate program ensures ongoing student engagement in research and/or appropriate professional practice and training experiences through a new required capstone course, CAE 769.

SACSCOC only requires notification of program changes that represent a significant departure from our current programs. Therefore, no notification or approval is required for this change.

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

cc: **Faculty Senate**
Guillermo Prado, Dean of the Graduate School
Daniel Berg, Interim Dean of the College of Engineering
Antonio Nanni, Chair, CAE Department
Karen Beckett, University Registrar
Carrie Glass, Executive Director of Student Financial Assistance and Employment

UNIVERSITY OF MIAMI
GRADUATE SCHOOL



Graduate School
P.O. Box 248125
Coral Gables, FL 33124-3220

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

MEMORANDUM

DATE: August 29, 2019

TO: Linda Neider
Chair, Faculty Senate

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

SUBJECT: Proposal – Revision of Degree Requirements for the Master of Science in Construction Management Program

The College of Engineering submitted a proposal to revise the degree requirements for the Master of Science in Construction Management program. These changes are being made to reflect changes in course offering as well as improvements in the program. No change is being made to the program length. The proposal was discussed at the meeting of the Graduate Council on Tuesday, August 20, 2019, and was approved by all those present.

CC: Daniel Berg, Dean, College of Engineering
Esber Andiroglu, Associate Professor of Practice, College of Engineering
Tiffany Plantan, Director of Education, Graduate School
Patty Murphy, Associate Provost for University Accreditation, Office of Assessment and Accreditation

UNIVERSITY OF MIAMI
COLLEGE of ENGINEERING



Daniel Berg, Ph.D.
Dean

1251 Memorial Drive
MEB Room 255
Coral Gables, FL 33146

Ph: 305-284-6035
Fax: 305-284-2885
dberg@miami.edu

To: Dr. Linda L. Neider
Chair, Faculty Senate

From: Daniel Berg *Daniel Berg*
Interim Dean

Subject: Motion to update academic curriculum for MS in Construction Management Program

Date: October 1, 2019

The proposed revisions to the academic curriculum for the MS in Construction Management Program offered by College of Engineering was reviewed and acknowledged as an information item during the Graduate Council session led by Dean Guillermo Prado, Dean of The Graduate School on August 20, 2019. The same was also reviewed and approved by the CAE faculty on September 13, 2019 and the College Council on September 30, 2019.

The proposed updates emphasizes the interdisciplinary strengths of the curriculum while also offering broader academic learning opportunities and scheduling options for the students enrolled in the program. The College of Engineering supports the updates.

Should you have any questions or require additional information, please feel free to contact me.

Thank you.

UNIVERSITY OF MIAMI


COLLEGE of ENGINEERING



Antonio Nanni, PhD, PE, FASCE, FACI, FIIFC
Inaugural Senior Scholar
Professor & Chair
Civil, Architectural & Environmental Engineering

1251 Memorial Drive
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Date : September 30, 2019
To: Dr. Linda L. Neider, Chair, Faculty Senate
From: A. Nanni, CAE Chair 
Ref.: Motion to update academic curriculum for MS in Construction Management Program
Cc: Dr. G. Prado, Dean Grad School Dean; Dr. Daniel Berg, CoE Interim Dean; Dr. A. Andiroglu, MS-CM Director

The MS in Construction Management Program (MS-CM) offered by the College of Engineering (CoE) is managed by faculty in the Department of Civil, Architectural and Environmental Engineering (CAE) on behalf of the College. The MS-CM is among the most important and critical degree programs at the master level in CoE in that it fulfils the growing demand of students interested in new technologies, sustainability and resilience as pertinent to the construction field.

The proposed revisions to the academic curriculum for the MS-CM were reviewed and acknowledged as an information item during the Graduate Council session led by Dean Guillermo Prado, Dean of The Graduate School, on August 20, 2019. The same was also reviewed and approved by the CAE faculty on September 13, 2019 and the College Council on September 30, 2019.

The proposed updates emphasize the interdisciplinary strengths of the curriculum while also offering broader academic learning opportunities and scheduling options for the students enrolled in the program.

Please let me know if I can be of further help.