Civil Engineering

The Department of Civil, Construction, and Environmental Engineering (CCEE) offers master's and doctoral level programs as well as graduate certificates. Graduate students are exposed to cutting-edge research covering various facets of civil engineering theory and practice. Knowledgeable and experienced faculty members work closely with students to provide them with the tools required to succeed professionally in globally competitive work environments.

Program	Coordinator	Room	Phone Number
Certificates	Nasim Uddin, PhD	Gorrie Hall, GH 5286	(205) 934-8432; nuddin@uab.edu

Category A certificates are offered by the Department of Civil, Construction, and Environmental Engineering. Any undergraduate or graduate student in good standing who is pursuing a Civil Engineering degree (BSCE, MSCE, or PhD) may elect to simultaneously complete the requirements of his or her degree program and the Certificate Program. These certificates are listed on student transcripts and in the university graduation bulletin.

Certificates can be earned in:

- Construction Engineering Management
- Environmental Engineering
- Geotechnical Engineering
- Structural Engineering
- Sustainable Engineering
- Transportation Engineering

Civil Engineering (BSCE) graduates who complete the Certificate Program will have greater depth in a specific technical area. The certificates also allow a means for practicing engineers to acquire expertise beyond a Bachelor's degree, and have it formally recognized without completing a program leading to a Master's degree. This technical expertise will enhance their proficiency and marketability. Up to 12 graduate level credit hours taken for a certificate may be applied toward the MSCE degree.

The requirements are as follows:

- Students must be admitted to the Department as either undergraduate (BSCE) or graduate (MSCE) students in Civil, Construction, and Environmental Engineering or hold a BS in Civil Engineering or a closely related field from an accredited institution.
- Certificates require a minimum of 15 credit hours consisting of five graduate level elective courses in the area of specialization. Certificates for undergraduate students will be awarded upon completion of the BSCE degree.
- Graduate level elective courses taken may be applied to the certificate as well as a MSCE degree.
- One course, up to three credit hours, may be transferred from another institution.
- Courses taken from University of Alabama, University of South Alabama, and University of Alabama in Huntsville via Intercampus Interactive Telecommunications System (IITS) may be applied to certificates with prior approval of the certificate program director.
- Elective course may be taken at the 500, 600, or 700 level. Special topics courses (CE 590, CE 690, CE 790) may be applied to certificates with prior approval of the certificate program director.

Certificate in Construction Engineering Management

Requirements		Hours
Prerequisite Course		
CE 497	Construction Engineering Management (or equivalent)	
Select 15 credits from the following:		**15**
CE 575	Construction Safety and Health Management	
CE 600	Sustainable Construction	
CECM 669	Advanced Project Management	
CECM 670	Construction Estimating and Bidding	
CECM 671	Construction Liability & Contracts	
CECM 672	Construction Methods and Equipment	
CECM 673	Project Planning and Control	
CECM 674	Green Building Design/Construction	
CECM 675	Advanced Construction and Engineering Economics	
CECM 676	Construction Project Risk Management	
CECM 688	Construction Management and Leadership Challenges in the Global Environment	
CECM 689	Building Information Modeling (BIM) Techniques	

Certificate in Environmental Engineering

Requirements		Hours
Prerequisite Courses		
CE 236	Environmental Engineering (or equivalent)	
CE 337	Hydraulics (or equivalent)	
Select 15 credits from the following:		**15**
CE 530	Water Supply/Drainage Design	
CE 580	Introduction to Water and Wastewater Treatment	
CE 608	Green Building Design	
CE 534	Air Quality Modeling and Monitoring	
CESC 600	Principles of Sustainable Development	
CESC 602	Introduction to Sustainable Smart Cities	

Certificate in Geotechnical Engineering

Requirements		Hours
Prerequisite Course		
CE 332	Soil Engineering (or equivalent)	
CE 332L	Soil Engineering Laboratory (or equivalent)	
Select 15 credits from the following:		**15**
CE 516	Mechanical Vibrations	
CE 520	Advanced Mechanics	
CE 526	Foundation Engineering	
CE 560	Structural Mechanics	
CE 562	Advanced Structural Analysis	
CE 567	Wind and Seismic Loads	
CE 690	Special Topics in (Area) [1]	
CECM 669	Advanced Project Management	
CECM 671	Construction Liability & Contracts	

[1] Must be approved by certificate program director prior to registration

Certificate in Structural Engineering

Requirements		Hours
Prerequisite Course		
CE 360	Structural Analysis (or equivalent)	
Select 15 credits from the following:		**15**
CE 516	Mechanical Vibrations	
CE 520	Advanced Mechanics	
CE 526	Foundation Engineering	
CE 553	Design of Wood Structures	
CE 556	Prestressed Concrete Design	
CE 561	Introduction to the Finite Element Method	
CE 562	Advanced Structural Analysis	
CE 564	Structural Dynamics	
CE 567	Wind and Seismic Loads	
CE 568	Bridge Engineering	
CE 650	Advanced Structural Steel	
CE 655	Advanced Reinforced Concrete	
CESE 653	Wood and Masonry Design	
CESE 656	Advanced Mechanics of Materials for Structural Engineering	
CESE 659	Advanced Reinforced Concrete	
CESE 660	Prestressed Concrete Behavior and Design	
CESE 662	Advanced Structural Analysis	
CESE 664	Bridge Engineering	
CESE 665	Structural Dynamics and Earthquake Engineering	
CESE 676	Design of Structural Steel Connections	
CESC 602	Introduction to Sustainable Smart Cities [1]	
CESC 608	Green Infrastructure and Transportation [1]	
CESC 614	Smart Cities Technologies [1]	

[1] Only one of these courses can be applied to this certificate

Certificate in Sustainable Engineering Management

Requirements		Hours
Prerequisite Course		
CE 497	Construction Engineering Management (or equivalent)	
Select 15 credits from the following:		**15**
CE 600	Sustainable Construction	
CE 608	Green Building Design	
CESC 600	Principles of Sustainable Development	
CESC 602	Introduction to Sustainable Smart Cities	
CESC 608	Green Infrastructure and Transportation	
CESC 610	Health and Livability	
CESC 614	Smart Cities Technologies	
CESC 616	Big Data and Smart Cities	

Certificate in Transportation Engineering

Requirements		Hours
Prerequisite Course		
CE 345	Transportation Engineering (or equivalent)	
Select 15 credits from the following:		**15**
CE 543	Pavement Design & Construction	
CE 622	Traffic Flow Theory	
CE 623	Non-Motorized Transportation Design and Planning	
CE 625	Intelligent Transportation Systems	
CE 646	Traffic Engineering Operations	
CE 648	Urban and Transportation Planning	
CE 690	Special Topics in (Area) [1]	
CECM 669	Advanced Project Management [2]	
CECM 671	Construction Liability & Contracts [2]	
CESC 600	Principles of Sustainable Development [2]	
CESC 602	Introduction to Sustainable Smart Cities [2]	
CESC 608	Green Infrastructure and Transportation [2]	

[1] Must be approved by certificate program director prior to registration
[2] Only one of these courses can be applied to this certificate

The following three concentrations in the online Master in Engineering program are offered through the Department of Civil, Construction, and Environmental Engineering:

- Construction Engineering Management
- Sustainable Smart Cities
- Structural Engineering

Sustainable Smart Cities Concentration

Please Note: All Master of Engineering concentrations are 100% online. There are no on-campus classes or required on-campus meetings or activities. Course delivery includes asynchronous and synchronous learning modes. Proper computer equipment and high-speed internet direct access are required to be successful.

Degree Offered	Master of Engineering
Website	http://www.uab.edu/engineering/smartcities
Director	Jason T. Kirby, PhD
E-mail	jtkirby@uab.edu
Phone	205-934-8479
Address	UAB School of Engineering, GH 5262
	1720 2nd Avenue South, Birmingham, AL 35294-4440

Admission Requirements

In addition to the Graduate School admission requirements, requirements for admission to the UAB MEng-SSC program includes the following:

- Bachelor's degree (any discipline) from a regionally accredited US college or university. SSC promotes a multi-discipline learning experience and therefore an engineering undergraduate degree is not required;
- An undergraduate GPA of 3.0 or higher (individuals not meeting this requirement but who have a strong professional background, references, and interview may be admitted);
- No GRE required
- International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details;
- Original transcripts sent directly to the UAB Graduate School per their policy for degree-seeking students (detailed instructions are included during the online application process);

- Personal interview with the Director of SSC (schedule the interview prior to submitting an application);
- Three letters of recommendation from professional contacts;
- Personal essay detailing academic motivation and career aspirations in SSC; and
- Résumé/Curriculum Vitae

Application Submission Deadline for Entry Term(s)	Fall: August 1; Spring: December 1; Summer: May 1
Deadline for All Application Materials to be in the Graduate School Office	Seven business days before term begins (see UAB academic calendar - https://www.uab.edu/students/academics/academic-calendar)

Requirements		Hours
CESC 600	Principles of Sustainable Development	3
CESC 602	Introduction to Sustainable Smart Cities	3
CESC 604	Low-Carbon and Renewable Energy Systems for Smart Cities	3
CESC 606	Managing Natural Resources and Sustainable Smart Cities	3
CESC 608	Green Infrastructure and Transportation	3
CESC 610	Health and Livability	3
CESC 612	Green Buildings	3
CESC 614	Smart Cities Technologies	3
CESC 616	Big Data and Smart Cities	3
CESC 618	Research Methods and Project Planning	3
Total Hours		**30**

Structural Engineering Concentration

Please Note: All Master of Engineering concentrations are 100% online. There are no on-campus classes or required on-campus meetings or activities. Course delivery includes asynchronous and synchronous learning modes. Proper computer equipment and high-speed internet direct access are required to be successful.

The Master of Engineering with a concentration in Structural Engineering is designed to increase the technical knowledge of engineering professionals working in or desiring to work in the broad field of structural engineering.

Admission Requirements

In addition to the Graduate School admission requirements, requirements for admission to the UAB MEng-STR concentration include the following:

- An undergraduate degree in civil or mechanical engineering from an ABET accredited program. Applicants who have a Bachelor's degree and an outstanding academic record from an ABET accredited program other than civil or mechanical engineering or from an unaccredited engineering or applied science program may be admitted at program discretion;
- An undergraduate GPA of 3.0 or higher (individuals not meeting this requirement but who have a strong professional background, references, and interview may be admitted at program discretion);
- No GRE required;
- International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details;
- Original transcripts from all colleges and universities attended since high school must be sent directly to the UAB Graduate School (detailed instructions are included during the online application process);
- Minimum undergraduate prerequisites or equivalent (students missing undergraduate prerequisites may be admitted but will be restricted from taking certain courses until the needed prerequisites are satisfied:
  - Structural Analysis of Elastic Structures
  - Reinforced Concrete Design
  - Principles of Steel Design
- Personal interview with the program director (schedule the interview prior to submitting an application);
- Three letters of recommendation from professional or academic contacts;
- Personal essay detailing academic motivation and career aspirations for earning the degree; and
- Résumé/Curriculum Vitae

To apply: Visit the UAB Graduate School website and click the 'Apply Now' button. Choose MEng - Structural Engineering in the Program Applying To section.

Application and Program Deadlines

Entry Term	Deadline
Fall	August 1
Spring	December 1
Summer	May 1
Deadline for All Application Materials to be in the Graduate School Office	Seven business days before term begins (see UAB Academic Calendar - https://www.uab.edu/students/academic-calendar)

Curriculum Requirements

Requirements	Hours
Students must complete a minimum of 30 hours with the classes listed below	**30**
All CESE courses at the 600 level	
All CECM courses with advisor-approval 600-791 (maximum of 9 hours)	
All CE courses with advisor-approval 500-791 (maximum of 12 hours)	
Total Hours	**30**

Master of Engineering in Construction Engineering Management

Please Note: This program is 100% online. There are no on-campus classes or required on-campus meetings or activities. Course delivery includes asynchronous and synchronous learning modes. Proper computer equipment and high-speed internet direct access are required to be successful.

Degree Offered	Master of Engineering
Website	http://www.uab.edu/engineering/cem
Director	Wesley Zech, PhD, LEED AP

Email	zechwes@uab.edu
Director of CEM Student Affairs	Dianne Gilmer, MEng, PMP
Email	digilmer@uab.edu
Phone	205-975-5848
Address	UAB School of Engineering, GH 5278
	1720 2nd Avenue South, Birmingham, AL 35294-4440

The Master of Engineering in Construction Engineering Management (MEng-CEM) is designed to enhance the construction engineering management and business qualifications of working professionals interested in project and company/corporate management.

Admission Requirements

In addition to the Graduate School admission requirements, admission to the program includes the following:

1. **Bachelor's degree** (any discipline) from a regionally accredited US college or university. CEM promotes a multi-discipline learning experience and therefore an engineering undergraduate degree is not required;
2. An **undergraduate GPA** of 3.0 or higher (individuals not meeting this requirement but who have a strong professional background, references, and interview may be admitted);
3. **No GRE required**;
4. International applicants must submit **English proficiency scores** in accordance with UAB Graduate School requirement. Click here for details;
5. **Original transcripts** sent directly to the UAB Graduate School per their policy for degree-seeking students (detailed instructions are included during the online application process);
6. Two years of **relevant construction industry work experience** or a bachelor's degree in engineering or a science-related field;
7. **Personal interview** with the Director of CEM Student Affairs (schedule the interview prior to submitting a application);
8. Three **letters of recommendation** from professional contacts;
9. **Personal essay** detailing motivation and career aspirations for earning the degree; and
10. **Résumé/Curriculum Vitae**

To apply: Visit the UAB Graduate School website and click the ‘Apply Now' button.

Deadline for Entry Term(s)	Fall: August 1; Spring: December 1; Summer: May 1
Deadline for All Application Materials to be in the Graduate School Office	Seven business days before term begins (see https://www.uab.edu/students/academics/academic-calendar)

Curriculum Requirements

Requirements		Hours
CECM 669	Advanced Project Management	3
CECM 670	Construction Estimating and Bidding	3
CECM 671	Construction Liability & Contracts	3
CECM 672	Construction Methods and Equipment	3
CECM 673	Project Planning and Control	3
CECM 674	Green Building Design/Construction	3
CECM 675	Advanced Construction and Engineering Economics	3
CECM 676	Construction Project Risk Management	3
CECM 688	Construction Management and Leadership Challenges in the Global Environment	3
CECM 689	Building Information Modeling (BIM) Techniques	3
Total Hours		**30**

Admission Requirements

In addition to the UAB Graduate School admission requirements, admission to the Master's of Science in Civil Engineering degree include the following five criteria:

1. An undergraduate engineering degree from an ABET accredited engineering program or applied science program. Applicants who have an outstanding academic record in an unaccredited engineering or applied science degree program may be admitted at program discretion. Students admitted from this category may be required to complete a sequence of undergraduate courses in addition to the normal requirements of the MSCE degree. This set of extra requirements will be specified in writing at the time of admission to the program.
2. GPA of 3.0 or better on a 4.0 scale in all undergraduate degree major courses attempted;
3. Three letters of recommendation concerning the applicant's previous academic and professional work;
4. Original transcripts from all colleges and universities attended since high school must be sent directly to the UAB Graduate School (detailed instructions are included during the online application process)
5. International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details
6. Verification of registration by examination as a Professional Engineer (PE) will satisfy criteria 4 above.

Program Requirements

The following minimum requirements apply to the plan of study for a student who has earned a baccalaureate degree in civil engineering. A student with an undergraduate degree in another field may also be accepted into the civil engineering program but will normally have to take additional preparatory coursework as part of an expanded plan of study. Continuous enrollment for at least 3 credit hours per term is required. Students receiving a research assistantship are required to be enrolled as full-time students. A full-time student is one who is enrolled in at least 9 credit hours per semester.

Special Topics (590/690/790) courses and Independent Study (591/691/791) courses are reviewed for degree applicability for each program in the School of Engineering. No more than 6 combined credit hours of Special Topics and/or Independent Study courses will be applied to the MSCE degree without appeal to and approval from the Program Director.

The School of Engineering offers similar courses at the 400/500 and 600/700 levels. While the higher numbered course has more advanced content, there is a significant overlap in topics. Therefore, students are not allowed to take a 500-level or 700-elevel course for credit if they have previously taken the related 400-level or 600 level course, respectively.

Master of Science in Civil Engineering

Plan I (Thesis Option)

When a Plan I student successfully completes required coursework, the student should apply to enter candidacy. Once a master's candidate, the student must complete a minimum of 9 credit hours of thesis research (CE 699) over the course of at least two semesters. Prior to admission of candidacy, the student can take research credit hours in the form of non-thesis research (CE 698). These non-thesis research credit hours cannot be converted from non-thesis research credits into thesis research credits.

1. The student must successfully complete at least 33 credit hours of graduate credit, including:
   a. A minimum of 18 credit hours in civil engineering,
   b. Up to 6 credit hours in disciplines outside civil engineering, such as other engineering disciplines, mathematics, chemistry, computer science, earth science, physics, urban affairs, public administration, or public health, and
   c. A minimum of 9 credit hours of CE 699 Thesis Research under the direction of the graduate study committee chair resulting in a successful oral defense and committee approved thesis.
2. All Plan I Master's students are required to complete online modules covering the 9 topic areas of Responsible Conduct of Research (RCR) research integrity. The modules can be accessed online at **https://www.citiprogram.org.**

Plan II (Non-Thesis Option):

The student must successfully complete at least 33 credit hours of graduate credit including:

1. A minimum of 24 credit hours in civil engineering,
2. Up to 6 credit hours in disciplines outside civil engineering, such as other engineering disciplines, mathematics, chemistry, computer science, earth science, physics, urban affairs, public administration, or public health, and
3. A minimum of 3 credit hours of CE 698 Non-Thesis Research under the direction of the graduate study committee chair resulting in a successful oral defense and committee approved written report.

Areas of Specialization

The department offers specialization programs in the fields of construction engineering management, environmental engineering, structural engineering/structural mechanics, and transportation engineering. Supporting courses are offered in geotechnical engineering, optimization, engineering law, and other areas. If a student chooses to declare a concentration, the student must choose from the courses listed below the appropriate concentration to fulfill the required 18 credit hours (Plan I) or 24 credit hours (Plan II) within civil engineering.

Concentration in Construction Engineering Management

Requirements		Hours
Select 18 credits hours for Plan I or 24 credit hours for Plan II from the following: [1]		
CE 515	Building Information Modeling (BIM) [1]	
CE 575	Construction Safety and Health Management	
CE 597	Construction Engineering Management	
CE 600	Sustainable Construction	
CE 690	Special Topics in (Area) [2]	
CE 691	Individual Study in (Area) [2]	
CECM 669	Advanced Project Management [3]	
CECM 670	Construction Estimating and Bidding [3]	
CECM 671	Construction Liability & Contracts [3]	
CECM 672	Construction Methods and Equipment [3]	
CECM 673	Project Planning and Control [3]	
CECM 674	Green Building Design/Construction [3]	
CECM 675	Advanced Construction and Engineering Economics [3]	
CECM 676	Construction Project Risk Management [3]	
CECM 688	Construction Management and Leadership Challenges in the Global Environment [3]	
CECM 689	Building Information Modeling (BIM) Techniques [1, 3]	

[1] Only one of these courses can be applied to this degree

[2] or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

[3] MEng courses (i.e., CECM, CESE, and CESC) can be applied toward MSCE degree requirements

Concentration in Environmental Engineering

Requirements		Hours
Select 18 credit hours for Plan I or 24 credit hours for Plan II from the following:		
CE 530	Water Supply/Drainage Design	
CE 531	Energy Resources	
CE 533	Solid and Hazardous Wastes Management	
CE 534	Air Quality Modeling and Monitoring	
CE 537	Environmental Experimental Design and Field Sampling	
CE 580	Introduction to Water and Wastewater Treatment	
CE 585	Engineering Hydrology	
CE 590	Special Topics in Civil Engineering [2]	
CE 600	Sustainable Construction [1]	
CE 608	Green Building Design	
CE 610	The Engineered Environment	
CE 636	Stormwater Pollution Management	
CE 640	Wastewater Treatment Engineering	
CE 690	Special Topics in (Area) [2]	
CE 691	Individual Study in (Area) [1]	
CESC 600	Principles of Sustainable Development	
CESC 602	Introduction to Sustainable Smart Cities [2, 3]	
CESC 608	Green Infrastructure and Transportation [2, 3]	

[1] or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

[2] MEng courses (i.e., CECM, CESC, CESE) can be applied to the MSCE degree requirements

[3] Only one of these courses can be applied to this degree

Concentration in Structural Engineering

Requirements		Hours
Select 18 credit hours for Plan I or 24 credit hours for Plan II from the following:		
CE 516	Mechanical Vibrations	
CE 520	Advanced Mechanics	
CE 526	Foundation Engineering	
CE 544	Civil Engineering Analysis II	
CE 553	Design of Wood Structures	
CE 554	Design of Masonry Structures	
CE 556	Prestressed Concrete Design	
CE 557	Concrete Technology	
CE 560	Structural Mechanics	
CE 561	Introduction to the Finite Element Method	
CE 562	Advanced Structural Analysis	
CE 564	Structural Dynamics	
CE 568	Bridge Engineering	
CE 590	Special Topics in Civil Engineering [1]	
CE 612	Theory of Elasticity	
CE 617	Theory of Plates and Shells	
CE 650	Advanced Structural Steel	
CE 655	Advanced Reinforced Concrete	
CE 690	Special Topics in (Area) [1]	
CE 691	Individual Study in (Area) [1]	
CESC 602	Introduction to Sustainable Smart Cities	
CESC 608	Green Infrastructure and Transportation	
CESC 614	Smart Cities Technologies	

[1] or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

[2] MEng courses (i.e., CECM, CESC, CESE) can be applied to MSCE degree requirements

Concentration in Transportation Engineering

Requirements		Hours
Select 18 credit hours for Plan I or 24 credit hours for Plan II from the following: [1]		
CE 543	Pavement Design & Construction	
CE 590	Special Topics in Civil Engineering [2]	
CE 621	Transportation Engineering Seminar [1]	
CE 622	Traffic Flow Theory	
CE 624	Simulation Models for Transportation Applications	
CE 625	Intelligent Transportation Systems	
CE 646	Traffic Engineering Operations	
CE 648	Urban and Transportation Planning	
CE 690	Special Topics in (Area) [2]	
CE 691	Individual Study in (Area) [1]	

[1] or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

The Department offers a variety of courses due to the focus areas under the Master of Science in Civil Engineering, which makes it difficult to designate all the courses in which students may enroll. Therefore, the lists above are not all-inclusive.

Admission Requirements

In addition to the UAB Graduate School admission requirements, requirements for admission to the program leading to the Doctorate of Philosophy in Civil Engineering degree include the following five criteria:

1. An **undergraduate engineering degree** from an ABET accredited program **or a master's degree in engineering**. Applicants who do not meet this criterion but who have an outstanding academic record in an engineering degree program not accredited by ABET, or in a baccalaureate or master's degree program in a related field, may be admitted on probation. Students admitted in this category will be required to complete a sequence of undergraduate or graduate courses in addition to the regular requirements of the MSCE degree. This set of extra requirements will be specified in writing at the time of admission to the program;
2. An **undergraduate GPA** of 3.0 or higher on a scale of 4.0 in all undergraduate degree major courses attempted. Individuals not meeting this requirement but who have a strong professional background and excellent references may be admitted;
3. Three (3) **letters of recommendation** concerning the applicant's previous academic and professional work;
4. No GRE required
5. International applicants must submit **English proficiency scores** in accordance with UAB Graduate School requirement. Click here for details.
6. Verification of registration by examination as a Professional Engineer (PE) will satisfy criterion 2.

Doctor of Philosophy in Civil Engineering Program Requirements

This is a joint program with the University of Alabama in Huntsville (UAH). A typical student entering the program will already have an undergraduate degree in Civil Engineering from a program accredited by the Engineering Accreditation Commission of ABET. Students with outstanding records in related fields or from a non-accredited engineering program will be considered for admission with contingencies and must remedy deficiencies in their preparation after the start of their academic program. These requirements will be defined in writing at the time of admission.

The program requires 51 credit hours of coursework beyond the baccalaureate level or 27 credit hours of coursework beyond the master's degree, plus a minimum of 24 credit hours of dissertation research (CE 799 Dissertation Research).

A minimum of 6 credit hours must be taken from the UAH campus. The student has two options

1. Register at UAH and then have the credits transferred to UAB or
2. Register at UAB for an equivalent course and have the UAH instructor send the grade to UAB.

The courses may be taken through the Intercampus Interactive Telecommunications System (IITS) at UAB, Distance Learning (DL), or web-based instruction for UAH.

Special Topics (690/790) courses and Individual Study (691/791) courses are reviewed for degree applicability for each program in the School of Engineering. No more than 6 combined credit hours of Special Topics and/or Independent Study courses will be applied to the degree without appeal to and prior approval from the Program Director.

The School of Engineering offers similar courses at the 400/500 and 600/700 levels. While the higher numbered course has more advanced content, there is a significant overlap in topics. Therefore, students are not allowed to take a 500-level or 700-elevel course for credit if they have previously taken the related 400-level or 600 level course, respectively.

Doctoral students are also required to successfully complete GRD 717 Principles of Scientific Integrity prior to admission to candidacy.

A Graduate Study Committee must be established by the doctoral student and must include a minimum of five graduate faculty members, at least one of which must be from UAH. A comprehensive examination is required of all doctoral candidates. This examination is conducted by the Graduate Study Committee after all coursework is successfully completed. The examination has both written and oral components. During the oral portion of the examination, the student also presents the dissertation proposal to the Graduate Study Committee. The comprehensive examination may only be taken twice.

When the graduate student successfully passes the comprehensive examination, including the dissertation proposal, the student should apply to enter candidacy. Once a doctoral candidate, the student must complete a minimum of 24 credit hours of dissertation research (CE 799 Dissertation Research) over the course of at least two semesters. Prior to admission to candidacy, the student can complete research hours in the form of non-dissertation hours (CE 798). A maximum of 12 CE 798 Non-Dissertation Research hours can be applied to the Dissertation Research (CE 799) requirement.

After successful completion of a minimum of 24 credit hours of dissertation research, the graduate student must complete the dissertation and submit to the Graduate Study Committee for review. The doctoral candidate must also present an oral public defense of the dissertation. When the graduate student successfully defends the dissertation, the student then has ten working days to complete revisions and submit the approved document to the Graduate School.

Required coursework must be selected from the list below. PhD students are encouraged to take the highest level available (700 level rather than 600 level; 600 or 700 level rather than 500 level). Students are only allowed to take 500 level courses if there is no equivalent 600 or 700 level course available. A minimum of 50 percent of the required coursework must be at the graduate level of 600 or above.

Additional graduate courses can be counted towards the PhD degree, as long as those courses were taken above and beyond the requirements for a BS or MS degree. To do so requires that the student must petition the department to have those courses counted toward an advanced degree. The graduate program director would make a recommendation on the petition (and would consider the UAB equivalent course description if the course was taken from another university). The maximum credit hours from an outside institution that could be applied toward an advanced degree at UAB is 12 credit hours.

Requirements		Hours
Required Courses		
GRD 717	Principles of Scientific Integrity	3
CE 799	Dissertation Research [1]	24
Construction Engineering Management Courses [2]		
CE 515	Building Information Modeling (BIM) [3]	
CE 575	Construction Safety and Health Management	
CE 597	Construction Engineering Management	
CE 600	Sustainable Construction	
CE 790	Special Topics in (Area) [4]	
CE 791	Individual Studies (In Area) [4]	
CECM 669	Advanced Project Management	
CECM 670	Construction Estimating and Bidding	
CECM 671	Construction Liability & Contracts	
CECM 672	Construction Methods and Equipment	
CECM 673	Project Planning and Control	
CECM 674	Green Building Design/Construction	
CECM 675	Advanced Construction and Engineering Economics	
CECM 676	Construction Project Risk Management	
CECM 688	Construction Management and Leadership Challenges in the Global Environment	
CECM 689	Building Information Modeling (BIM) Techniques [3]	
Structural Engineering Courses [2]		
CE 516	Mechanical Vibrations	
CE 520	Advanced Mechanics	
CE 526	Foundation Engineering	
CE 544	Civil Engineering Analysis II	
CE 553	Design of Wood Structures	
CE 554	Design of Masonry Structures	
CE 556	Prestressed Concrete Design	
CE 557	Concrete Technology	
CE 560	Structural Mechanics	
CE 561	Introduction to the Finite Element Method	
CE 562	Advanced Structural Analysis	
CE 564	Structural Dynamics	
CE 568	Bridge Engineering	
CE 612	Theory of Elasticity	
CE 617	Theory of Plates and Shells	
CE 650	Advanced Structural Steel	
CE 655	Advanced Reinforced Concrete	
CE 712	Theory of Elasticity	
CE 715	Theory of Elastic Stability	
CE 717	Theory of Plates and Shells	
CE 750	Advanced Structural Steel	
CE 755	Advanced Reinforced Concrete	
CE 790	Special Topics in (Area) [4]	
CE 791	Individual Studies (In Area) [4]	
CESC 602	Introduction to Sustainable Smart Cities [5]	
CESC 608	Green Infrastructure and Transportation [5]	
CESC 614	Smart Cities Technologies [5]	
Environmental Engineering Courses [2]		
CE 530	Water Supply/Drainage Design	
CE 531	Energy Resources	

CE 533	Solid and Hazardous Wastes Management
CE 534	Air Quality Modeling and Monitoring
CE 537	Environmental Experimental Design and Field Sampling
CE 580	Introduction to Water and Wastewater Treatment
CE 585	Engineering Hydrology
CE 600	Sustainable Construction
CE 608	Green Building Design
CE 610	The Engineered Environment
CE 636	Stormwater Pollution Management
CE 640	Wastewater Treatment Engineering
CE 731	Environmental Law
CE 732	Industrial Waste and Wastewater Treatment
CE 736	Stormwater Pollution Management
CE 738	Water and Wastewater Chemistry
CE 739	Sediment Sources and Controls
CE 740	Wastewater Treatment Engineering
CE 781	Environmental Chemistry
CE 782	Water Treatment Engineering
CE 783	Water and Wastewater Treatment Processes Lab
CE 786	Engineering Hydrogeology
CE 787	Stormwater Detention Pond Design
CE 790	Special Topics in (Area) [4]
CE 791	Individual Studies (In Area) [4]
CESC 600	Principles of Sustainable Development
CESC 602	Introduction to Sustainable Smart Cities
CESC 608	Green Infrastructure and Transportation
Transportation Engineering Courses [2]	
CE 543	Pavement Design & Construction
CE 621	Transportation Engineering Seminar
CE 622	Traffic Flow Theory
CE 624	Simulation Models for Transportation Applications
CE 625	Intelligent Transportation Systems
CE 646	Traffic Engineering Operations
CE 648	Urban and Transportation Planning
CE 721	Transportation Engineering Seminar
CE 722	Traffic Flow Theory
CE 723	Non-Motorized Transportation Design and Planning
CE 724	Simulation Models for Transportation Applications
CE 725	Intelligent Transportation Systems
CE 790	Special Topics in (Area) [4]
CE 791	Individual Studies (In Area) [4]

1 Minimum 24 hours of dissertation research taken over the course of at least two semesters following admission to candidacy

2 MEng courses (i.e., CECM, CESC, CESE) can be applied toward PhD degree requirements

3 Only one of these courses can be applied to the degree

4 Or any CE 690/790 IITS course offerings from UAH, USA, and/or UA campuses with prior approval of Program Director

5 Only one of these courses can be applied to the degree