UNIVERSITY OF GUAM
UNIBETSEDAT GUÅHAN
Board of Regents

Resolution No. 26-06

RELATIVE TO APPROVING THE BACHELOR OF SCIENCE IN CONSTRUCTION MANAGEMENT DEGREE PROGRAM

WHEREAS, the University of Guam (UOG) is the primary U.S. Land Grant and Sea Grant institution accredited by the Western Association of Schools and Colleges Senior College and University Commission serving the post-secondary needs of the people of Guam and the region;

WHEREAS, the governance and well-being of UOG is vested in the Board of Regents (BOR);

WHEREAS, UOG desires to establish a new undergraduate degree program, Bachelor of Science (BS) in Construction Management under the direction of the School of Engineering (SENG);

WHEREAS, the School of Engineering has identified a critical workforce need for professionally trained construction managers in Guam, Micronesia, and the broader Western Pacific region;

WHEREAS, the construction industry on Guam is experiencing unprecedented growth due to federal investments for military buildup and infrastructure development, creating a demand for skilled professionals in project management, cost estimation, scheduling, and safety oversight;

WHEREAS, the absence of a local Construction Management degree program has historically forced employers to rely on costly strategies such as importing off-island professionals or training unqualified individuals on the job, increasing project costs and limiting local workforce development;

WHEREAS, the proposed BS in Construction Management program is designed to: Equip graduates with technical, administrative, and communication skills essential for managing complex construction projects; Foster ethical decision-making, collaboration, and innovation in addressing construction challenges; Provide practical experience through internships and industry partnerships, ensuring graduates are job-ready;

WHEREAS, the program aligns with UOG's mission to serve the educational needs of the region and is structured to meet the Accreditation Board for Engineering and Technology (ABET) accreditation standards, ensuring academic rigor and professional relevance;

WHEREAS, endorsements from industry leaders, including Pacific Rim Constructors Inc. and the SENG Advisory Council, affirm the program's importance as a cornerstone for Guam's long-term resilience and economic development;

WHEREAS, the proposed BS in Construction Management degree program was prepared and recommended by the SENG Academic Affairs Committee and the Dean; reviewed and recommended by the Undergraduate Curricula Review Committee; endorsed by the Faculty Senate, the Senior Vice President & Provost, and the President; and

WHEREAS, the Academic, Personnel and Tenure Committee has reviewed the proposal and recommends to the BOR for approval of the BS in Construction Management.

NOW, THEREFORE, BE IT RESOLVED, that the BOR hereby approves the BS in Construction Management degree program, effective AY2026-2027.

Adopted this 19th day of February, 2026.

Mike W. Naholowaa, Acting Chairperson

ATTESTED:

Anita Borja Enriquez, D.B.A., Executive Secretary

University of Guam
Request for Official Action on a Policy or Regulation

1. **Date of this request:** 11/04/2025
2. **Destination of request:** (as per governance guidance or manual)
   [X] Board of Regents [ ] President [ ] SVP&P [ ] VPAF/CBO [ ] Other _____
   BOR Committee: [X] Academic, Personnel, and Tenure [ ] Budget, Finance, Investments, and Audit
   [ ] Physical Facilities [ ] Student Affairs, Scholarship, Alumni Relations and Honorary Degree
3. **Originating organizational unit:** School of Engineering (SENG)
4. **Action proponent name:** Dr. Hiroshan Hettiarachchi email: hettiarachchi@triton.uog.edu phone: 671-735-2694
5. **Action requested:** Approval to establish the Bachelor of Science in Construction Management degree program at the University of Guam.
6. **Justification supporting action request:** The proposed program is a strategic response to the growing demand for skilled construction professionals in Guam, neighboring islands in the Western Pacific, and Asia. Graduates will be equipped with the technical expertise, administrative proficiency, and communication skills necessary to excel in diverse roles within the construction industry, including positions in construction firms, subcontracting companies, consulting agencies, federal organizations, and local government entities such as the Department of Public Works and Guam Waterworks Authority. This program has received strong endorsement from university leadership and faculty and is designed with the goal of achieving ABET accreditation, ensuring academic rigor and global recognition.
7. **Requested effective date of action, if approved:** 08/01/2026
8. **Manual or document to be altered:**
   [ ] BOR Policy
   [ ] Academics
   [ ] Auxiliary Services _____
   [ ] Business Office _____
   [ ] Enrollment Management & Student Success
   [ ] Facilities Maintenance & Services
   [ ] Graduate Studies
   [ ] Human Resources Office
   [ ] RFK Library or MARC
   [ ] Office of Information Technology
   [ ] Office of Marketing & Communications
   [ ] Office of Research & Sponsored Programs
   [ ] Safety & Security
   [ ] Triton Athletics
   [X] Other Undergraduate Catalog
   Location of proposed alteration in manual: _____ **Version dated**: ___/___/___
9. **Attach:**
   a. Proposed Procedure, Regulation, or Policy language *(in unlocked finalized Word file only, no PDFs).*
   b. Documentation showing reason and appropriate consultation with advisory and/or governance committees has been done.
   c. Documentation of a public hearing, as applicable.

10. **Consultation Record** (as per governance guidance, manual, or courtesy)

Committee	***Position***	***Name / Signature (use BLUE ink)***	***Date***
Originating Unit AAC [ ] NA	Chair/Dean, SENG	Dr. Hiroshan Hettiarachchi / See attached	11/04/2025
Appropriate Dean/Director/ Admin [ ] NA	Dean, SENG	Dr. Hiroshan Hettiarachchi / See attached	11/04/2025
AD HOC Committee [X] NA	_____	_____ / _____	___/___/20__
Student Gov Association [X] NA	_____	_____ / _____	___/___/20__
Staff Council [X] NA	_____	_____ / _____	___/___/20__
Administrative Council [X] NA	_____	_____ / _____	___/___/20__
Faculty Senate [ ] NA	President	Dr. Christopher Garcia-Santos / See attached	12/11/2025
Faculty Union [X] NA	_____	_____ / _____	___/___/20__

11. **Administration Approvals** (as applicable)

Dr. Sharleen Santos-Bamba, SVP & Provost / See attached.	[X] Approved [ ] Disapproved	01/20/2026
Dr. Anita Borja Enriquez, UOG President / See attached.	[X] Approved [ ] Disapproved	01/22/2026
Dr. Janice Malilay, Chair, BOR AP&T Committee / _____	[X] Approved [ ] Disapproved	02/11/26
Mike Naholowaa, Acting Chair, Board of Regents / _____	[X] Approved [ ] Disapproved	02/19/26

UNIVERSITY OF GUAM
UNIBETSEDÅT GUÅHAN

OFFICE OF THE SENIOR VICE PRESIDENT AND PROVOST
Academic & Student Affairs

January 20, 2026

TO: Dr. Anita Borja Enriquez, President

FROM: Dr. Sharleen Santos-Bamba, Senior Vice President & Provost
Sharleen Santos-Bamba (Jan 22, 2026 12:57:17 GMT+10)

SUBJECT: Request for Endorsement for Approving the Bachelor of Science in Construction Management Program

Håfa Adai President Enriquez:

This memorandum serves as a formal request for your endorsement in approving the Bachelor of Science in Construction Management degree program under the School of Engineering (SENG), as well as all the subsequent requests for new courses related to the program.

With the official establishment of the School of Engineering through the UOG Board of Regents in 2016, the approval of the Bachelor of Science in Civil Engineering degree program in 2019, and program's earning of ABET accreditation in 2024, the University has made significant progress in providing the educational opportunities for students to pursue careers in the Engineering field and helping fill the workforce demand for trained engineers in Guam and throughout the region.

With the addition of the BS in Construction Management program, SENG can expand its specialization offerings to its Engineering students, allowing them to gain the knowledge, skills, and technical training needed to address and manage complex construction projects. The program's curriculum that aligns with accreditation standards and its experiential learning opportunities via internships and industry partnerships are designed to prepare students to become competent professionals in their field without having to relocate off island.

Moreover, the BS in Construction Management program supports SENG's vision to "graduate highly qualified engineers, maintain nationally recognized research, and provide quality professional and community service to Guam, Micronesia, and the neighboring regions in the Pacific and Asia" and has garnered endorsements from relevant stakeholders, including the SENG Advisory Council and various external industry partners.

I respectfully request your endorsement for the approval of this new program, as I believe it will benefit our students and the broader island community.

I appreciate your time and attention to this matter and look forward to your favorable consideration and support.

T: +1 671.735.2994 E: sbamba@triton.uog.edu W: www.uog.edu
Mailing Address: 303 University Drive UOG Station Mangilao, Guam 96913

Si Yu'os ma'åse.

Anita Enriquez (Jan 22, 2026 13:08:55 GMT+10)

Anita Borja Enriquez, D.B.A.
President

☑ Endorsed
☐ Not endorsed

T: +1 671.735.2994 E: sbamba@triton.uog.edu W: www.uog.edu
Mailing Address: 303 University Drive UOG Station Mangilao, Guam 96913

UNIVERSITY
OF GUAM
Unibetsedåt GUAHAN

11/4/25: Received by Faculty Senate. CE
Office of Academic and Student Affairs

REQUEST FOR NEW DEGREE PROGRAM APPROVAL

Log No. 7520

1. Title of Program: Bachelor of Science in Construction Management

2. Credit Hours Required: 120 credit hours

3. Level of Program: [X] Undergraduate [ ] Graduate

4. Proposed Effective Date (Catalog/Bulletin): Fall 2026

5. Proposal Document: Attach proposal document to this form. See "Procedure for Proposals to Establish New Programs".

6. APPROVAL Recommended by:

UNIT	SIGNATURE (use BLUE pen please)	DATE
For Program	ERNESTO GUAMES	11/01/2025
Division Chair	ERNESTO GUAMES	11/01/2025
Chair, College AAC/CC	Hiroshan Hettiarachchi	11/04/2025
Dean, of College	Hiroshan Hettiarachchi	11/04/2025
UCRC/GCRC	Lei Bao	11/13/2025
President, Faculty Senate (if substantive)	Dr. Christopher Garcia-Santos (Endorsement of UCRC/GCRC Recommendation)	12/11/2025

APPROVED:

Dr. Sharleen Santos-Bamba (Jan 20, 2026 17:46:03 GMT+10)
SENIOR VICE PRESIDENT
ACADEMIC AND STUDENT AFFAIRS — 01/20/26 DATE

Anita Enriquez (Jan 22, 2026 13:08:55 GMT+10)
Dr. Anita Borja Enriquez
PRESIDENT — 01/22/26 DATE

Agapito "Pete" A. Diaz
CHAIRPERSON, BOARD OF REGENTS — DATE

Program Proposal

for

Bachelor of Science in Construction Management

School of Engineering (SENG)

1. Definition of the proposed program

1.1 Full and exact designation for the proposed program

Bachelor of Science in Construction Management

1.2 Name of the college submitting the request

School of Engineering (SENG)

1.3 Name of the department, department's division, or other unit of college which would offer the proposed program.

Civil Engineering

1.4 Name, title and rank of the individual primarily responsible for drafting the proposed program.

This document was drafted by the School of Engineering (SENG) administrator and faculty:

i. Hiroshan Hettiarachchi, Ph.D., P.E., Dean, School of Engineering / Director, Water and Environmental Research Institute (WERI) of the Western Pacific / Professor of Civil Engineering
ii. Ernesto J. Guades, Ph.D., Assistant Professor and Division Chair, School of Engineering
iii. Myla S. Perito, Assistant Instructor and Academic Advisor, School of Engineering

1.5 Goals and Objectives of the proposed program

The Bachelor of Science in Construction Management at the University of Guam is designed to meet the workforce needs of Guam, neighbouring islands in the Western Pacific, and Asia. Graduates of this program will be well-prepared to contribute to construction companies, subcontracting companies, consulting firms, federal agencies, and local government entities such as the Department of Public Works, and the Guam Waterworks Authority, among others. The graduates will have the knowledge and technical, administrative and communication skills, necessary to succeed in the construction industry. The Bachelor of Science in Construction Management program has the following educational objectives, that are consistent with the mission of the University of Guam, to prepare graduates with the ability to:

a. Communicate effectively with diverse stakeholders, including owners, design professionals and code officials, utilising suitable channels of correspondence.
b. Collaborate across disciplines of construction project stakeholders and recognise the value that comes from such collaboration.

c. Find and evaluate relevant cost, schedule, quality and safety data and reach and defend conclusions based on sound analysis.
d. Create sound, innovative approaches to challenges faced by construction project teams.
e. Identify and evaluate the ethical choices faced by construction management professionals and formulate value-based responses.

The program's learning outcomes are specifically defined statements that describe what students are expected to attain at the time of graduation. Students completing the Bachelor of Science in Construction Management program must demonstrate the following:

a. An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
b. An ability to formulate or design a system, process, procedure or program for the intended purpose.
c. An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
d. An ability to communicate effectively with a range of audiences.
e. An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
f. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

1.5.a Specify the subject matter to be covered.

Engineering Statics
Mechanics of Materials
Introduction to Construction Management
Construction Site Analysis
Geotechnical Engineering
Geotechnical Engineering Lab
Civil Engineering Materials
Civil Engineering Materials Lab
Construction Economics
Structural Analysis
Building Information Modeling
Construction Project Documents
Estimating and Scheduling
Introduction to Surveying/Lab
Wood, Steel and Concrete Structures
Project Management
Construction Safety
Capstone Design I
Fundamental of Transportation Engineering

Construction Law
Mechanical Systems
Capstone Design II
Construction Profession

1.5.b Specify the intellectual skills and learning methods to be acquired.

The programme is designed to establish a solid foundation, enabling students to contribute effectively to successful construction projects. Construction Management students are expected to gain a thorough conceptual understanding of the discipline. To enhance their capacity for applying construction management principles in real-world settings, students will participate in activities such as analytical problem-solving, situational analysis, and the evaluation of various options and outcomes. The curriculum incorporates management, mathematics, chemistry, physics, and design, ensuring that graduates are comprehensively prepared to excel within the construction industry.

1.5.c Specify the affective and creative capabilities to be developed.

Affective and creative capabilities to be developed by construction management students are critical in their profession.

The affective capabilities to be developed are:

- Identification or clarification of values
- Development of appreciation and empathy
- Motivation of self and others; and acquisition of respect for diversity.

The creative capabilities to be developed are:

- Creative problem solving/Spirit of innovation
- Organizational skills
- Ability to identify problems, solution, and alternatives
- Skills in oral, written, non-verbal, and listening communication
- Foster and enhance creativity in others

1.5.d Specify, if relevant, the specific career-preparation practices to be mastered.

The Construction Management degree program will effectively bridge classroom learning with practical application by strongly encouraging students to engage in internships with local private and public sector organisations. This approach provides students with meaningful opportunities to apply their knowledge in real-world environments and demonstrate their skills and competencies to potential employers.

1.6 List of all courses, by catalog number, title and units of credit to be required for a major under the proposed program.

While all courses in the curriculum are presented here as a list, a graphical representation of the program is depicted in a flowchart in Appendix for 1.6.

Curriculum for the Bachelor of Science in Construction Management

Mathematics: 5 Credits

• MA 203	Calculus I	5 Credits

Sciences: 12 Credits

• CH 102/L	General Chemistry	4 Credits
• PH 251/L	University Physics	4 Credits
• NS 110/L	Introduction to Earth	4 Credits

Interdisciplinary: 3 Credits

• FY 101	First Year Seminar	3 Credits

General Engineering, Computer Science: 8 Credits

• CEE 100	Introduction to Engineering	1 Credits
• CEE 101	Engineering Graphics	3 Credits
• CS 201	Programming I	4 Credits

Humanities and Social Sciences: 31 Credits

• EN 110	Freshmen Composition	3 Credits
• EN 111	Writing for Research	3 Credits
• CT 101	Critical Thinking	3 Credits
• CO 210	Fundamentals of Communication	3 Credits
• GenEd Tier II	Humanities and Social Sciences	12 Credits
• GenEd Tier II	Uniquely UOG	7 Credits

Civil Engineering: 23 Credits

• CEE 201	Engineering Statics	3 Credits
• CEE 203	Mechanics of Materials	3 Credits
• CEE 301	Structural Analysis	3 Credits
• CEE 303	Geotechnical Engineering	3 Credits
• CEE 303L	Geotechnical Engineering Lab	1 Credits
• CEE 304	Civil Engineering Materials	3 Credits
• CEE 304L	Civil Engineering Materials Lab	1 Credits

- CEE 308/L Introduction to Surveying/Lab 3 Credits
- CEE 403 Fundamental of Transportation Engineering 3 Credits

Construction Management: 38 Credits

- CME 2xx Intro to Construction Management 3 Credits
- CME 2xx Construction Site Analysis 3 Credits
- CME 2xx Construction Economics 3 Credits
- CME 3xx Building Information Modelling 3 Credits
- CME 3xx Construction Project Documents 3 Credits
- CME 3xx Estimating and Scheduling 3 Credits
- CME 4xx Wood, Steel and Concrete Structures 3 Credits
- CME 4xx Project Management 3 Credits
- CME 4xx Construction Safety 3 Credits
- CME 4xx Design I 2 Credits
- CME 4xx Construction Law 3 Credits
- CME 4xx Mechanical Systems 3 Credits
- CME 4xx Design II 2 Credits
- CME 4xx Construction Profession 1 Credits

Total Credits for Degree: 120

1.7 Clarification of number and types of electives, if any under the proposed program, including special options.

Electives are not currently part of the co-curriculum; however, we are collaborating with the School of Business Administration to potentially introduce relevant Business courses as elective options.

1.8 Justification of any unusual characteristics of the proposed program; e.g., in terminology, units of credits required, types of course work, etc.

N/A

1.9 Prerequisites and criteria for admission of students to the proposed program, and for their continuation in the program.

Prerequisites and criteria for admission of students shall be the same as for admission to the University, as specified in the Undergraduate Catalog. Continuation in the program requires that the student maintain a minimum cumulative grade point average (GPA) of 2.5.

1.10 Evidence that the degree program has a coherent design and is characterized by continuity, sequential progression, and a synthesis of learning.

Please refer to our responses in 1.11

1.11 Describe how educational effectiveness of program is to be measured.

Please note that our objective is to obtain ABET accreditation for the proposed Construction Management program. We have designed the program and the curriculum with this ABET objective in mind. Therefore, the program will consistently apply well-documented, appropriate processes for assessing and evaluating the achievement of student outcomes. Evaluation results must be systematically integrated as feedback for the ongoing improvement of the program. The following criteria and methodologies will be employed for the assessment and evaluation of the construction management program.

a. The quality and performance of students and graduates are key factor in assessing the construction management program. Data will be systematically collected on incoming student qualifications and the placement outcomes including statistics on retention, career progression, and employer satisfaction.

b. The assessment process is structured to evaluate program outcomes that align with the institution's mission and the educational objectives of the program. In collaboration with the SENG Advisory Board, program content will be regularly reviewed and updated to ensure ongoing scholarly relevance. These actions are undertaken in accordance with ABET criteria.

c. The professional component requirements outline subject areas relevant to the discipline of construction management, and the construction management faculty will oversee the program's timely development in alignment with the institution's objectives.

d. The faculty possesses sufficient expertise to address every curricular aspect of the program, from student advising and university service activities to professional development and industry engagement.

The quality of the program will be assessed by the Dean of the School of Engineering in collaboration with faculty members, the SENG Advisory Board, and the Applied and Natural Science Accreditation Commission of ABET. The program’s educational effectiveness will also be evaluated through an annual survey of recent graduates, who will be asked about the nature of their work, continued education, success in securing professional employment, and the adequacy of their academic preparation at the University of Guam. Additionally, employers will be surveyed to determine the preparedness and performance of graduates. The survey findings will serve as valuable feedback to inform future curriculum improvements.

2. Context of the proposed program

2.1 Examples of colleges offering the proposed program

Please see Appendix for Section 2.1 for a list of the leading 50 Construction Management degree programs offered at other US universities.

2.2 Endorsements from university or community elements

Two letters of endorsement are attached in Appendix for Section 2.2: one from the Chair of the SENG Advisory Council, who also represents construction industry in Guam and Micronesia. The second letter is from another construction professional in Guam who has also contributed to establishing SENG years ago.

The university administration and faculty have both endorsed the idea of establishing this new program. This support has been clearly demonstrated by the fact that we are already underway to recruit the first faculty member for the program and three faculty members, and 2 industry professionals are serving as the SIB members.

2.3 Difference of the proposed program, if any, from similar programs in other institutions

The proposed program is not different from similar programs in other institutions. The rational here is to establish “a” program as there is no such program in the entire Micronesia, and not to make it any different from the other programs available on the mainland.

2.4 Relation of the proposed program to the total educational program of the respective college

SENG already has a vibrant and ABET accredited degree program in Civil Engineering. Civil Engineering and Construction Management go hand in hand, and we can share many resources between the two programs in the future to make it cost effective. We are attempting to fulfill two objectives with the new program. First, there is a high demand for construction professionals within Guam and in the region, but currently there is no opportunity for anyone to pursue such program without leaving the region. Second, the math requirement for construction is not as extensive as for civil, so we hope to attract prospective students who like to be in engineering but are not fond of doing heavy math.

2.5 Relation of the proposed program to the planned curricular development of respective instructional areas (department, department’s division)

We have already designed the draft curriculum and the program flowchart. Due to the close relationship construction discipline has with civil engineering, many of our current course offerings at SENG are applicable to the new program too. As a result, the need for developing new courses is limited to 14 (less than 40 credits out of 120).

The new program will continue to be housed within the CE Division in the foreseeable future. Should this program become a division of its own will be decided by the maturity it reaches in the future.

2.6 List of other programs currently offered which are closely related to the proposed program

- Civil Engineering

Please refer to the response given to 2.5.

2.7 Explanation of how the needs to be met by the proposed program have previously been satisfied

There has been a void in the volume of skilled professionals needed by the construction industry for a very long time, and they have used three strategies to fill this void in the past: 1. Competing with each other (private sector, government section, and the military) to share the limited number of qualified professionals available on the island; 2. Bring qualified professionals from off-island; and 3. Recruit unqualified individuals and train them on the job. All these strategies increase the cost of the projects. Besides, for anyone to get the qualification from a university in Hawaii or the mainland is even costlier.

2.8 Applicability of coursework taken under the proposed program to other programs currently offered

The closest comparison is with the CE program. Please refer to the response given to 2.5 for the overlap between the two programs. Also, kindly refer to the other program details presented in section 1.

2.9 Assurance that courses and programs are planned both for optimal learning and accessible scheduling, and are offered in a manner that ensures students the opportunity to complete the entire program as announced

The new program will seek ABET accreditation once it reaches maturity. The curriculum we propose for this program is modelled after the best features we could possibly find among the 50 programs from the mainland that we studied (and mentioned before).

Also, as mentioned before 2/3 of the courses already exist at UOG in SENG, CNAS, or CLASS as they are being offered regularly. The remaining 1/3 is mostly Junior and Senior year courses. We have already started drafting them, but they will be fine-tuned and finalized once we have hired our first construction management professor (in-house champion).

3. Need for the proposed program

3.1 Primary reason for requesting the proposed program

SENG is new and hence we are eager to expand and diversify our course/program offerings in a meaningful way. The strategy we use in determining what program that we should bring in next is based on two critical factors: the demand from the industry and then our capacity to meet this demand. As far as the demand is concerned, currently there is a construction boom on the island due to the military buildup because of the geopolitical situation. To the best of our understanding, the federal government has allocated over a billion dollars to be spent within the next five years for this military buildup, majority of which is for construction activities. On the other hand, construction management is a program that UOG can afford to build with

minimum resources, financial or otherwise. More than 2/3 of the courses already exist within UOG curriculum and the new program doesn't require any new laboratories.

3.2 Professional uses of the program

A construction management graduate could choose from a diverse pool of careers, including Project Manager, Cost Estimator, Site Supervisor, and Construction Scheduler. Other positions include Safety Manager, Sustainability Consultant, Field Engineer, and Quality Control Manager. These jobs can be found across various sectors such as residential, commercial, infrastructure, and civil construction.

3.3 Results of a survey of serious interest in enrolling under the proposed program

We didn't conduct a survey as we already have more convincing information gathered through observation (students who are keen to be in SENG but struggle in Math), interviews (with the current as well as prospective students), and focus groups (Q&A sessions at the construction invited talks in our SENG seminar series).

3.4 Enrollment figures during the past two years for specified courses or programs related to the proposed program which indicate interest in the proposed program.

CE program in SENG is the only other related program on campus. Thus far, CE program has consistently maintained an increasing net gain in its enrollment. For example, SENG graduated 30 civil engineers in May 2025 but was able to attract 70+ new CE-declared freshmen in August 2025.

SENG enrollment figures for the past two years are presented below. Please note that, in addition to the numbers quoted below, we also have another 10-20% of students who have not declared CE yet (interested, leaning towards, but not declared CE as their major yet).

As of	**Total # of CE-declared students**
October 2025	253
October 2024	211

3.5 Estimate of the number of students completing the proposed program in the second year and in the fifth year after its approval.

The table below presents our projected* total number of students for the first 5 years. Please note that we assumed conservative growth rate and zero retention issues. SENG track record for student retention is high. Losing students due to various reasons such as financial issues or transferring to the universities on the mainland are usually less than 10%. Seng also has a track record of attracting transfer or second-degree students into our current CE program.

Year	Freshmen	Sophomore	Junior	Senior	Total
1	10	0	0	0	10
2	12	10			22
3	15	12	10		37
4	18	15	12	10	55
5	20	18	15	12	65

3.6 Total FTE lower division and upper division, enrollments in the specified department, department's division, or other units of the college which would offer the proposed program, as of the current semester and as projected five years hence, further divided into lecture FTE and laboratory FTE where appropriate

Notes:

- Starting point for this analysis is the actual current enrollment in CE program courses (Fall 2025) presented in Appendix for Section 3.6.
- FTE is assumed to be 12 credits/semester.
- 5-year projection in CE is based on 10% (assumed) growth.
- 5-year projection in CM is based on the numbers presented in our response to 3.5. The lecture/lab ratio observed in CE FTE (8:1) was also assumed in separating CM projected enrollment between lecture and lab.

CE Current Enrollment Projections for the next 5 years based 10% growth

Year	Lower Division		Upper Division		Total
	Lecture FTE	Lab FTE	Lecture FTE	Lab FTE	FTE
Fall 2025	41	0	24	3	68
Fall 2026	45	0	26	3	75
Fall 2027	50	0	29	4	82
Fall 2028	55	0	32	4	91
Fall 2029	60	0	35	4	100
Fall 2030	66	0	39	5	110

CM Projected Enrollment (following CE Lecture/Lab ratio)

Year	Lower Division		Upper Division		Total
	Lecture FTE	Lab FTE	Lecture FTE	Lab FTE	FTE
Fall 2025	0	0	0	0	0
Fall 2026	10	0	0	0	10
Fall 2027	22	0	0	0	22
Fall 2028	27	0	9	1	37
Fall 2029	33	0	19	3	55
Fall 2030	38	0	23	4	65

CE+CM Total Projected Enrollment for the next 5 Years

Year	Lower Division		Upper Division		Total
	Lecture FTE	Lab FTE	Lecture FTE	Lab FTE	FTE

Fall 2025	41	0	24	3	68
Fall 2026	55	0	26	3	85
Fall 2027	72	0	29	4	104
Fall 2028	82	0	41	5	128
Fall 2029	93	0	54	7	155
Fall 2030	104	0	62	9	175

3.7 Advantages to the college of offering the proposed program.

Please refer to our response in 3.1.

4. Resources of the proposed program.

4.1 List of all present faculty members, with rank, highest degree earned, publications and professional experience, who would teach in the proposed program.

Curriculum vitae for each faculty member are presented in Appendix for Section 4.1. A listing of present faculty members as follows.

i. Hiroshan Hettiarachchi, Ph.D., P.E., Dean, School of Engineering / Director, Water and Environmental Research Institute (WERI) of the Western Pacific / Professor of Civil Engineering
ii. Pyoyoon Hong, Ph.D., P.E., Professor of Civil Engineering
iii. Ernesto J. Guades, Ph.D., Assistant Professor and Division Chair, School of Engineering
iv. Rui Zeng, Ph.D., Assistant Professor of Civil Engineering
v. Phuong Tung Hoang, Ph., D., Assistant Professor of Civil Engineering
vi. Myla S. Perito, Assistant Instructor and Academic Advisor, School of Engineering

4.2 Number and types of additional faculty and other staff positions, if any, needed to initiate the proposed program.

The program needs one Full Time Equivalent (FTE) faculty member—an internal advocate for construction management—to begin teaching core Sophomore year courses, as shown in the program flowchart. Faculty members must have at least a master's degree and substantial experience within the discipline. When needed, part-time instructors with suitable expertise will also be hired to teach specific courses.

We do not anticipate recruiting any staff members specifically for this program.

4.3 Estimate of additional faculty and other staff positions needed specifically for the proposed program one, two and five years after its approval.

After two years from approval, the program needs two construction management faculty members. By year 5, a total of three faculty members and one or two adjunct professors may be required to maintain the program.

4.4 List of courses now offered, by catalog number, title and units of credit needed in the proposed program.

The courses are listed as they appear in the UOG 2025-2026 Undergraduate Catalog. The courses include:

Program Core

• CEE 100	Introduction to Engineering	1 Credits
• CEE 101	Engineering Graphics	3 Credits
• CEE 201	Engineering Statics	3 Credits
• CEE 203	Mechanics of Materials	3 Credits
• CEE 301	Structural Analysis	3 Credits
• CEE 303	Geotechnical Engineering	3 Credits
• CEE 303L	Geotechnical Engineering Lab	1 Credits
• CEE 304	Civil Engineering Materials	3 Credits
• CEE 304L	Civil Engineering Materials Lab	1 Credits
• CEE 308/L	Introduction to Surveying/Lab	3 Credits
• CEE 403	Fundamental of Transportation Engineering	3 Credits

4.5 List of additional courses not now offered, by catalog number, title and units of credit needed initially and during the first two years after approval of the program, needed to make the program fully operative.

• CME 2xx	Intro to Construction Management	3 Credits
• CME 2xx	Construction Site Analysis	3 Credits
• CME 2xx	Construction Economics	3 Credits
• CME 3xx	Building Information Modeling	3 Credits
• CME 3xx	Construction Project Documents	3 Credits
• CME 3xx	Estimating and Scheduling	3 Credits
• CME 4xx	Wood, Steel and Concrete Structures	3 Credits
• CME 4xx	Project Management	3 Credits
• CME 4xx	Construction Safety	3 Credits
• CME 4xx	Design I	2 Credits
• CME 4xx	Construction Law	3 Credits
• CME 4xx	Mechanical Systems	3 Credits
• CME 4xx	Design II	2 Credits
• CME 4xx	Construction Profession	1 Credits

4.6 University library resources, available in direct support of the proposed program, specified by subject areas, volume count, periodical holdings, etc.

UOG Library Resources (LRC):
Inter-library loan is available to both students and faculty. Some items can be received at no cost, for others LRC is charged for. Both students and faculty may designate if they are willing to pay for an item. Below are links to different types of online materials:

Databases
The RFK Library provides access to a broader selection of EBSCO databases compared to PREL; however, the systems operate independently. Consequently, materials stored in a folder on the PREL platform cannot be accessed from the same database via the UOG system. Access to UOG databases from home is available for users with an updated library card. Alternatively, users may access the databases via University Wi-Fi by having the computer centre install the requisite software on their personal computers. You access these by clicking on the “Articles and Databases” link on the library webpage.

4.7 Plans for developing university library resources in support of the proposed program during the first five years of its operation.

The School of Engineering is in progress of internet accessibility for students in the teaching classroom and laboratories. Plans are underway to design the future computer laboratory in the new School of Engineering building to support students engaged in online coursework and bibliographic research.

4.8 Other instructional materials, if any, needed in support of the proposed program, itemized with cost estimates as projected for the first five years of operating the program.

The laboratories needed for the new program are already owned and operated by the School of Engineering. These labs include Structural and Materials, Geotechnical, and Surveying. These labs are currently housed in a few different locations on the Dean’s Circle, but they will be moved to the new SENG building soon. The new building will also have a Computer Laboratory that will be co-shared between CE and CM programs.

4.9 Special classrooms, laboratories and other capital outlay facilities, if any, needed in support of the proposed program, itemized and arranged by dates for the first five years of operating the program.

The CM program does not need any labs or classroom or other facilities solely dedicated to its use. Please refer to the response given to 4.8.

Appendix for Section 1.6

Program flowchart

UNIVERSITY OF GUAM
UNIBETSEDÅT GUÅHAN

Bachelor of Science in Construction Management Program Flowchart

Total Credits = 120

FRESHMAN YEAR

16 Credits

- EN-110 {3} Freshmen Composition
- CEE-100 {1} Intro. to Engineering
- FY-101 {3} First Year Seminar
- CH-102 {3} General Chemistry
- CH-102L {1} General Chemistry Lab
- MA-203 {5} Calculus I

16 Credits

- EN- 111 {3} Writing for Research
- CT-101 {3} Critical Thinking
- CEE-101 {3} Engineering Graphics
- PH-251 {3} University Physics
- PH-210 {1} University Physics Lab
- Elective {3} (refer to GenED courses) Human Sciences

SOPHOMORE YEAR

16 Credits

- CO-210 {3} Fundamentals of Communication
- NS-110 {3} Introduction to Earth
- NS-110L {1} Introduction to Earth Lab
- CEE-201 {3} Engineering Statics
- Elective {3} (refer to GenED courses) UU Regional
- Elective {3} (refer to GenED courses) Creative & Expressive

16 Credits

- CEE-203 {3} Mechanics of Materials
- CS-201 {4} Programming I
- CME2XX (3) Intro to Construction Management
- CME2XX (3) Construction Site Analysis
- Elective {3} (refer to GenED courses) Cultural Perspective

JUNIOR YEAR

15 Credits

- CEE-303 {3} Geotechnical Engineering
- CEE-303L {1} Geotechnical Engineering Lab
- CEE-304 {3} Civil Engineering Materials
- CEE-304L {1} Civil Engineering Materials Lab
- CME3XX (3) Construction Economics
- Elective {4} (refer to GenED courses) UU Language

18 Credits

- CEE-301 {3} Structural Analysis
- CME3XX (3) Building Information Modeling
- CME3XX (3) Construction Project Documents
- CME3XX (3) Estimating and Scheduling
- CEE-308/L {3} Introduction to Surveying/Lab
- Elective {3} (refer to GenED courses) Human Systems & Organizations

SENIOR YEAR

11 Credits

- CME4XX (3) Wood, Steel and concrete Structures
- CME4XX (3) Project Management
- CME4XX (3) Construction Safety
- CME4XX (2) Design I

12 Credits

- CEE-403 {3} Fundamental of Transportation Engineering
- CME4XX (3) Construction Law
- CME4XX (3) Mechanical Systems
- CME4XX (2) Design II
- CME4XX (1) Construction Profession

LEGEND:

- Math Placement Test required
- English Placement Test required
- All CEE 300 Level Courses and Instructor's Consent
- ——— Prerequisite
- - - - Corequisite
- { } Credit Hours

Revision Date: 10/17/2025

Appendix for Section 2.1

A list of the leading 50 Construction Management degree programs offered at other US universities.

intelligent

BEST CONSTRUCTION MANAGEMENT DEGREE PROGRAMS OF 2024

*Written by **Haley Nothstein***

Updated: April 4, 2024

Find your offline construction-management program in minutes!

Most schools have rolling admissions and financial help so you can start your degree in a few weeks!

I WANT MY
Bachelor's

IN
Trades & Careers

FOCUSING ON
Construction Management

FIND YOUR PROGRAM

Jum

Find your offline construction-management program in minutes!

A bachelor's degree in construction management prepares students to work in management or s r construction projects.

manage and guide construction projects from start to finish. Graduates are hired for positions such as construction manager, construction estimator, land planner, facilities manager, and site engineer.

The national median annual wage for construction managers is $101,480. Wages depend largely on the industry, location, and the applicant's education and experience. Heavy and civil engineering construction has the highest annual median wage ($104,600), while residential building construction has the lowest annual median wage ($82,860).

Earning a bachelor's degree in construction management takes students between three and four years of full-time study, with required credits ranging from 120 to 187, depending on the institution. The cost of a program will vary based on the school and program, housing requirements, and supplies needed. The average annual cost for a bachelor's degree is $16,618. Students who require room and board can expect to pay an average of $12,415 more annually.

How to Choose a Construction Management Program

Choose your area of study

When choosing your area of study, consider your career and educational goals. A bachelor's degree in construction management lays the groundwork for entering the workforce or continuing your studies with a master's degree in construction management. Take into account the

whether you'd like to continue your studies once you've earned your bachelor's degree.

Nearly all construction management degrees are offered as a Bachelor of Science, which delves into the logical, quantitative, research-based, and mathematical skills students will need in their future careers. Students can enter specializations like project management, construction technology, sustainable building, and urban development. If you need help determining what area of study is best suited to your career goals, speak with an academic advisor to help narrow down your choices and find the best fit.

Research schools and programs

When researching schools and programs, only consider accredited institutions. Attending a regionally accredited institution provides better opportunities for transferring credits, applying for financial aid, and earning government grants. Many employers and licensing programs won't accept applicants with a degree from an unaccredited university, as they don't meet the quality standards required for accreditation.

Look for construction management programs accredited by the Engineering Accreditation Commission of ABET or the American Council for Construction Education (ACCE). This accreditation verifies that the program curriculum meets the quality standards that will allow you to succeed in your profession.

program. Consider the following when making your choice:

- Will you be studying in-person or online?
- Are you applying as a full-time or part-time student?
- Do you prefer synchronous or asynchronous courses?
- What's the school culture like?
- What extracurriculars are available?
- How strong is the alumni association?
- Does the school offer job placement assistance?

Visit the school in person, browse the school and program websites, and speak with a representative to help you decide whether a program is right for you.

Prepare for tests and applications

Application requirements for a bachelor's degree in construction management typically include your most recent transcripts, a personal essay, and letters of recommendation. Depending on the institution, you may also be required to submit test scores, such as your SAT or ACT results. International students, or those with English as a second language, must also complete an English language proficiency test.

The application process and requirements vary by school, so it's important to speak with an admission counselor to confirm that you've

and submit it before the cut-off date.

Select your program

If you've been accepted to multiple programs, decide which option is best for your career goals, lifestyle, and logistical needs. Consider the program length, costs, housing options, specialization options, and extracurriculars offered. Choose the program that you feel will help you achieve your future goals and set you up for success.

If you need assistance in narrowing down your options, speak with an academic advisor. They can help you weigh the pros and cons of each option and guide you toward the best fit.

Determine how you'll pay for your degree

To determine whether you'll need financial assistance to pay for your degree, create a budget that outlines all of the costs you'll incur with your program. Include tuition, fees, supplies, housing, transportation, and living expenses.

Submit the Free Application for Financial Aid (FAFSA) to determine the amount of federal financial aid you're eligible to receive. Talk to your chosen school's financial aid officer to learn about other financial aid options, such as grants, scholarships, loans, and work-study funds. Talk to your employer about any tuition assistance programs the company offers.

The Top 50 Construction Management Degree Programs

01

02

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

BRIGHAM YOUNG UNIVERSITY

03

MISSOURI STATE UNIVERSITY

California Polytechnic State University

INTELLIGENT SCORE

99.92

Rankings

#2 Value Colleges
#3 College Factual
#7 College Raptor

School Information

San Luis Obispo, CA

Graduation Rate: 84%

Admission Rate: 33%

California Polytechnic State University offers a degree in Construction Management with a significant focus on protecting the environment. Students develop a strong skill set in construction techniques while building knowledge of materials, equipment, job planning, and cost control. Taught through an environmental lens, this curriculum helps prepare students for their future careers in organizing and managing the construction phase of any small- or large-scale project.

Freshman applicants are evaluated on high school coursework, GPA, extracurricular activities, and work experience. Transfer students must have a minimum of 60 completed credit hours to be eligible for admission, with a grade of C- or better on courses in Critical Thinking, Math Concepts/Quantitative Reasoning, Oral Communication, and Written Communication. A GPA of 2.0 or higher is required.

DELIVERY FORMAT

On-Campus

REQUIRED CREDITS TO GRADUATE

$126

ESTIMATED COST PER CREDIT

Resident: $1,110
Non-Resident: $1,374

ACCREDITATION

American Council for Construction Education

MORE PROGRAM INFORMATION

Email: admissions@calpoly.edu
Phone: 805-756-2311

Learn More

SUNY COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY

BRIGHAM YOUNG UNIVERSITY - IDAHO

06

WENTWORTH INSTITUTE OF TECHNOLOGY

07

VIRGINIA TECH

08

LOUISIANA STATE UNIVERSITY

09

KENT STATE UNIVERSITY

10

PITTSBURG STATE UNIVERSITY

11

APPALACHIAN STATE UNIVERSITY

12

UNIVERSITY OF MINNESOTA

13

EVERGLADES UNIVERSITY

14

OHIO NORTHERN

15

UNIVERSITY OF

16

MINNESOTA STATE UNIVERSITY, MANKATO

17

UNIVERSITY OF WISCONSIN AT PLATTEVILLE

18

SUNY COLLEGE OF TECHNOLOGY AT DELHI

19

KENNESAW STATE UNIVERSITY

20

21

CENTRAL CONNECTICUT STATE UNIVERSITY

INDIANA STATE UNIVERSITY

22

FERRIS STATE UNIVERSITY

23

ROGER WILLIAMS UNIVERSITY

24

CALIFORNIA STATE UNIVERSITY, EAST BAY

25

NORTHERN ARIZONA UNIVERSITY

UNIVERSITY OF CENTRAL MISSOURI

UNIVERSITY OF OKLAHOMA

28

ILLINOIS STATE UNIVERSITY

29

UTICA UNIVERSITY

30

THE UNIVERSITY OF TENNESSEE, KNOXVILLE

31

JOHN BROWN UNIVERSITY

32

MILWAUKEE SCHOOL OF ENGINEERING

33

UNIVERSITY OF WISCONSIN AT STOUT

34

WESTERN ILLINOIS UNIVERSITY

35

MIDDLE TENNESSEE STATE UNIVERSITY

36

CALIFORNIA STATE

37

PENNSYLVANIA COLLEGE OF

LONG BEACH

38

CALIFORNIA STATE UNIVERSITY, CHICO

39

DREXEL UNIVERSITY

40

NORWICH UNIVERSITY

41

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

42

43

BOISE STATE UNIVERSITY

SUNY COLLEGE OF TECHNOLOGY AT ALFRED

44

UNIVERSITY OF LOUISIANA MONROE

45

MISSISSIPPI STATE UNIVERSITY

46

WEBER STATE UNIVERSITY

47

BRADLEY UNIVERSITY

BALL STATE UNIVERSITY

CENTRAL WASHINGTON UNIVERSITY

50

CALIFORNIA STATE UNIVERSITY AT FRESNO

Discover More Options

I WANT MY
Bachelor's

IN
Trades & Careers

FIND YOUR PROGRAM

Sponsors Disclosure

This list features some of the best construction management degree programs at top colleges across the country. Each school featured is a nonprofit, accredited institution — either public or private — with a high standard of academic quality for postsecondary education. The programs on our list are accredited by agencies like the American Council for Construction Education (ACCE), a reputable organization that assesses construction management programs for educational excellence.

We evaluated each school's program on admission, retention, and graduation rates as well as tuition costs, faculty, reputation, and the resources provided for on-campus students. Then, we calculated the Intelligent Score on a scale of 0 to 100. Read more about our ranking methodology.

Next, we compared this comprehensive list of construction management degree programs to a list of aggregated college rankings from reputable publications like U.S. News & World Report, among others, to simplify a student's college search. We pored through these rankings so students don't have to

RELATED DEGREES

Business

Organizational Leadership

Sports Management

What Can You Expect From a Construction Management Program?

A construction management degree equips students with the practical tools and knowledge they need to manage construction projects from conception to completion. Coursework delves into the on-site facets of construction projects, including how to manage teams, organize projects, implement methods, create cost plans, and understand codes, blueprints, and legal issues.

As a full-time student, you can complete the program in four years, during which you will take both required and elective courses that cover the fundamentals and advanced topics you'll need to succeed in the industry. During your degree program, you'll engage in a variety of learning methods, including readings, laboratory exercises, 3D models, and site visits.

take in a construction management degree program

- **Construction Safety.** This course introduces students to the OSHA-certified safety practices of the construction industry and how to implement them. They will learn the role of these practices, the procedures used, and the theories behind them.
- **Construction Financial Management.** Students will learn to utilize accounting and financial principles in the construction industry, including calculating the financial needs of projects and how accounting systems work. Topics include cash flow, budgeting, and labor costs.
- **IT Project Management.** This course covers the resources and tools used to schedule, track, and measure productivity. Students will learn to plan, organize, and manage information systems to guide the success of a project.

construction of a mockup building, including the fabrication, assembly, documentation, team organization, and quality control of a building project.

Construction Management Degree Frequently Asked Questions

How do I apply to a construction management degree program?

To begin your application process, visit the school's website and locate the application page for your chosen program. Through this link, you'll be able to fill out an application form and submit all the required documents. These may include your most recent transcriptions, letters of recommendation, test scores, and personal statement or essay. Before

an admissions counselor to ensure you meet the requirements and submit the correct documents.

How much does a construction management degree cost?

How long does it take to earn a construction management degree?

Instagram
Twitter

Appendix for Section 2.2

Letters of Endorsement

October 16, 2025

Hiroshan Hettiarachchi, PhD, PE
Dean, School of Engineering (SENG)
Director, Water and Environmental Research Institute (WERI)
Professor of Civil Engineering
303 University Drive, Mangilao, GU 96923, USA
Email: hettiarachchi@triton.uog.edu

Ref: **School of Engineering at the University of Guam (UOG)**

Sub: **Letter of Endorsement for the Construction Management Program**

Håfa Adai,

As advisory council chair for the School of Engineering at the University of Guam (UOG) and a member of the construction management faculty search committee I would like to offer this letter of support and endorsement for the proposed Construction Management Program. I have been deeply involved with the School of Engineering's development over the past decade and have been an active participant in federal, local and private development on Guam and our region. Over the course of my 24-year experience as an engineer and construction manager on Guam, I have witnessed first-hand the need for construction managers and engineers.

This specialized field can make or break a construction project. Expertise in not only the technical aspects of construction, but also the management skills is essential for project success. A Construction Management Program will help develop vital management skills such as conflict resolution, scheduling and cost management. The engineering industry recognizes the importance of these competencies through professional engineering licensure with a focus on construction management.

The Construction Management Program is a natural and much-needed next step for the UOG School of Civil Engineering. I look forward to the launch of this important program.

Biba UOG!

Kenneth M. Rekdahl, PE, PLS
SENG Advisory Chairman
Vice-President Dueñas, Camacho and Associates, Inc

Address
Suite 308 Baltej Pavilion
415 Chalan San Antonio, Tamuning, Guam 96915

Office
671.989.9960

October 14, 2025

To Whom It May Concern:

As senior leaders of Pacific Rim Constructors Inc., we are proud to offer our full endorsement and enthusiastic support for the establishment of a Construction Management program at the University of Guam.

Pacific Rim Constructors is one of Guam's leading general contractors, with over $500 million in completed projects across federal, military, and private sectors. Our success is built on the strength of our workforce and our commitment to delivering resilient infrastructure that serves the island's long-term needs. As the complexity of construction projects increases, so does the need for a professionally trained, locally grounded talent pipeline.

A Construction Management program at the University of Guam would be a transformative investment in Guam's future. It would equip students with the technical knowledge, leadership skills, and real-world experience required to manage projects from concept to completion. More importantly, it would empower Guam's next generation of builders to take ownership of the island's development—ensuring that our future is shaped by those who understand its unique challenges and opportunities.

Pacific Rim Constructors is committed to supporting this initiative through internship placements, guest instruction, mentorship opportunities, and collaborative curriculum development. We view this program not only as an investment in education—but as a cornerstone of Guam's long-term resilience.

We commend the University of Guam for its foresight and leadership, and we stand ready to partner in its success.

Sincerely,

Keith Stewart
President & CEO
Pacific Rim Constructors Inc.
Email: keith.stewart@pacificrimgc.com
Phone: (671) 989-9960

Noel Enriquez
Director of Operations
Pacific Rim Constructors Inc.
Email: noel.enriquez@pacificrimgc.com
Phone: (671) 989-9960

Appendix for Section 3.6

Enrollment in CE courses for Fall 2025 current

Lower Division							
Lecture				Laboratory			
Course #	# of Students	Credits	Total	Course #	# of Students	Credits	Total
CEE100-01	24	1	24	NA			
CEE100-02	23	1	23				
CEE100-03	24	1	24				
CEE101-01	21	3	63				
CEE101-02	21	3	63				
CEE201-01	18	3	54				
CEE201-02	19	3	57				
CEE202-01	19	3	57				
CEE203-01	21	3	63				
CEE204-01	21	3	63				
CEE204-02	10	3	30				
		Total	**491**				

Upper Division							
Lecture				Laboratory			
Course #	# of Students	Credits	Total	Course #	# of Students	Credits	Total
CEE301-01	14	3	42	CEE303L-01	3	1	3
CEE303-01	23	3	69	CEE303L-02	14	1	14
CEE304-01	21	3	63	CEE304L-01	11	1	11
CEE401-01	15	3	45	CEE304L-02	10	1	10
CEE402-01	13	3	39				
CEE404-01	4	2	8				
CEE404-02	4	2	8				
CEE404-03	3	2	6				
CEE404-04	3	2	6				
		Total	**286**			**Total**	**38**

Appendix for Section 4.1

Faculty CVs

Hiroshan Hettiarachchi, PhD, PE
School of Engineering, University of Guam, 303 University Drive, Mangilao, Guam 96923
+1 671 735 2761 (office) | hettiaachchi@triton.uog.edu
LinkedIn | ResearchGate | Google Scholar | YouTube

SUMMARY

Globally recognized academic leader in environmental sustainability and civil engineering; 25 years of diverse experience in academic/industry/research settings and new program development; Driven to inspire global community to achieve sustainability goals; Proven expertise in program leadership and new initiative creation in diverse environments including the United Nations (UN).

EXPERTISE

- Sustainability
- Circular Economy
- Waste Management
- Water Recycling
- Geotechnical Engineering
- Environmental Engineering
- Climate Adaptation
- UN Sustainable Goals
- Technical Communication
- Capacity Development
- Educational/Training Programs
- Policy Analysis/Advice

EXPERIENCE

University off Guam (UOG) — ***Guam, USA***
Dean – School of Engineering, Professor — Mar. 2024 – date

Independent Consultant — ***Michigan, USA***
Environmental Sustainability, Circular Economy, Waste management, & Geotechnical Eng. — Jan. 2020 – Feb.2024

United Nations University (UNU-FLORES) — ***Dresden, Germany***
Head – Waste (Resources) Management Unit, Professor — Dec. 2013 – Dec. 2019
Coordinator, PhD Program in integrated management of water-soil-waste — Apr. 2014 – Mar. 2016

Lawrence Technological University (LTU) — ***Southfield, MI, USA***
Director, Civil Engineering Graduate Programs — Jan. 2010 – Jun. 2013
Associate Professor in Civil Engineering — Jan. 2011 – Dec. 2014
Assistant Professor in Civil Engineering — Jan. 2006 – Jan. 2011

Langan Engineering & Environmental Services — ***Elmwood Park, NJ, USA***
Geotechnical Engineer — Aug. 2005 – Dec. 2005

Matrix New World Engineering — ***East Hanover, NJ, USA***
Geotechnical Engineer — Jun. 2005 – Aug. 2005

New Jersey Institute of Technology — ***Newark, NJ, USA***
Researcher/Teaching Assistant — May 2001 – May 2005

Lanka Hydraulic Institute — ***Moratuwa, Sri Lanka***
Research Engineer — Sep. 1998 – Aug. 1999

EDUCATION

New Jersey Institute of Technology — ***USA***
PhD in Civil Engineering (GPA 4.0/4.0) — 2005

Asian Institute of Technology — ***Thailand***
MEng in Soil Engineering — 2001

University of Moratuwa — ***Sri Lanka***
BScEng (Honors) in Civil Engineering — 1998

HOBBIES AND INTERESTS

Passionate about travel and learning other cultures and have visited about one hundred countries covering all continents; Love jogging, walking, reading, music, watching inspiring movies; Enjoy giving academic and career advice.

SUMMARY OF PROGRAM DEVELOPMENT EXPERIENCE (Selected)

New Research Programs:

- UNU-FLORES research program on integrated management of water, soil, and waste (Germany, 2013-2019)
- Waste (Resources) Management Unit at UNU-FLORES (Germany, 2014-2019)
- LTU research program on Landfills, properties and behavior of municipal solid waste (MSW) and soils (USA, 2006-2013)

New Educational Programs:

- PhD in integrated management of water, soil, and waste (UNU, Germany, 2014)
- PhD in Civil Engineering (LTU, USA, 2011)
- Postgraduate Certificate in Design-Build Construction (LTU, USA, 2011)
- Postgraduate Certificate in Fire Engineering (LTU, 2012)

New Capacity Development Programs (since 2013):

- Circular Economy (The Netherlands, Ireland, India, Greece, Ghana, 2018-2020)
- Nexus Thinking in Environmental Resources Management (Iran, Egypt, India, Germany, 2015-2019)
- Wastewater Recycling in Agriculture (Peru, Iran, Mexico, Tunisia, Colombia, 2015-2019)
- Organic Waste Composting (Finland, Italy, Colombia, Tanzania, Ghana, India, Sri Lanka, 2018-2020)
- Phytocaps for greenhouse gas emission control (Asia/Pacific Region, 2014)

SCIENTIFIC/CAPACITY DEVELOPMENT TRAINING EVENTS ORGANIZED (SELECTED)

- Urban Solid Waste Management & Circular Economy – International multi-stakeholder forum, October 15-17, 2019 at the University of Ghana, Accra, Ghana.
- Safe Use of Wastewater in Agriculture: Exchanging Knowledge in Colombia, Capacity Development Workshop attended by 40 government officials, November 27-28, 2018, Bogota, Colombia.
- Safe use of Wastewater in Agriculture and the Nexus Thinking – International Workshop attended by 25-30 researchers and government officials, December 12-14, 2017, National Research Institute for Rural Engineering, Water, and Forestry (INRGREF), Tunisia.
- Nexus Approach in Environmental Resources Management; International Workshop attended by 40-50 researchers, academicians and government officials, November 12-13, 2017, University of Tabriz, Tabriz, Iran.
- Safe Use of Wastewater in Agriculture (SUWA) International Workshop: Sustainable Wastewater & Sludge management; 30 researchers, academicians, and government officials from Mexico; March 15-17, 2017, Hidalgo, Mexico.
- Safe Use of Wastewater in Agriculture (SUWA) International Workshop: Capacity Development Aspects; 140 researchers, academicians, and government officials from Iran; December 5-7, 2017, Tehran Iran.
- Safe Use of Wastewater in Agriculture (SUWA) International Workshop: Good Practice Examples and Future Research Needs; 35 researchers, academicians, and government officials from 17 countries in Latin America, Africa and Asia; February 24-25, 2016 in Lima, Peru.
- Dresden Nexus Conference 2015, Dresden, Germany, March 2015 (in progress, 250+ participants expected from all continents)
- Research Proposal Coaching Workshop for Marie Curie Post-Doctoral Fellowships, at TU-Dresden, Germany, in collaboration with the German Federal Ministry for Education and Research (BMBF IPSWat program), Feb 2015
- Regional Workshop on Sustainable Management of Wastewater in Maputo, Mozambique, attended by 6 African Countries and International Water Management Institute, June 2014.
- Regional Workshop on Phytocap Technology in Sustainable Waste Containment attended by 11 Asian countries, UNU in collaboration with New Jersey Institute of Technology, University of Melbourne, The National Science Foundation of Sri Lanka, and the Open University of Sri Lanka, Colombo Sri Lanka, May 2014.
- UNU-FLORES 2013 Nexus Kickoff Workshop, Dresden, Germany, November 2013.
- Landfill Settlement (Session#15), Geocongress 2012 International Conference, Oakland California, USA, March 2012
- One-day workshop on Problem Based Learning attended by delegates from Shanghai, China, sponsored by LTU, Lawrence Technological University, Southfield, MI, August 2011.
- One-week workshop on Problem Based Learning, for selected group of faculty members at LTU, sponsored by Kern Foundation, Lawrence Technological University, Southfield, MI, May 2011.

GRANT REVIEWER (SUSTAINABILITY, WASTEMANAGEENT, & ENVIRONMENTAL ENGINEERING)

- European Union – Horizon 2020/Eurizon Program, Brussels, Belgium (Since 2023)
- Swiss National Science Foundation, SNSF, Bern, Switzerland (since 2018)
- Indo-German Science & Technology Centre/DLR/BMBF, Bonn, Germany (since 2017)
- Alexander von Humboldt Foundation, Bonn, Germany (since 2017)
- German Academic Exchange Service DAAD, Bonn, Germany, (since 2016)
- Mitac (Canadian NGO for Postdoctoral Research Grants), Montreal, Canada (2013)
- Shota Rustaveli National Science Foundation, Tbilisi, Georgia (2008-2014)

PUBLICATION REVIEWER

- **Book Reviewer for:** CRC-Press, Routledge, Elsevier
- **Journal Reviewer** (partial list of more frequent ones in the recent past):
  Agronomy (MDPI), Water (MDPI) Sustainability (MDPI), Environment (MDPI), Recycling (MDPI), Resources (MDPI), International Journal of Environmental Research & Public Health (MDPI), Energies (MDPI), Environmental Quality Management (Wiley), Development and Change (Wiley), Water research & Technology (Royal Society of Chemistry), Cogent Public Health (Cogent), Frontiers in Sustainability (Frontiers), Journal of Environmental Management (ScienceDirect), Resources Conservation & Recycling (ScienceDirect), Waste Management (ScienceDirect), Nature Scientific Reports (Nature-Springer), Small Business Economics (Springer), Environmental Monitoring and Assessment (Springer), Material Cycles & Waste Management (Springer), Discover Sustainability (Springer), Circular Economy & Sustainability (Springer), Waste and Biomass Valorization (Springer), Journal of Geotechnical & Geological Engineering (Springer), Journal of Environmental Engineering (ASCE), Journal of Geotechnical and Geoenvironmental Engineering (ASCE), Journal of Hazardous, Toxic and Radioactive Waste (ASCE), Geotechnical Testing Journal (ASTM), Canadian Geotechnical Journal (Canadian Science Publishing), Environmental Technology (Taylor & Francis),

KEYNOTES ADDRESSES AND INVITED TALKS DELIVERED (Selected)

- *Green Containers Program (GCP): Cajicá, Municipality, Colombia*, A panel discussion at the Bio-waste Alchemy Webinar Organized by the United Nations Development Program (UNDP), New York, NY, USA, February 21, 2024 (via Zoom)
- *Circular Economy*: *An Introduction Through Observations*, Invited Talk delivered to LAM RESEARCH (a company in the semiconductor development business) in California USA and their supply chain around the world July 31, 2023 (via MS-Teams)
- *Global Perspective of Waste Management*, An Invited Q&A Session, Tomsk International Science Program (TISP) at Tomsk State University in Russia in collaboration with the Maastricht University in the Netherlands, June 22, 2021(via Zoom)
- *The Role of Desalination in Sustainable Development*, Keynote, World Water Day 2021 international event organized by the FIN Trust, India and United Nations University (MERIT), The Netherlands, March 22, 2021 (via Zoom)
- *Circular Economy*: *Turning the Waste Challenge into a Resource Opportunity*, Invited Lecture, Old Anandian Engineers' Guild – Sri Lanka, July 24, 2020 (via Zoom)
- *Circular Economy: Opportunity versus Challenge*, Invited Lecture, Society of Structural Engineers – Sri Lanka, June 30, 2020 (via Zoom due to COVID19)
- *Circular Economy*: *Closing the Loop with Tweaking the Policies*, Invited Talk at the at the 4th International conference on Sustainable Energy and Environmental Challenges (IV SEEC), in Nagpur, India, November 2019
- *Sustainable Waste Management in a Circular Economy*, Invited Talk at the International Conference on New Horizons in Biotechnology 2019, Trivandrum, Kerala, India, November 2019
- *Waste Management and Circular Economy: Turning a Problem into a Solution*, Nexus Seminar Series, Dresden, Germany, November 2019
- *The Peak of Sustainable Waste Management Assures the Sustainability of Natural Resources, But Only in a Circular Economy, International Urbanism Program*, Keynote Address at the First International Conference on Sustainability of Natural Resources Sustainable Solid Waste Management, Buraidah, Saudi Arabia, November 2019

- *Circular Economy and Waste Management*, 42nd International Postgraduate Course on Environmental Management (CIPSEM), Dresden, Germany, June 2019
- *Circular Economy: Opportunity versus Challenge and Why?* SDG Festival of Global Action, Bonn, Germany, May 2109
- *Linking Circular Economy and Waste Management with Nexus Thinking*, Africa Towards Circular Economy – Conference, Kampala, Uganda, April 2019
- *Realizing the True Potential of Recycling in a Circular Economy with Nexus Thinking*, Recycling Summit 2019, Singapore, Singapore, March 2019
- *Circular Economy and Waste Management in the Light of Nexus Thinking*, 41st International Postgraduate Course on Environmental Management (CIPSEM), Dresden, Germany, June 2018
- *Circular Economy and Waste Management in the Light of Nexus Thinking*, United Nations University (MERIT) Circular Economy Conference, Maastricht, The Netherlands, June 2018
- *Enhancing Nexus Thinking with Safe Utilization of Waste in Agriculture*, Israel, The Volcani Center, Ministry of Agriculture and Rural Affairs, Tel Aviv, Israel, June 2018
- *Safe Use of Wastewater in Agriculture (SUWA) in the Light of Nexus Thinking*, Soil-Water-Waste Conference, University of Landau, Landau, Germany, March 2018
- *Nexus Approach in Environmental Resources Management and the Role of Waste*, University of Tabriz, Tabriz, Iran, November 2017
- *Managing Waste as a Resource with Water and Soil*, 40th International Postgraduate Course on Environmental Management (CIPSEM), Dresden, Germany, June 2017
- *Managing Waste as a Resource with Water and Soil: The Nexus Approach*, International Conference on Integrated Solid Waste Management Practices in Developing Countries, NEERI, Nagpur, India, April 2017
- *The Role of Waste in the Water-Soil-Waste Management Nexus*, Nexus Seminar Series, Dresden, Germany, January 2016
- *Waste Management in a Water-Soil-Waste Nexus*, Regional Conference on Waste Management in Egypt, Port Said, Egypt, November 2015

PUBLICATIONS (Selected)

Books:

1. Ramani, S. and **Hettiarachchi, H.** (2022). "SDG11 Sustainable Cities & Communities: Moving Forward with the Circular Economy," ISBN 9781032072258, Routledge, India. https://www.routledge.com/SDG11-Sustainable-Cities-and-Communities/Ramani-Hettiarachchi/p/book/9781032072258
2. Das, B.B., **Hettiarachchi, H**., Kumar, Sahu, P.K., andNanda, S. (2022), "Recent Developments in Sustainable Infrastructure (ICRDSI-2020)—GEO-TRA-ENV-WRM," ISBN 9789811675089, Springer, Singapore. https://link.springer.com/book/9789811675089
3. **Hettiarachchi, H.**, Caucci, S., and Schwärzel, K. (2020). "Organic Waste Composting through Nexus Thinking: Practices, Policies, and Trends," ISBN 978-3-030-36283-6, Springer. https://link.springer.com/book/10.1007/978-3-030-36283-6
4. **Hettiarachchi, H.** and Ardakanian, R. (2018). "Safe Use of Wastewater in Agriculture: From Concept to Implementation," ISBN 978-3-319-74268-7, Springer Nature, Switzerland.
   English: https://link.springer.com/book/10.1007/978-3-319-74268-7
   Chinese: http://www.waterpub.com.cn/shop/detail_535948.html
5. Bandara, N. and Gunaratne, M. (2018). "Geotechnical Aspects of Pavement Engineering," Edited by **Hettiarachchi, H**., ISBN-13: 978-1-60650-540-3 (print) ISBN-13: 978-1-60650-541-0 (e-book), Momentum Press, New York.
6. **Hettiarachchi, H.** (2017). Dresden Nexus Conference Policy Brief Series: Anthology of the 2015 Editions (Climate Change, Energy, and Natural Resources). ISBN: 978-3-944863-62-7, e-ISBN: 978-3-944863-63-4, United Nations University (UNU-FLORES), Dresden, Germany.
7. **Hettiarachchi, H.** and Ardakanian, R. (2016). "Good Practice Examples of Wastewater Reuse," UNU-FLORES, ISBN 978-3-944863-30-6 (web), ISBN 978-3-944863-31-3 (print), Dresden, Germany.
   English (2016): https://collections.unu.edu/view/UNU:5764
   Spanish (2017): https://collections.unu.edu/view/UNU:5957
   Farsi (2018): https://collections.unu.edu/view/UNU:6420
   Arabic (2019): https://collections.unu.edu/view/UNU:7500
8. **Hettiarachchi**, **H**. and Ardakanian, R. (2016). "*Environmental Resource Management and Nexus Approach: Managing Water, Soil, and Waste in the Context of Global Change,"* ISBN 978-3-319-28593, Springer Nature, Switzerland. http://www.springer.com/us/book/9783319285924
9. De, A. (2016). "Geotechnical Site Characterization," Edited by **Hettiarachchi, H.**, Momentum Press, New York.

10. Reddy, K.R. and Adams, J. (2015). "Sustainable Remediation of Contaminated Sites," Edited by **Hettiarachchi, H.**, ISBN 9781606505205, Momentum Press, New York.

Book Chapters:

11. Mahjoub, O., **Hettiarachchi**, H., Gharbi, N., Dekhil, S., Mekada, M., Mekada, S., Charfeddine, M., Zarga, M., Majdoub, N., Jemai, A., Rmili, M. (To be released in 2022). "Diversity, sustainability and tradition: Wastewater reuse and new cropping system - Ouardanine, Tunisia," in Chapter 5: Places and Cases of *Water-Energy-Food-Ecosystem Nexus in the Mediterranean*, Edited by Laspidou, C., Easton, P., and Gawlik, B.M., pages 114-115, Joint Research Center, European Commission, Brussels, Belgium.
12. **Hettiarachchi, H.** (2022). "SDG 11: challenges and the way forward," in *SDG11 Sustainable Cities & Communities: Moving Forward with the Circular Economy* Edited by Ramani, S. and Hettiarachchi, H., ISBN 9781032072258, Routledge, India.
13. **Hettiarachchi, H.** and Mhaddolkar, N. (2022). "Mysuru: the story of a clean city in India," in *SDG11 Sustainable Cities & Communities: Moving Forward with the Circular Economy* Edited by Ramani, S. and Hettiarachchi, H., ISBN 9781032072258, Routledge, India.
14. **Hettiarachchi**, H., Bouma, J., Caucci, S., and Zhang, L. (2020). "Organic Waste Composting Through Nexus Thinking: Linking Soil and Waste as a Substantial Contribution to Sustainable Development," in *Organic Waste Composting through Nexus Thinking: Practices, Policies, and Trends*, ISBN 978-3-030-36283-6-1, Springer.
15. Rivera Machado, C. and **Hettiarachchi**, H. (2020). "Composting as a Municipal Solid Waste Management Strategy: Lessons Learned from Cajicá, Colombia," in *Organic Waste Composting through Nexus Thinking: Practices, Policies, and Trends*, ISBN 978-3-030-36283-6-2, Springer.
16. **Hettiarachchi**, H. and Kshourad, C. (2019). "Promoting Waste-To-Energy: Nexus Thinking, Policy Instruments and Implications for the Environment," in Current Developments in Biotechnology & Bioengineering: Waste Treatment Processes for Energy Generation edited by Kumar et al., Elsevier, ISBN: 978-0-444-64083-3, doi.org/10.1016/B978-0-444-64083-3.00009-9.
17. **Hettiarachchi**, H. Caucci, S. and Ardakanian, R. (2018). "Chapter 1: Safe Use of Wastewater in Agriculture: The Golden Example of Nexus Approach," in Safe Use of Wastewater in Agriculture: From Concept to Implementation, Springer Nature, Switzerland.
18. Knitschky, R. and **Hettiarachchi**, H. (2018). "Chapter 4: Selecting the Treatment Technology for Wastewater Use in Agriculture Based on a Matrix Developed by the German Association for Water, Wastewater, and Waste," in Safe Use of Wastewater in Agriculture: From Concept to Implementation, Springer Nature, Switzerland.
19. **Hettiarachchi**, **H**. and Ardakanian, R. (2016). "Chapter 1: Managing water, soil, and waste in the context of global change in *Environmental Resource Management and Nexus Approach,"* ISBN 978-3-319-28593-, Springer Nature, Switzerland.
20. Meegoda J.N., **Hettiarachchi, H**., and Hettiaratchi, P. (2016). "Chapter 18: Landfill Design Operation in *Sustainable Solid Waste Management*, ISBN 978-0-7844-1410-1 (print), ISBN 978-0-7844-7930-8 (pdf), ASCE, Reston, VA, USA.

Journal Papers:

21. Bandara, N., **Hettiarachchi**, H., Jensen, E., and Villeneue, N. (in preparation). "Safe use of recycled concrete pavements as base aggregates in new pavement construction, (to be submitted to Transportation Research Records) TRB, Washington DC, USA.
22. Gursoy Haksevenler, B.H., Akpin, A., and **Hettiarachchi**, H. (2023). The social dimensions of an incentive-based urban recycling program: a case-study from Istanbul, Turkey. MDPI Sustainability, Basel, Switzerland, 2023, 15, 15775, https://doi.org/10.3390/su152215775
23. **Hettiacrachchi,** H. and Meegoda, J.N. (2023). Microplastic Pollution Prevention: The Need for Robust Policy Interventions to Close the Loopholes in Current Waste Management Practices. Int. J. Environ. Res. Public Health MDPI, Basel, Switzerland, 2023, 20, 6434. https://doi.org/10.3390/ijerph20146434
24. **Hettiarachchi**, H., Irandoost, E., Hettiaratchi, J.P., Pokhrel, D. (2023). "A field-verified model to estimate landfill methane flux using surface methane concentration measurements under calm wind conditions," ASCE Journal of Journal of Hazardous, Toxic, and Radioactive Waste, Vol. 27, Issue 4, https://doi.org/10.1061/JHTRBP.HZENG-1226.

25. Bandara, N., **Hettiarachchi**, H., Jensen, E., Binoy, T.H., and Perera, R. (2023). "Using Kiln Dust to Improve Weak Subgrades for Pavement 2 Construction: A field Verification in Michigan, USA," *MDPI Geotechnics, 3, 179–192. https://doi.org/10.3390/*

26. Kokkinos, P., Comia Jr., J.R., Caucci, S., **Hettiarachchi,** H., Ballesteros Jr., F.C., Oron, G., Salgot, M., Kalavrouziotis, I.K. (2022). "Wastewater and sludge reuse: selected case studies across the globe," Desalination and Water Treatment, Volume: 250 (2022), 65-79, doi.org/10.5004/dwt.2022.28183.

27. Singh, D., Patel, N., Patra, S., Singh, N., Roy, T., Caucci, S., **Hettiarachchi**, H. (2021). "Efficacy of Drip Irrigation in Controlling Heavy Metal Accumulation in Soil and Crop," *Journal of Environmental Engineering and Science*, Volume 16 Issue 3, ICE Publishing, UK, doi.org/10.1680/jenes.20.00056.

28. Bandara, N., **Hettiarachchi**, H., Jensen, E., and Binoy, T.H. (2020). "Upcycling Potential of Industrial Waste in Soil Stabilization: Use of Kiln Dust and Fly Ash to Improve Weak Pavement Subgrades Encountered in Michigan, USA," *MDPI Sustainability* 2020, 12, 7226, doi.org/10.3390/su12177226.
29. Oh, J. and **Hettiarachchi**, H. (2020). "Collective Action in Waste Management: A Comparative Study of Recycling and Recovery Initiatives from Brazil, Indonesia, and Nigeria Using the Institutional Analysis and Development Framework." *Recycling* **2020**, *5*, 4. https://www.mdpi.com/2313-4321/5/1/4
30. Nguyen, T.H., Helm, B., **Hettiarachchi**, H., Caucci, C., and Krebs, P. (2020). "Quantifying the information content of a water quality monitoring network using principal component analysis: a case study of Freiberger Mulde river basin Germany," MDPI Water.
31. Mandpe, A., Lakshmikanthan, P., Kumar, S., and **Hettiarachchi**, H. (2020). "Mining for Recovery as an Option for Dumpsite Rehabilitation: A Case Study from Nagpur, India," Journal of Environmental Engineering and Science, ICE Publishing. https://www.icevirtuallibrary.com/doi/pdf/10.1680/jenes.19.00021
32. Ferrans, L., Avellán, T., Mueller, A., **Hettiarachchi**, H., Dornack, C., and Caucci, S. (2020). "Selecting sustainable sewage sludge reuse options through a systematic assessment framework: Methodology and Case study in Latin America," Journal of Cleaner Production, Volume 242, 118389, https://doi.org/10.1016/j.jclepro.2019.118389.
33. Subramanian, B., **Hettiarachchi**, H., and Meegoda, J.N. (2019). "Crop Residue Burning in India: Policy Challenges and Potential Solutions," Int. J. Environ. Res. Public Health 2019, 16, 832; doi:10.3390/ijerph16050832
34. Nguyen, T.H., Helm, B., **Hettiarachchi**, H., Caucci, C., and Krebs, P. (2019). "The selection of design methods for river water quality monitoring networks: a review," Environ Earth Sci 78: 96, doi.org/10.1007/s12665-019-8110-x
35. **Hettiarachchi,** H., Meegoda J.N., and Ryu S., (2018). "Organic Waste Buyback as a Viable Method to Enhance Sustainable Municipal Solid Waste Management in Developing Countries," Int. J. Environ. Res. Public Health 2018, 15(11), 2483; https://doi.org/10.3390/ijerph15112483
36. **Hettiarachchi,** H., Ryu S., Caucci S., Silva R. (2018). "Municipal Solid Waste Management in Latin America and the Caribbean: Issues and Potential Solutions from the Governance Perspective," Recycling 2018, 3(2), 19; https://doi.org/10.3390/recycling3020019.
37. Ismail, A. and **Hettiarachchi**, H (2017). "Environmental Damage Caused by Wastewater Discharge into the Lake Manzala in Egypt: A Comprehensive Investigation on the Levels of Physical, Chemical and Bacterial Pollutants," American Journal of Bioscience and Bioengineering, Science Publishing Group, ISSN: 2328-5885 (Print); ISSN: 2328-5893 (Online), 2017; 5(6): 141-150.
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39. Meegoda, J.N., Bhuvaneshwari, S., Hettiaratchi, P.A., and **Hettiarachchi, H.** (2016). "A comprehensive model for anaerobic degradation in bio-reactor landfills," Special Thematic Issue on Greenhouse Gas Emission Reduction using Biological Methods, Journal of Current Environmental Engineering, DOI: 10.2174/2212717803666160729114117, Vol. 3, No. 2.
40. Bardi, U., Jakobi, R., and **Hettiarachchi**, **H**. (2016). "Mineral Resource Depletion: A Coming Age of Stockpiling?" Journal of Biophysical Economics and Resource Quality, DOI 10.1007/s41247-016-0004-x, Springer.
41. Reddy, K.R., H. **Hettiarachchi**, R.K. Giri, and J. Gangathulasi, (2015). "Effects of Degradation on Geotechnical Properties of Municipal Solid Waste from Orchard Hills Landfill, USA," Int. J. of Geosynth. and Ground Eng by Springer, (2015) 1:24, DOI 10.1007/s40891-015-0026-2
42. **Hettiarachchi,** H., Hettiaratchi, J.P.A., Hunte, C. and Meegoda, J.N. (2013). "The Calgary Biocell Project: Lessons Learned During Early Stages of Operation," Journal of Hazadous, Toxic and Radioactive Waste – Special Issue on Bioreactor Landfills, Vol. 17, No. 4.
43. McClerren, M.A., **Hettiarachchi**, H., and Carpenter, D. (2012). "An Investigation on Erodibility and Geotechnical Characteristics of Fine-Grained Fluvial Soils from Lower Michigan," Geotechnical and Geological Engineering Journal, 30 (4), 881-892, DOI: 10.1007/s10706-012-9507-4.
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47. Moran, A.R. and **Hettiarachchi**, H. (2011). "Geotechnical Characterization of Mined Clay from Appalachian Ohio: Challenges and Implications on Clay Mining Industry," International Journal of Environmental Research and Public Health: Special Issue on Advances in Environmental Geotechnics, ISSN 1660-4601, MDPI Publishing, Basel, Switzerland.
48. **Hettiarachchi**, H. and Thani, J. (2011). "Variation of shear strength properties with the organic fraction in unsaturated synthetic municipal solid waste," Geotechnical Special Publication No. 211, ISBN 978-0-7844-1165-0.
49. Murley, S.C. and **Hettiarachchi**, H. (2011). "Predicting Shear Strength Properties for Low-Sensitivity Granular-Cohesive Soils from SPT Results," Geotechnical Special Publication No. 211, ISBN 978-0-7844-1165-0.
50. Hunte, C., J.P.A. Hettiaratchi, H. **Hettiarachchi** and J.N. Meegoda (2011). "Determination of Waste properties from Settlement Behaviour of a Full-Scale Waste Cell operated as a Landfill Bioreactor." Geotechnical Special Publication No. 211, ISBN 978-0-7844-1165-0.
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53. McClerren, M.A., **Hettiarachchi**, H., and Carpenter, D. (2010). "Laboratory and Field Investigation on Variation of Erodibility with Dry Unit Weight of Different Soils," ASCE Geotechnical Special Publication No. 199, ISBN 978-0-7844-1095-0.
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69. Rowe, G.M., J.N. Meegoda, A.A. Jumikis, M.J. Sharrock, N.Bandara, and C.H. **Hettiarachchi** (2004). "NJTxtr -A Computer Program based on LASER to Monitor Asphalt Segregation," ASCE Journal of Construction Engineering and Management, 130(6), 924-934.

UN-Specific Publications:

70. Mahjoub, O., **Hettiarachchi**, H., Gharbi, N., Dekhil, S., Mekada, M., Mekada, S., Charfeddine, M., Majdoub, N., and Zarga, M. (2023). "Diversity, Sustainability, and Tradition: Wastewater Reuse for a New Cropping System," in *the gateway to the future of the Mediterranean: water, energy, food and the environment* edited by Zamel, D., Constantianos, V., Gawlik, B., et al., ISBN 978-92-76-43374-3, Publications Office of the European Union, European Commission Joint Research Centre, https://data.europa.eu/doi/10.2760/38718
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72. Georgiou, I., **Hettiarachchi, H.** and Caucci, S. (2020). "Towards a Unified Index for Assessing the Sustainability of Wastewater Irrigation," UNU-FLORES Working Paper Series #7, e-ISBN: 978-3-944863-83-2, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany
73. Jiménez Contento, N., Caucci, S., and **Hettiarachchi, H.** (2019). Safe Use of Wastewater in Agriculture: Exchanging Knowledge in Colombia, ISBN 9783944863788, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
74. Caucci, S., and **Hettiarachchi, H.** (2018). The Nexus Approach and Safe Use of Wastewater in Agriculture: Policy and Implementation for Tunisia, ISBN 9783944863726, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
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77. Bardi, U., Jakobi, R., and **Hettiarachchi, H.** (2017). "The Metal Bank: A Management Model for Rare Mineral Resources in a Circular Economy." Policy Brief No. 01/2017, ISBN: 978-3-944863-52-8, e-ISBN: 978-3-944863-53-5 United Nations University Institute for the Integrated Management of Material Fluxes and of Resources, Dresden, Germany.
78. Caucci, S. and **Hettiarachchi, H.** (2017). Wastewater Irrigation in the Mezquital Valley, Mexico: Solving a Century-Old Problem with the Nexus Approach ISBN 9783944863580, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
79. **Hettiarachchi, H.** and Ardakanian, R. (2017). Safe Use of Wastewater in Agriculture: Policy and Implementation for Iran, ISBN 9783944863566, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
80. **Hettiarachchi, H.** (2017). Safe Use of Wastewater in Agriculture: Good Practice Examples and Future Research Needs, ISBN 9783944863641, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
81. Mercy, M.W. (2017). Assessment of the Effects of Climate Change on Land Use and Land Cover Using Remote Sensing: A Case Study from Kenya, DNC Working Paper. Edited by **Hettiarachchi, H.**, ISBN 9783944863504, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES).
82. Tolksdorf, J., Bieker, S. and Cornel, P. (2016). Implementation of SEMIZENTRAL: An Integrated Infrastructure Approach for Fast-Growing Cities, DNC Working Paper DNC2015/02, Edited by **H. Hettiarachchi**, ISBN 9783944863429, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
83. Wieben, E. (2016). The Post-2015 Development Agenda: How Food Loss and Waste (FLW) Reduction Can Contribute Towards Environmental Sustainability and the Achievement of the Sustainable Development Goals, DNC Working Paper DNC2015/01, Edited by **H. Hettiarachchi**, ISBN 9783944863429, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
84. Sveinsson, O.G.B. (2016). "Energy in Iceland: Adaptation to Climate Change," DNC PolicyBrief DNC2015/04, Edited by H. **Hettiarachchi**, e-ISBN 978-3-944863-39-9, ISBN 978-3-944863-38-2, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
85. Guta, D.D. (2016). "Energy resource use options for improved energy security in Ethiopia," DNC PolicyBrief DNC2015/03, Edited by H. **Hettiarachchi**, e-ISBN 978-3-944863-37-5, ISBN 978-3-944863-36-8, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
86. Olorunfemi, F., Fasona, M., Oloukoi G., Elias P., and Adedayo V. (2016). "Natural Resource Use and Adaptation to Climate Change in the Nigerian Savanna." DNC PolicyBrief DNC2015/02, Edited by H. **Hettiarachchi,** e-ISBN 978-3-944863-35-1, ISBN 978-3-944863-34-4, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.

87. Sušnik, J. (2016). "Economic growth and resource use: Exploring the links." DNC Policy Brief No. 01, Edited by H. **Hettiarachchi,** e-ISBN 978-3-944863-29-0, ISBN 978-3-944863-28-3, United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany.
88. Mohtar, R.H., Assi, A.T., and Daher, B.T. (2015). "Bridging the Water and Food Gap: The Role of the Water-Energy-Food Nexus," UNU-FLORES Working Paper Series 3, Edited by H. **Hettiarachchi**, e-ISBN 978-3-944863-21-4, ISBN 978-3-944863-20-7, Dresden United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES).
89. Lawford, R. (2015). "Adapting to Climate Change: The Role of Science and Data in Responding to Opportunities Challenges in the Water-Soil-Waste Nexus," UNU-FLORES Working Paper Series 3, Edited by H. **Hettiarachchi**, e-ISBN 978-3-944863-35-1, ISBN 978-3-944863-34-4, Dresden United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES).

Conference Publications & Reports:

90. Saranga Munasinghage, S., **Hettiarachchi**, H., Hettiaratchi, P., and Wong, R.C.K. (2024). "Settlement Analysis of Calgary Landfill Biocell: an anaerobic landfill bioreactor operated in cold climates for 15 years," Paper # 1711588, A&WMA's 117th Annual Conference, June 24 – June 27, 2024, Calgary, Alberta, Canada.
91. Pokhrel, D., Hettiaratchi, P., Jayasinghe, P., **Hettiarachchi**, H., (2024). "Key findings and lessons learned from the operation of a full-scale cold-climate landfill bioreactor for 14-years," Paper # 1711584, A&WMA's 117th Annual Conference, June 24 – June 27, 2024, Calgary, Alberta, Canada.
92. **Hettiarachchi**, H. (2019). "The Peak of Sustainable Waste Management Assures the Sustainability of Natural Resources, But Only in a Circular Economy," Paper presented at the SNR 2019, Qassim University, Saudi Arabia.
93. **Hettiarachchi**, H. (2011). "Settlement Behavior of Bioreactor Landfills and Challenges in Settlement Modeling," International Session on Environmental Geotechnics at the Japanese Geotechnical Society Symposium, University of Kyoto, Japan, October 2011.
94. **Hettiarachchi**, H. (2011). "Geoenvironmental Engineering: Current Status, Challenges, Opportunities and Potantial US-Japan Colloboration," Whitepaper, Presented at the 2nd US-Japan Geoenvironmental Engineering Workshop, Kyoto, Japan, Japan.
95. Carpenter, D., Miller, C. Calappi, T., **Hettiarachchi**, H., and McClarren, M. (2011). "Project # 85106 and 108493: A critical Review of bridge scour for Michigan specific conditions," Final report submitted to Michigan Department of Transportation, Office of Best Practices, Lansing Michigan.
96. Tocco, J.V., Carpenter, D., and **Hettiarahchi**, H. (2010). "Direct assessment of student program outcomes utilizing rubris in the senior capstone projet." ABET Symposium, Las Vegas, NV.
97. **Hettiarachchi**, C.H., J.N. Meegoda and J.P.A Hettiaratchi (2007). "A model to predict settlements and landfill gas generation in bioreactor landfills." The 22nd International Conference on Solid Waste Technology and Management, Philadelphia, PA.
98. **Hettiarachchi**, C.H., J.N. Meegoda, and J.P.A Hettiaratchi (2006). "A Numerical Model to Predict Settlements and Moisture Distribution in Bioreactor Landfills." Proceedings of CSCE 2006 conference, Calgary, Canada
99. **Hettiarachchi**, C.H., J. Tavantzis, J.N. Meegoda and J.P.A Hettiaratchi (2005). "A Numerical Model to Predict Settlements and Gas Generation in Bioreactor Landfills." WasteEng'05: First international conference on Engineering for waste treatment, Albi, France.
100. **Hettiarachchi**, H. (2005). "Mechanics of Biocell Landfill Settlements," Doctoral Student Research in Transportation Geotechnics (5th forum): 84th Annual Transportation Research Board (TRB) Meeting, Washington DC, January 09, 2005.
101. **Hettiarachchi**, C.H., J.N. Meegoda and J.P.A Hettiaratchi (2004). "A model based on mechanics to predict settlements in bioreactor landfills." Proc. Fifth international conference on case histories in geotechnical engineering, New York, NY.
102. Rowe, G.M., J.N. Meegoda, A.A. Jumikis, M.J. Sharrock, N.Bandara, and C.H. **Hettiarachchi** (2002). "Detection of Segregation in Asphalt Pavement Materials using ARAN Profile System," Pavement Evaluation 2002 Conference, Roanoke, VA.
103. Meegoda, J.N., G.M. Rowe, A.A. Jumikis, N.Bandara, C.H. **Hettiarachchi**, and N. Gephart (2003). "Detection of Segregation using LASER," Transportation Research Record, TRB, National Research Council, Washington DC.
104. Meegoda, J. N., G.M. Rowe, C.H. **Hettiarachchi**, N. Bandara, and M.J. Sharrock (2002). "Project 2000-34, Correlation of Surface Texture, Segregation, and Measurement of Air Voids," Final report submitted to New Jersey Department of Transportation, New Jersey Institute of Technology, Newark, New Jersey.
105. Hettiaratchi, J.P.A., V.B Stein, M Chandrakanthi, D. Pokhrel, C.H. **Hettiarachchi**, L.A.K. Perera, and P.L. Amatya (2002). "Bioreactor Landfills: A comprehensive Literature Review," A report (385 pages and 4 volume indices) submitted to the Solid Waste Services Division, City of Calgary, University of Calgary, Calgary, Canada.

Popular Press (A few Selected, Sustainability-related, Recent Articles):

106. **Hettiarachchi**, H. (2023). Microplastic Pollution: A Silent Killer in the Making, Groundviews, Sri Lanka. https://groundviews.org/2023/08/30/microplastic-pollution-a-silent-killer-in-the-making/
107. **Hettiarachchi**, H. (2022). Cutting Heavy Wastage to Reduce Food Shortage, Groundviews, Sri Lanka. https://groundviews.org/2022/01/12/cutting-heavy-wastage-to-reduce-food-shortage/
108. **Hettiarachchi**, H. (2021). Making Cash from Trash, Groundviews, Sri Lanka. https://groundviews.org/2021/12/30/making-cash-from-trash/
109. **Hettiarachchi**, H. (2021). Smashing Fertilizer Myths, Groundviews, Sri Lanka. https://groundviews.org/2021/11/23/smashing-fertilizer-myths/
110. **Hettiarachchi**, H. (2021). Going Organic in a Planned, Sustainable Way, Groundviews, Sri Lanka. https://groundviews.org/2021/11/10/going-organic-in-a-planned-sustainable-way/
111. **Hettiarachchi**, H. (2018). Going full circle: Why recycling isn't enough, Japan Times, Japan. https://www.japantimes.co.jp/opinion/2018/10/15/commentary/japan-commentary/going-full-circle-recycling-isnt-enough/

PUBLICATION STATISTICS (AS OF OCTOBER 2025)

***Google Scholar**: Citations ~3,600, h-index 27, i10-index 40*
***ResearchGate**: Reads ~255,000, RI Score ~3,125*

Resume
Name: Pyo-Yoon Hong

Education – degree, discipline, institution, year
Doctor of Philosophy, Structural Engineering, University of Oklahoma, USA, 1995
Master of Science in Engineering, Structural Engineering, University of Oklahoma, USA, 1992
Master of Science in Engineering, Architectural Engineering, Pusan National University, South Korea, 1986
Bachelor of Science in Engineering, Architectural Engineering, Pusan National University, South Korea, 1982

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 2002-2007), full time or part time
University of Guam, USA, Professor, 2015 – Present, full time
Kennesaw State University, USA, Asst. Prof., 2015 – 2018, full time
Kennesaw State University, USA, Adj. Prof., 2007 – 2008, part time
University of Hartford, USA, Asst. Prof., 2000 – 2006, full time
Oklahoma City Comm. College, USA, Adj. Prof., 1998 (Fall– Spring), part time
University of Oklahoma, USA, Research Associate, 1998 (Jan– May), full time
University of Oklahoma, USA, Research Assist., 1992 – 1994, full time
Kyung-Nam University, S. Korea, Adj. Prof., 1986 – 1988, part time
Pusan National University, S. Korea, Teaching Asst., 1986 – 1987, full time

Non-academic experience – company or entity, title, brief description of position, when (ex. 2008-2012), full time or part time
Obelisk Engineering, Inc., USA, Structural Engineer, 2008 – 2015, part time
Technical Services, NCI Building Systems, USA, Structural Engineering Systems Analyst, 1995 – 2000, full time
S/L/A/M Collaborative, USA, Structural Engineer, 2001 – 2005, part time
CLB Enterprises Inc, USA, Structural Engineer, 1990 – 1991, full time
Doosan Engineering & Construction, Inc., S. Korea, Site Engineer, 1981 – 1983, full time

Certifications or professional registrations
Professional Engineer 2015 in Guam
Professional Engineer 2008 in Georgia
Professional Engineer 1997 in Oklahoma

Current membership in professional organizations
Member of American Society of Civil Engineers
Member of Structural Engineering Institute

Honors and awards

Service activities (within and outside of the institution)

A. University Services

Member of Promotion & Tenure Committee, August 2021 – Present
Member of Reappointment Committee for Dr. Cheng, November 2021
Chair of Academic Affairs Committee (AAC) of School of Engineering, 2021 – Present
Member of Search Committee for hiring a Structural Professor of Engineering, March 2021
Member of Search Committee for hiring Dean of School of Engineering, October 2019

B. Profession Services
External Reviewer for the Promotion of Dr. Amy Burnicki to the rank of Associate Professor in Department of Civil & Environmental Engineering at University of Connecticut, June 2018
Peer Review of the paper title of "Industry Product Data Management (PDM) Tool Integration into Undergraduate Engineering Design Courses." published in 2020 American Association of Engineering Education ASEE-SE Conference Proceedings.
Peer Review of the paper title of "An Online Training and Automated Data Collection Tool for the Development of Spatial Visualization Skills." published in 2020 American Association of Engineering Education ASEE-SE Conference Proceedings.

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

Utilization of Visual Workbook as Supplement to Engineering Textbook, Hong PY, 2020 Annual Conf. of American Asso. of Engineering Education, March 2020
An Attempt to Help Engineering Students Who Can't Afford Textbooks, Hong PY, 2020 Annual Conf. of American Asso. of Engineering Education, March 2020

Briefly list the most recent professional development activities
Structural Engineering Institute Seminar, April 25, 2013, "Georgia SE Licensure Laws." By John Hann, PE; KSI Structural Engineers
Structural Engineering Institute Chapter Seminar, March 28, 2013, "Ali M. Ghalib, P.E. PhD.; ATKINS North America, Inc." by Jim W. Case, P.E.; Uzun & Case Engineers, LLC.
Structural Engineering Institute Seminar, February 26, 2013, "Structural Assessment of a Cable Stayed Bridge with an Irregular (folded) Deck Profile." by Ali M. Ghalib, P.E. PhD.; ATKINS North America, Inc.

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ResearchGate : **https://www.researchgate.net/profile/Ernesto_Guades2**
Google Scholar : **https://scholar.google.com/citations?user=gKb3JbQAAAAJ&hl=en&oi=ao**

CAREER SUMMARY: Passionate and committed to foster knowledge in the field of Structural Engineering by promoting respect, integrity and excellence in teaching and research that will eventually impact and empower present and future generations for community service.

A. ACADEMIC QUALIFICATION

- **Marie S. Curie–H.C. Oersted PostDoctoral Research Fellowship**, Technical University of Denmark (DTU), Denmark (Feb 2019 – Jan 2021)
- **Doctor of Philosophy (PhD)**, University of Southern Queensland (USQ), Australia (Sep 2013)
- **Master of Engineering (MEng)**, Saitama University, Japan (Mar 2006)
- **Bachelor of Science in Civil Engineering (BSCE)**, Northwest Samar State Univ., Philippines (Mar 1997)

B. PROFESSIONAL AND EMPLOYMENT HISTORY

B.1. Teaching and Research Experience

- Assistant Professor, Civil/Structural Engineering, University of Guam, USA (Jan 2022-present)
- Scientific Researcher, Technical University of Denmark, Denmark (Feb 2021 – Oct 2021).
- Research Fellow, Villum Center for Advanced Structural and Material Testing, Technical University of Denmark, Denmark (Feb 2019 – Jan 2021).
- Associate Professor, Structural Engineering, Northwest Samar State University, Philippines (Aug 1998 – Nov 2018).
- Lecturing Team, Concrete Structures, University of Southern Queensland, Australia (Mar–Jul, 2013)
- Teaching Assistant, Fibre-reinforced Polymer (FRP) Composites, University of Southern Queensland, Australia (Jan 2011–Dec 2012).
- Research Assistant, Researcher in Business, University of Southern Queensland, Australia (Apr–Jun, 2013).
- Technical Assistant, Civil Systems Practice and Professional Practice Courses, University of Southern Queensland, Australia (Jan 2011–Dec 2012).
- DOST-Philippine Government Visiting Professor in Structural Engineering, Cebu Technological University, Philippines, (Nov–Dec 2019)
- Professorial Chair holder, Structural Engineering, Polytechnic University of the Philippines, Philippines (Jun 2017–May 2018).

B.2. Management and Administrative Experience

- Director, Center of Research for Future Building Materials and Structures (Northwest Samar State University, Philippines, Jun 2017–Nov 2018)
- Director, Research and Development Services, Northwest Samar State University, Philippines (Jun 2014 – Nov 2018)
- Director, Building Design and Construction, Planning and Facilities, Northwest Samar State University, Philippines (Jan 2007–Dec 2010)
- USQ–Faculty of Engineering and Surveying Postgraduate Representative (Jan 2011–Dec 2013)

C. PUBLISHED JOURNALS

D.T. Romano and **E. Guades** (2024). *Plastic Coarse Aggregates with Low- and High-Density Polyethylene with Improved Shore Durometer Hardness as Partial Replacement to Natural Coarse Aggregates*, E3S Web of Conferences, Vol 488, P 1-11.

M.P. Velasco, O.G. de la Cruz and **E. Guades** (2023). *Reinforced Concrete Beam–Column Joint: A Review of Its Cyclic Behavior,* Advances in Civil Engineering Materials, 310, 63-79.

J.M. Jacinto, O.G. de la Cruz and **E. Guades** (2023). *Cold-Formed Steel Structure for Mid-Rise Residential Building: A Literature Review,* Advances in Civil Engineering Materials, 310, 37-51.

E.D. Tombado, O.G. de la Cruz and **E. Guades** (2023). *Evaluation of Water Hyacinth Ash, Extract, and Fiber in Concrete: A Literature Review,* Advances in Civil Engineering Materials, 310, 53-62.

R.G. Libre Jr., J. Leaño Jr., L.F. Lopez, Cacanando C.J., M.A. Promentilla, **E Guades**, Garciano, J.M. and Ongpeng, JMC, (2023). "Mechanical Performance of Treated Bambusa Blumeana (Bamboo) Fibers", IABSE Symposium Prague 2022, pp. 1220-1225

E. Guades and H. Stang (2022). *Analytical and parametric investigations of RC beams strengthened by fibre reinforced geopolymer composites,* ACI Structural Journal, 19(3), 99-116. DOI: 10.14359/51734487.

V.P Pilien, .L, M.A.B Promentilla, **E.J. Guades**, J.L. Leaño Jr., A.W.C. Oreta, J.M.C. Ongpeng (2022). *Optimization of Banana Fiber Reinforced Fly Ash Based Geopolymer Mortar*, Chemical Engineering Transaction, 427-432

R.G.D. Libre Jr., L.E.O. Garciano, M.A.B. Promentilla, **E.J. Guades**, J.M.C. Ongpeng (2022). *Compressive Strength and Setting Time of Mill Scale – Low Calcium Fly Ash Based Geopolymer Paste*, Chemical Engineering Transaction, 175-180.

V.P. Pilien, L.E.O. Garciano, M.A.B. Promentilla, **EJ Guades**, J.L. Leaño Jr., A.W.C. Oreta, J.M.C. Ongpeng (2022). *Banana Fiber-Reinforced Geopolymer-Based Textile-Reinforced Mortar*, MDPI Engineering Proceedings

R.G. Libre Jr., M.A. Promentilla, L. Garciano, B. Lejano A.W. Oreta, J.M. Ongpeng, **E Guades**, J. Leaño Jr., A.Z. Cruz, L.F. Lopez (2022). "Mechanical Performance of Treated Bambusa Blumeana (Bamboo) Fibers", IABSE Symposium Prague 2022, pp. 1220-1225

E. Guades, H. Stang, J.W. Schmidt and G. Fischer (2021). *Flexural behavior of hybrid fibre-reinforced geopolymer composites (FRGC)-jacketed RC beams*, Engineering Structures, 235, 1–16. DOI: https://doi.org/10.1016/j.engstruct.2021.112053.

J. Ongpeng, **E. Guades** and M.A.B. Promentilla (2021). *Cross-organizational learning approach in the sustainable use of fly ash for geopolymer in the Philippine construction industry*, Sustainability, 13(5), 2454, 1–17.
DOI: https://www.mdpi.com/2071-1050/13/5/2454.

P.R. Quiatchon, I.J. Dollente, A. Abulencia, R.G. Libre, M.B. Villoria, **E. Guades**, M.A. Promentilla, J.M. Ongpeng (2021). *Investigation on the Compressive Strength and Time of Setting of Low-Calcium Fly Ash Geopolymer Paste Using Response Surface Methodology*, Polymers, 13(20), 3461, 1–18.
DOI: https://doi.org/10.3390/polym13203461.

E. Guades, H. Stang, G. Fischer and J.W. Schmidt (2019). *Hybrid fiber-reinforced geopolymer (HFRG) composites as an emerging material in retrofitting aging and seismically-deficient concrete and masonry structures*, MATEC Web of Conferences, Vol. 289, P 1-8.
DOI: https://doi.org/10.1051/matecconf/201928904003

E. Guades and H. Stang (2019). *Structural performance of concrete elements retrofitted by geopolymer strengthening system: Input in the rehabilitation of historical buildings*, WIT Press Structural Studies, Repairs and Maintenance of Heritage Architecture XVI, P 369-380.
DOI: https://doi.org/10.2495/STR190321

E. Guades (2017). *Effect of coarse aggregate size on the compressive behaviour of geopolymer concrete,* European Journal of Environmental and Civil Engineering, Vol 23, No. 6, P 693-709.
DOI: https://doi.org/10.1080/19648189.2017.1304276

E. Guades (2016*). Experimental investigation of the compressive and tensile strengths of geopolymer mortar*. Construction and Building Materials, Vol. 127, P 484-493.
DOI: http://www.sciencedirect.com/science/article/pii/S0950061816316439

E. Guades (2016*). Structural Applications of Fiber-Reinforced Polymer (FRP) Composites in Australia and Philippines*. Recoletos Multidisciplinary Research Journal, Vol. 4 No 1, P 45-60.
DOI: https://doi.org/10.32871/rmrj1604.01.04

E Guades, T. Aravinthan, and M.M. Islam (2014). *Characterisation of the mechanical behaviour of pultruded fiber-reinforced polymer (FRP) tubes*, Materials and Design, Vol. 63, P 305-315.
DOI: http://www.sciencedirect.com/science/article/pii/S0261306914004671

E Guades, T. Aravinthan, A.C. Manalo, and M.M. Islam (2013). *Damage modelling of repeatedly impacted square fibre reinforced polymer composite tube*, Materials and Design, Vol. 47, P 687-697. DOI: http://www.sciencedirect.com/science/article/pii/S0261306912008801

E Guades, T. Aravinthan, A.C. Manalo, and M.M. Islam (2013). *Experimental investigation on the behaviour of square FRP composite tubes under repeated axial impact*, Composite Structures, Vol. 97, P 211-221.
DOI: http://www.sciencedirect.com/science/article/pii/S0263822312005296

E. Guades and T. Aravinthan (2013). *Residual properties of square FRP composite tubes subjected to repeated axial impact*, Composite Structures, Vol. 95, P 354-365.
DOI: http://www.sciencedirect.com/science/article/pii/S0263822312004072

E. Guades, T. Aravinthan. M.M. Islam and A.C. Manalo (2012). A review on the driving performance of FRP composite piles. Composite Structures, Vol. 94, P 1932-1942.
DOI: http://www.sciencedirect.com/science/article/pii/S0263822312000451

D. CONFERENCE PRESENTATIONS (SELECTED)

Guades EJ (2024). Flood Mitigation Strategy using Pervious Recycled Concrete Aggregates for Guam Application: Investigation on the Strength and Permeability Properties, Western Pacific Subsection Water & Wastewater Conference, Sep 11-13, 2024, Hyatt Regency, Guam.

Guades EJ (2024). "Research-based Initiative on Sustainable Construction Materials for Guam: Properties of Pervious Concrete from Demolished Building", 3rd Annual UOG CNAS STEM Conference, April 7, 2023, UOG Field House

Guades EJ (2023). Performance of Reinforced Concrete Beam Element Strengthened by Fiber-Reinforced Geopolymer Composites, 2023 RILEM 11th International Conference on the Environmental and Technical Implications of Construction with Alternative Materials held last Dec 13-16, 2023, at Hongkong Polytechnic University, Hongkong.

Guades EJ (2023). Sustainability and Resiliency of Guam Civil Infrastructures: Personal Research Accounts and Proposed Interventions, 2023 UOG Conference on Island Sustainability held last April 5-9, 2023, at Hyatt Regency Guam.

Guades E.J. (2022). "Application of Fiber-reinforced Geopolymer Composites (FRGC) in Strengthening RC Structures: Experimental and Analytical Investigations" 2nd International Symposium on Civil Engineering and Environmental Research held last Oct 24-25, 2022, Lambung Mangkurat University Banjarmasin, South Kalimantan. Indonesia.

E. Guades (2022). R & D Activities and Initiatives Towards Sustainability in Engineering and Technology: A Personal Account", National Sustainability Summit, June 27-28, 2022, Cebu, Philippines

E. Guades and H. Stang, G. Fischer (2021). *Effect of FRGC thickness on the flexural response of RC beams: An analytical study,* IABSE Congress "Structural Engineering for Societal Needs", Sept 22-24, 2021, Ghent, Belgium

E. Guades, H. Stang, G. Fischer and J.W. Schmidt (2020). *Flexural performance of RC beam strengthened by fibre-reinforced geopolymer (FRG) composite jacketing system,* RILEM Spring Convention, March 10-14, 2020, Guimarães, Portugal.

E. Guades et al. (2020). *Prestige of scientific expertise vs. technology demand - parallel routes for a common innovative purpose?*, 2020 Euro Science Open Forum (ESOF), Sep 2-6, 2020, Trieste, Italy.

E. Guades, L. Orjalesa and R. Ancheta, G. (2019). Geopolymer: *Industry Wastes to Sustainable, Innovative and Green Construction Material for Civil Infrastructure and Disaster Mitigation Applications in the Philippines*. International Conference on Circular Economy-based Waste Management, Dec 10-13, 2019, Tarlac City, Philippines.

E. Guades, H. Stang, G. Fischer and J.W. Schmidt (2019). *Hybrid fiber-reinforced geopolymer (HFRG) composites as an emerging material in retrofitting aging and seismically-deficient concrete and masonry structures,* 7th International Conference on Concrete Repair, Sep 30 – Oct 2, 2019, Cluj-Napoca, Romania.

E. Guades and H. Stang (2019). *Structural performance of concrete elements retrofitted by geopolymer strengthening system: Input in the rehabilitation of historical buildings,* 16th International Conference on Studies, Repairs and Maintenance of Heritage Architecture, Oct 7– 9, 2019, Sevilla, Spain.

E. Guades, M.D. Sobreviga and R.B. Santos (2017). *Advancements of Sustainable Green Geopolymer Concrete: Properties and Applications in Structural Engineering*, 18th Association of Structural Engineers of the Philippines International Convention, May 25-27, 2017, Manila, Philippines.

E. Guades, M.D. Sobreviga and O.G. Taduyo (2016). *Compressive strength of geopolymer concrete: Effect of size of coarse aggregate*, 6th International Conference on Advances in Engineering Sciences and Applied Mathematics (ICAESAM'2016), December 21-22, 2016, Kuala Lumpur, Malaysia.

E. Guades and R.B. Santos (2016). *Effect of sand/fly ash variation on the strength characteristics of geopolymer mortar under compressive loading*, International Conference on Sustainable Built Environment, July 13-15, 2016, Manila, Philippines.

E. Guades and O.G. Taduyo (2015). *Field Applications of FRP Composites in Civil Infrastructures in the Philippines*, 17th International Conference of the Association of Structural Engineers of the Philippines, May 28-30, 2015, Manila, Philippines

E Guades (2014). *Recent Advancement of Pultruded Fibre-Reinforced Polymer (PFRP) Composites in Civil Engineering*, Higher Education Research Forum, October 21-22, 2014, Manila, Philippines

E. Guades, T. Aravinthan. M.M. Islam, and A.C. Manalo (2012). Effects of energy levels on the impact fatigue behaviour and post-impact flexural properties of square FRP pultruded tubes. 22nd Australasian Conference on the Mechanics of Structures and Materials (ACMSM22), Dec. 11–14, Sydney, Australia.

E. Guades, T. Aravinthan. M.M. Islam, and A.C. Manalo (2012). Stiffness degradation of FRP pultruded tubes under repeated axial impacts, 3rd Asia-Pacific Conference on FRP in Structures, February 2– 4, Hokkaido, Japan.

E. Guades, T. Aravinthan & M.M. Islam (2011). *Driveability of composite piles*, 1st International Postgraduate Conference on Engineering, Designing and Developing the Built Environment for Sustainable Wellbeing, April 27-29, QUT, Brisbane, Australia.

E. Guades, T. Aravinthan & M.M. Islam. (2010). *An overview on the application of FRP composites in piling system*, Southern Region Engineering Conference, November 11–12, 2010, Toowoomba, Australia.

E. RESEARCH GRANTS/FINANCIAL SUPPORTS

- **Project Title:** Development MRI: Track 1 Acquisition of 250kN-capacity Universal Testing Machine (UTM) to Enhance Research and Education at the University of Guam
  Amount: US$ 275,081
  Funding Agency/Year: US National Science Foundation/2025

- **Project Title:** Development of hybrid fiber-reinforced geopolymer concrete (FRGC) for application in rehabilitating building and bridge structures
  Amount: US$ 220,000
  Funding Agency/Year: Europe's Horizon 2020/Technical University of Denmark/2019

- **Project Title:** Green fiber-reinforced polymer (FRP) composites as an innovative repair system for earthquake-prone historical structures
  Amount: US$ 165,000
  Funding Agency/Year: Department of Science and Technology, Philippines/2020
  Collaborating Agencies: De La Salle University, Philippines

- **Project Title:** Grant for Visiting Professorship in Structural Engineering
  Amount: US$ 10,000
  Funding Agency/Year: Department of Science and Technology, Philippines /2019

- **Project Title:** Advancements of Geopolymer in Civil and Structural Engineering Training/2019

Amount: US$ 7,000
Funding Agency/Year: Department of Science and Technology, Philippines /2019

- **Project Title:** Institutional development program grant for the purchase of structural testing assembly and equipment
  Amount: US$ 115,000
  Funding Agency/Year: Department of Science and Technology, Philippines /2018
- **Project Title:** Rapid Earthquake Disaster Assessment System Training
  Amount: US$ 45,000
  Funding Agency/Year: Local and Provincial Government of Samar, Philippines /2017
- **Project Title:** Development of high-performance laminated coconut wood for structural applications
  Amount: US$ 25,000
  Funding Agency/Year: National Research Council of the Philippines, Philippines /2017
- **Project Title:** Establishment of Center of Research for Future Building Materials and Structures
  Amount: US$ 115,000
  Funding Agency/Year: Northwest Samar State University/ASEP, Philippines /2017
- **Project Title:** National Structural Code of the Philippines Training
  Amount: US$ 20,000
  Funding Agency/Year: Northwest Samar State University/ASEP, Philippines /2017
- **Project Title:** Various research projects on geopolymer concrete and fibre-reinforced polymer composites
  Amount: US$ 60,000
  Funding Agency/Year: Northwest Samar State University, Philippines/2016
- **Project Title:** Establishment of Citizen Satisfaction Index System of Calbayog City, Samar
  Amount: US$ 15,000
  Funding Agency/Year: Department of Interior and Local Government, Philippines/2016
- **Amount:** US$ 140,000
  Project Title: Behavior of glass FRP composite tubes under repeated impact for piling application
  Funding Agency/Year: University of Southern Queensland, Australia/2010

F. PEER REVIEWER/EDITORSHIP OF SCIENTIFIC JOURNALS

- Guest Editor, Special issue: Advances in Emerging Construction Materials, J of Sustainability MDPI
- American Concrete Institute (ACI) Structural and Materials Journals
- Construction and Building Materials
- Journal of Composites: Part B (Engineering)
- Structures
- Journal of Composite Materials

G. PROFESSION AND AFFILIATIONS TO SCIENTIFIC ORGANIZATIONS

- American Society of Civil Engineers
- Society of American Military Engineers – Guam Post
- American Concrete Institute
- International Association of Protective Structures

Rui Zeng

Email: zengr@triton.uog.edu **Cell**: 671 687 0247 **LinkedIn**: https://www.linkedin.com/in/rui-zeng-279869ab/

PROFILE

- Canadian citizen with valid driver's licenses (Canada and U.S.); H-1B visa holder
- Certified Engineering-in-Training (EIT) with APEGA (Alberta)
- Skilled in teaching and academic presentations to diverse student populations.
- Solid background in mathematics, physics, fluid mechanics and hydraulics.
- Passionate about innovation, problem-solving, continuous learning and skill development.

EDUCATION

Ph.D. in Civil Engineering Sep. 2018 – August 2023
Concordia University Montreal, QC, Canada GPA: 4.3/4.3
MASc. in Civil Engineering Sep. 2014 – April 2017
Concordia University Montreal, QC, Canada GPA: 4.08/4.3
B.Sc. in Civil Engineering Sep. 2010 – June 2014
Hunan University Changsha, Hunan, China GPA: 3.73/4.3

EXPERIENCE

Assistant professor in Civil Engineering Aug. 2024 – Present
University of Guam, Mangilao, GU, U.S.

Adjunct lecturer Jan. 2024 – Present
Concordia University, Montreal, QC, Canada

Teaching assistant: Sep. 2017 – May 2023
Tutorial leader, Laboratory demonstrator & Marker
Concordia University, Montreal, QC, Canada

Research assistant June 2015 – April 2017
Concordia University, Montreal, QC, Canada June 2019 – Dec. 2023
Hunan University, Changsha, Hunan, China Sep. 2012 – June 2013

PUBLICATIONS

Referred journal publications:

Zeng, R., & Li, S. S. (2025). Effect of vanes in a channel transition on reducing turbulence and boundary shear stress. Journal of Hydraulic Engineering. DOI: 10.1061/JHEND8.HYENG-14056

Zeng, R., & Li, S. S. (2023). Hydraulic jump and choking of flow in pipe with a change of slope. Journal of Hydrodynamics, 1-23. DOI: 10.1007/s42241-023-0090-3

Zeng, R., & Li, S. S. (2023). Large-eddy simulation of free-surface turbulent flow in a non-prismatic channel. Journal of Hydroinformatics – IWA. DOI: 10.2166/hydro.2023.018

Zeng, R., & Li, S. S. (2022). Bistability of turbulent flow in open-channel expansion: Characterization and suppression. Physics of Fluids, 34(6), 065106. DOI: 10.1063/5.0089093

Conference proceedings:

Zeng, R., & Li, S.S. (2019) “Large eddy simulation of turbulent flow in ice-covered channels.” CSME-CFDSC 2019 Congress, London, ON, Canada, 2–5 June 2019.
Zeng, R., & Li, S.S. (2016) "Large eddy simulation of boundary shear-stress distributions in rectangular and trapezoidal channels." 2016 CSCE Annual General Conference, London, ON, Canada, 1–4 June 2016.

PRESENTATIONS

Presenter, CSME-CFDSC 2019 Congress, London, ON, Canada, June 2-5, 2019.
Presenter, CSCE 2016 Annual Conference, London, ON, Canada, June 1-4, 2016.
Presenter, 9th Water Resources Engineering Graduate Student Research Symposium, Kinston, ON, Canada, June 24-25, 2023.
Presenter, 8th Water Resources Engineering Graduate Student Research Symposium, Ottawa, ON, Canada, May 2-3, 2019.
Presenter, 5th Water Resources Engineering Graduate Student Research Symposium, Ottawa, ON, Canada, May 25-26, 2016.

AWARD/SCHOLARSHIPS

CFD Society of Canada (CFDSC) Student Paper Award, London, ON, Canada (2019)
Concordia Conference and Exposition Award, Concordia University, Montreal, QC, Canada (2018, 2016)
Municipal Engineering & Academic English Summer School Scholarship, Southeast University, Nanjing, Jiangsu, China (2013)
First Prize Scholarship, Hunan University, Changsha, Hunan, China (2012-2013)
Second Prize Scholarship, Hunan University, Changsha, Hunan, China (2011-2012)

SKILLS AND QUALIFICATIONS

- Civil Engineering software: AutoCAD, HEC-RAS, and EPANET
- Computational fluid dynamics (CFD) simulations: ANSYS Fluent and OpenFOAM.
- Programming and data analysis: MATLAB, Bash, and Perl.
- Technical Tools: Microsoft Office and Adobe Illustrator.
- Languages: Fluent in English and Mandarin; strong French (Niveau 8/12).

ACTIVITIES

Volunteer: English teacher Maison de l'amitié, Montreal Mar. 2023– June 2024
Taught English to new immigrants and refugees, to support cultural integration.

Training: Références francisation (French) Feb. 2021– April 2024
Ministry of Immigration, Frenchisation and Integration, Montreal
Completed a Quebec government program on French language, culture, and integration.

Competition: Three Minute Thesis (3MT) Concordia University, Montreal Feb. 2023
Competed in 3MT, presenting research in 3 minutes with a single slide and no jargon.

Volunteer: Administrative Assistant Concordia University, Montreal Aug. 2019
Helped international students transition to school life by providing guidance and preparing informational resources.

Tung Hoang, Ph.D.

Civil and Environmental Engineering Department
Colorado School of Mines, 1500 Illinois St., Golden, CO 80401
tung.hoang1@mines.edu; Tung Hoang - Google Scholar; ORCID: 0000-0001-9229-6248

EDUCATION

Iowa State University, Ames, IA, USA 2014-2018
Ph.D. in Civil Engineering (focus Geotechnical Engineering)
Dissertation: *Sand and Silty-sand Soil Stabilization using Bacterial Enzyme Induced Carbonate Precipitation (BEICP)*
Co-advisor: *Professor Bora Cetin and Professor James Alleman*

Myongji University, South Korea 2007-2009
M.Sc. in Civil and Environmental Engineering (focus Geotechnical Engineering)

The University of Danang - University of Science and Technology, Danang, Vietnam 2000-2005
B.E. in Bridge and Road Construction Engineering

RESEARCH INTERESTS

- Biogeotechnics for soil stabilization using biocement (*e.g.,* Microbial Induced Carbonate Precipitation - MICP and Enzyme Induced Carbonate Precipitation - EICP)
- Advanced geomechanics testing (*e.g.,* triaxial test, plane strain shear strength, direct simple shear test)
- Decarbonized cement and concrete using biochar and mine tailing wastes
- Applying microbial carbonate process for self-carbonated reactive MgO cement
- Rheological properties of soft-solid materials
- Materials science of cementitious materials related to advanced characterization techniques (*e.g.*, thermogravimetric analysis, X-ray diffraction, dynamic mechanical analysis, scanning electron microscope)

RESEARCH EXPERIENCE

Postdoctoral Fellow **Colorado School of Mines, CO, USA** Aug. 1st, 2023-present
Department of Civil and Environmental Engineering
PI: Assistant Professor Lori Tunstall

1. *Project:* Biochar blended concrete-a low carbon, renewable alternative to OPC concrete
   Sponsor: Colorado Office of Economic Development and International Trade
   - Investigated new dispersant formulations and/or surface modifications to improve rheology of biochar concrete mixes
   - Studied incorporation of carbonate-producing bacteria to reduce water demand and increase strength of biochar concrete
   - Investigated filler effects of biochar on cement hydration and nucleation of C-S-H

   This work is resulting in a preparation of 02 manuscripts
2. *Project:* Development of a novel lightweight aggregate with carbon sequestration for the concrete industry
   Sponsor: US Department of Energy (DOE)
   Partner: Solid Carbon Inc.
   - Developed a cold-bond technique to produce lightweight aggregates from biochar, fly ash, steel slag
   - Investigated effects of geopolymer on improving properties of lightweight aggregates
   - Performed characterization tests for lightweight aggregates

Postdoctoral Fellow **Nanyang Technological University, Singapore** Aug. 2019-Apr. 2021
School of Civil and Environmental Engineering
PI: Professor Jian Chu

1. *Project:* Innovative construction methods for container yard construction with flexibility for future development
   Sponsor: Singapore Maritime Institute

1.1. Task 1: A new design and construction method for foundation design of container yards
- Casted and tested geo-grid reinforced concrete beams to collect data for design model
- Numerical analyzed to optimize the proposed foundation design, using the design code was Eurocode 7: Geotechnical design
- Proposed a pilot test for a foundation of container yards at Tuas Mega Port, Singapore

This work resulted in a technical report submitted to Singapore Maritime Institute

1.2. *Task 2:* One-phase-low-pH enzyme-induced carbonate precipitation for biocement
- Performed urease enzyme extraction technique from bacterial cells (e.g., *Sporosarcina Pasteurii*)
- Studied controlling metabolism of bacterial cells
- Developed a one-phase-low pH injection method for biocement

1.3. *Task 3:* Novel self-carbonation method for reactive MgO cement through using a microbial carbonation process
- Cultivated urease-producing bacteria which catalyze the hydrolysis urea to release carbonate ion (CO_3^{2-}) in alkaline environment
- Investigated effects of a microbial carbonation process on MgO cement hydration and carbonation processes
- Performed tests on bio-carbonated MgO cement mortar/concrete through tests of compression strength, reaction heat evolution, SEM, XRD, TGA & FT-IR

This work resulted in several publications such as 01 paper in Cement and Concrete Research, 01 paper in Construction and Building Materials, 03 papers in Acta Geotechnica

Graduate Research Assistant **Iowa State University, IA, USA** Aug. 2014-Dec. 2018
Department of Civil, Construction and Environmental Engineering
Co-advisor: Professor Bora Cetin and Professor James Alleman
- Develop a new method of urease enzyme extraction from living bacterial cells by using ultrasonic energy
- Biocemented sandy soil and silty sand soil using extracted urease enzyme to improve the engineering properties of loose soil
- Investigate a freeze-thaw resistant of biocemented soil

This work resulted in several publications such as 01 paper in Canadian Geotechnical Journal, 03 papers in ASCE - Journal of Materials in Civil Engineering, 01 paper in Acta Geotechnica, 01 paper in Applied Sciences

EXPERIMENTAL SKILL

- **Geotechnical engineering tests**: Soil physics tests, Triaxial test, Plane strain shear test, Consolidation test, Direct shear test, Geo-centrifuge model, Static load test, Cone penetration test
- **Construction materials tests**: Rheological properties, Compression strength, Flexural strength, Water absorption, Porosity and Density of concrete, Flow and setting times test of cement paste
- **Biological & chemical engineering tests**: Microorganism cultivation, Cells lysing, Crude enzyme extraction, Gram stain, Calcium carbonate content, Urease activity, Optical density, and other basic chemical experiments
- **Material science tests**: Isothermal calorimetry analysis, Thermogravimetric analysis (TGA), Fourier Transform Infrared (FT-IR) Spectroscopy, Scanning Electron Microscope

RESEARCH GRANT and PROPOSAL WRITING EXPERIENCE

Awarded Grant *(Success rate is 60% for grant proposals)*

1. *Developing eco-friendly Biocement for applications in geomaterials and MgO cement concrete* 2023
   Agency: The National Foundation for Science and Technology Development (NAFOSTED) - Vietnam
   Awarded amount: $ 31,840
   Role: Sole PI: 100%. I declined after accepting a postdoctoral fellow offer from Colorado School of Mines
2. *Assessing combined physical and social coastal vulnerability of a Quang Nam Province, Vietnam* 2021-2022

Agency: British Council Grant Awards, UK
Awarded amount: £ 10,930 (~$ 13,350)
Role: PI: 80%; Collaborator: Dr. Komali Kantamaneni, University of Central Lancashire, UK

3. *Application of biocement for improving engineering properties of loose sand adapting to climate change* 2021-2022
   Agency: The University of Danang - University of Science and Technology, Vietnam (internal grant)
   Awarded amount: $ 1,700
   Role: Sole PI: 100%

Grant Proposal Writing Experience

1. *Decarbonizing the cement and concrete industry through ex-situ CO_2 mineralization and high-level clinker substitution on with sustainably sourced biochar and mining waste* June, 2023
   PI: Dr. Lori Tunstall, Colorado School of Mines (CSM)
   Agency: EERE's Industrial Efficiency and Decarbonization on Office FY23, Department of Energy, USA
   Proposed grant amount: $ 2,000,000
   Status: passed a concept papers phase, rejected at a full applications phase
   Role: Co-PI. My work on incorporating carbonate-producing bacteria cells to improve mix rheology, water demand, and cohesion was the basis for this proposal. I developed one of the deliverables, wrote a proposal with a team includes Drs. Tunstall, Hedayat, Sellinger, Samaniuk, Landis, all from CSM.

2. *ACADIA – A Critical Assessment of natural Disasters and water Infrastructure in coastal Areas* 2022
   PI: Komali Kantamaneni (University of Central Lancashire, UK)
   Agency: The Secondary Data Analysis Initiative (SDAI) – Economic and Social Research Council (ESRC), UK
   Proposed grant amount: £ 300,000 (~ $ 366,000)
   Status: Rejected
   Role: Co-PI. My work was to identify vulnerable areas near coastlines due to natural disasters in Vietnam and collect initial data of damage in infrastructure after disasters. I developed one of the deliverables, and wrote a proposal with a team includes Dr. Luiza Campos (University College London, UK), Dr. Champika Liyanage (University of Central Lancashire, UK)

3. *Biocement Phase 2 – Scalability and field validations in relevant construction environment* 2021
   PI: Dr. Jian Chu, Nanyang Technological University, Singapore
   Agency: National Research Foundation - NRF, Singapore
   Proposed grant amount: S$ 3,600,000 (~ $ 2,652,265)
   Status: Awarded
   Role: I collect information and data from previous research work to complete the deliverables of proposal. I wrote the proposal with Dr. Chu

4. Pilot tests for using a new foundation system for Tuas Container Port 2021
   PI: Dr. Jian Chu, Nanyang Technological University, Singapore
   Agency: Singapore Maritime Institute
   Proposed grant amount: S$ 970,000 (~ $ 715,000)
   Status: Awarded
   Role: My work on concrete beams testing for foundation design, as well as FEM analysis for foundation system of container port was the basis of proposal. I developed one of the deliverables, and wrote the proposal with Dr. Chu

RESEARCH PUBLICATION (Google Scholar metrics: h-index = 9)

Journal Publication

1. **2024 - Pre-bio-carbonation method for using reactive MgO for rapid pavement repair and the carbonation mechanisms**
   Acta Geotechnica. DOI: 10.1007/s11440-024-02279-y
   Hui-Yue Cui, **Tung Hoang**, Jian Chu, Zhi-Li Dong & Kok-Pang Lam

2. **2022 - New frontiers in sustainable cements: Improving the performance of carbonated reactive MgO concrete via microbial carbonation process**
   Construction and Building Materials. DOI: 10.1016/j.conbuildmat.2022.129243
   Nguyen Tien Dung, **Tung Hoang**, En-Hua Yang, Jian Chu, Cise Unluer
3. **2022 - Comparative evaluation of freeze and thaw effect on strength of BEICP-stabilized silty sands and cement-and fly ash-stabilized soils**
   Acta Geotechnica. DOI: 10.1007/s11440-022-01612-7
   Tung Hoang*, Huyen Do, James Alleman, Bora Cetin, Asli Y Dayioglu
4. **2022 - Modified one-phase-low-pH method for bacteria or enzyme-induced carbonate precipitation for soil improvement**
   Acta Geotechnica. DOI: 10.1007/s11440-021-01384-6
   Ming-Juan Cui, Han-Jiang Lai, **Tung Hoang**, Jian Chu
5. **2022 - Developing artificial neural network models to predict corrosion of reinforcement in mechanically stabilized earth walls**
   Neural Computing and Applications. DOI: 10.1007/s00521-022-08043-1
   Thu-Ha Nguyen, Truong-Linh Chau, **Tung Hoang***, Teron Nguyen
6. **2021 - Use of microbial carbonation process to enable self-carbonation of reactive MgO cement mixes**
   Cement and Concrete Research. DOI: 10.1016/j.cemconres.2021.106391
   Tung Hoang, Nguyen Tien Dung, Cise Unluer, Jian Chu
7. **2021 - Closure to "Engineering Properties of Biocementation Coarse- and Fine-Grained Sand Catalyzed by Bacterial Cells and Bacterial Enzyme" by Tung Hoang, James Alleman, Bora Cetin, and Sun-Gyu Choi**
   ASCE - Journal of Materials in Civil Engineering. DOI: 10.1061/(ASCE)MT.1943-5533.0003756
   Tung Hoang, James Alleman, Bora Cetin, Sun-Gyu Choi
8. **2020 - One-phase-low-pH enzyme induced carbonate precipitation (EICP) method for soil improvement**
   Acta Geotechnica. DOI: 10.1007/s11440-020-01043-2
   Ming-Juan Cui, Hanjiang Lai, **Tung Hoang**, Jian Chu
9. **2019 - Engineering properties of Bio-Cementation of coarse- and fine-sand catalyzed by bacterial cells and bacterial enzyme**
   ASCE -Journal of Materials in Civil Engineering. DOI: 10.1061/(ASCE)MT.1943-5533.0003083
   Tung Hoang, James Alleman, Bora Cetin, Sun-Gyu Choi
10. **2019 - Splitting tensile strength of fiber-reinforced and biocemented sand**
    ASCE - Journal of Materials in Civil Engineering. DOI: 10.1061/(ASCE)MT.1943-5533.0002841
    Sun-Gyu Choi, **Tung Hoang**, James Alleman, Jian Chu
11. **2019 - Undrained behavior of microbially induced calcium carbonate precipitated sand with polyvinyl alcohol fiber**
    Applied Sciences. DOI: 10.3390/app9061214
    Sun-Gyu Choi, **Tung Hoang**, Sung-Sik Park
12. **2018 - Sand and silty-sand soil stabilization using bacterial enzyme induced calcite precipitation (BEICP)**
    Canadian Geotechnical Journal. DOI: 10.1139/cgj-2018-0191
    Tung Hoang, James Alleman, Bora Cetin, Kaoru Ikuma, Sun-Gyu Choi

Conference Proceeding and Presentation

1. **2024 - Investigating filler and shearing effects on hydration rates of cement-biochar blended pastes**
   2024 Cements Division - 14th Advances in Cement-based Materials, Jun 19-21, 2024, Missouri S&T, Rolla, MO
   Tung Hoang, Lori Tunstall, Julia Hylton
2. **2023 - Effects of curing temperature on cement-stabilized soils**
   The 4th International Conference on Transportation Infrastructure and Sustainable Development (TISDIC-2023), 26/08/2023 - 28/08/2023 Danang, Vietnam. DOI: 10.1088/1757-899X/1289/1/012097
   Thien Q Tran, Hwanik Ju, Tu-Nam Nguyen, **Tung Hoang**, Sherif L Abdelaziz and Alexander S Brand
3. **2022 - Applications of Bio-carbonation for low carbon construction materials**

Vietnamese Academic Network in Japan – VANJ Conference 2022, Nov 2022, The University of Tokyo, Hongo Campus, Japan (online presentation)
Tung Hoang

4. **2021 - Application of biological process for enhancing carbonation of MgO cement**
   Proceedings of the 20th International Symposium on Advanced Technology (ISAT-20), Nov. 2021, Kogakuin University of Technology and Engineering, Japan
   Huyen Do, **Tung Hoang**
5. **2021 - Bio-mediated soil improvement is a potential method for mitigating soil erosion**
   Proceedings of the 19th International Symposium on Advanced Technology (ISAT-19), Jan. 2021, Philippines, ISSN 2434-4273, pp. 19-20
   Tung Hoang, Huyen T. Do, Xuan T. M. Nguyen, Thien Q. Tran, Lang H. Vo.
6. **2019 - Bacterial enzyme induced calcite precipitation improving silty sand soil strength**
   Proceedings of the 3rd International Conference on Transportation Infrastructure and Sustainable Development, Aug. 2019, Vietnam, ISSN: 978-604-82-2893-4, pp. 272-277
   Tung Hoang, James Alleman, Bora Cetin, Do Huyen

TEACHING EXPERIENCE

Adjunct Faculty — **Colorado School of Mines, Golden, CO** — Jan. 2025 - now

Undergraduate/Graduate course: *CEEN 426/526: Durability of Concrete*

- Taught lecture and experimental labs to class size around 30 students
- Developed course curriculum and in-class problems and homework, and updated some existing course materials to reflect the current market needs
- Provided and explained solutions for homework and in-class problems
- Conducted in-office hours

Senior Lecturer — **The University of Danang - University of Science and Technology, Vietnam** — Jun. 2021 – Jul. 2023

Undergraduate courses: *Highway earthwork construction, Highway pavement construction, Applying geotechnical software in highway design, Capstone project*

- Taught lecture and lab to class size around 30 students; was solely responsible for course content
- Developed course curriculum and in-class problems and homework, and updated some existing course materials to reflect the current market needs
- Organized the visiting highway construction sites for students

Graduate course: *Ground improvement*

- Taught lecture and was solely responsible for course content
- Prepared course curriculum, lecture and practical problems following the course content from Iowa State University

Teaching Assistant — **Iowa State University, IA, USA** — 2017 - 2018

Undergraduate courses: *CE 360: Geotechnical engineering (Spring 2017 and Fall 2018)*
CE 326: Principles of environmental engineering (Fall 2017)

- Taught experimental labs to class size around 25 students
- Provided and explained solutions for homework and in-class problems
- Graded homework, lab reports, mid-term and final exams
- Conducted in-office consultation hours and private tutoring sessions efficiently

Lecturer — **The University of Danang - University of Science and Technology, Vietnam** — Aug. 2009 – Jul. 2014

Undergraduate courses*: Highway earthwork construction, Experimental method for construction materials, Applying geotechnical software in highway design, Capstone project*

- Taught lecture and lab to class size around 30 students, was solely responsible for course content
- Developed course curriculum and in-class problems and homework

- Managed and supervised construction materials laboratories facilities, and maintained machines and equipment in working condition

MENTORING EXPERIENCE

Colorado School of Mines, CO, USA Dec. 2023- present
Undergraduate research experiences student: 01 student in a decarbonized cement research project
Graduate student: 01 M.Sc. student in a project of a novel lightweight aggregate with carbon sequestration

The University of Danang, University of Science and Technology, Danang, Vietnam Jun. 2021- Jul. 2023
Graduate student: 02 students in a M.Sc. program
Undergraduate research experiences student: 02 students in a biocement research project
Undergraduate students: More than 15 students in senior design projects

Nanyang Technological University, Singapore Aug. 2019-Mar. 2021
Graduate student: 01 student in a biocarbonation of MgO cement research project, and she is currently working on a Ph.D. program at Nanyang Technological University
Undergraduate research experiences student: 01 student in a biocarbonation of MgO cement project

Iowa State University, IA, USA 2016-2018
Graduate student: 01 student in a urease enzyme extraction technique
Undergraduate research experiences student: 02 students in a biogeotechnics research project

FELLOWSHIP

- **Graduate Fellowship,** $27,000/year from the Vietnam International Educational Development (VIED) of the Vietnam Ministry of Education and Training for 02 first years of a Ph.D. program at Iowa State University — 2014-2016
- **Brain Korea 21 Fellowship** from the National Research Foundation of South Korea covered full tuition and stipend for 02 years of a M.Sc. program at Myongji University, South Korea — 2007-2009

HONOR AND AWARD

- **Registration Fee Award** ($2,195) and **certificate,** short course of Grouting and Ground Improvement, Golden, CO, USA — Jul. 29- Aug. 1, 2024
- **Travel and Training Award** from Duke Engineering Future Faculty of Innovation and Excellence (DEFINE) program, Duke University, NC, https://sites.google.com/view/duke-engineering-define/home — Oct. 18-21, 2023
- **Hoover Chair Graduate Student Grant-In-Aid Award**, $1,200/year from CCEE Dept., Iowa State University — 2014-2018
- **Cerwick Professor Graduate Student Grant-In-Aid Award**, $1,200/year from CCEE Dept., Iowa State University — 2015-2018
- **Best Paper Award**, Korean Society of Civil Engineers (KSCE) conference, Seoul, South Korea, — Oct. 2008
- **First Prize in the Loa Thanh prize**, The Excellent Graduation Project of Civil – Architect Student prize - Vietnam, Hanoi, Vietnam, Nov. 2005 — Nov. 2005
- **First Prize in the Undergraduate Research Contest**, The University of Danang - University of Science and Technology — May 2005

PROFESSIONAL SERVICE

Reviewing Service

Ad-hoc Reviewer (Grants reviewing)	The National Foundation for Science and Technology Development (NAFOSTED) – Vietnam, 2022 and 2024
Acta Geotechnica	Elsevier

Biogeotechnics	KeAi Publishing
Construction and Building Materials	Elsevier
Cleaner Materials	Elsevier
Geomechanics and Engineering	Techno Press
Journal of Geotechnical and Geoenvironmental Engineering	ASCE
Journal of Materials in Civil Engineering	ASCE
Journal of Rock Mechanics and Geotechnical Engineering	Springer
Mathematics	MDPI
Materials	MDPI
Sustainability	MDPI
Underground Space	Elsevier
Waste and Biomass Valorization	Springer

Editorial Service

Early Career Editorial Board, Biogeotechnics journal	2022 - present

Conference Organization

Member of Organizing Committee at *the 4th International Conference on Transport Infrastructure & Sustainable Development,* https://tisdic2023.dut.udn.vn/	2023

COMPUTER SKILL

- Simulation and design software: Geostudio, Flac, Talren 4, Plaxis, Sap 2000, AutoCAD, ArcGIS
- Programming language: MATLAB, R

PROFESSIONAL MEMBERSHIP

- Member of The American Ceramic Society (Jun. 2024 – present)
- Member of International Society for Soil Mechanics & Geotechnical Engineering (ISSMGE) (2021 – present), TC217 - Land Reclamation
- Member of Vietnamese Society for Soil Mechanics & Geotechnical Engineering (VSSMGE) (2012 – present)
- Member of Korean Society of Civil Engineers (KSCE) (2007 – 2009)

DOWNLOAD (SCAN QR)

Journal Publication

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PROFILE: Motivated and result-oriented professional with more than 24-year combined experience in Engineering and Facilities Management, Teaching, Building Inspection and Building Information Management**.** Keen to learn new skills, always proactive and demonstrates trust, integrity and respect to create a warm and caring work environment.

A. WORK EXPERIENCE

A.1 ASSISTANT INSTRUCTOR OF CIVIL ENGINEERING, School of Engineering (SENG)

University of Guam
August 2023 to present

Responsibilities (briefly described):

- Delivers Civil Engineering courses such as Engineering Mechanics (Statics and Dynamics), Engineering Orientation, Geotechnical Engineering (Lecture and Laboratory), and Engineering Hydraulics (Laboratory)
- Former Laboratory in-charge of Geotechnical Engineering Lab
- Former laboratory in-charge of Hydraulics Engineering Lab
- Academic Advisor to all Civil Engineering students

A.2 SENIOR ENGINEER (CIVIL), Facilities Management & Engineering (FM&E)

Resorts World at Sentosa Pte. Ltd., Singapore
August 18, 2008 to May 20, 2023 (**14+ years**)

Responsibilities (briefly described):

- Performed civil and architectural drafting of building plans, sections and elevations using AutoCAD/Autodesk Revit.
- Executed Building Information Modelling (BIM).
- Conducted training on IBM MAXIMO [a web-based Computer Maintenance Management System (CMMS) solution] to newly hired team members (TMs).
- Monitored and inspected buildings and liaised with vendors to ensure timely execution of routine maintenance for [Infrastructure, Heating, Ventilation and Air-Conditioning (HVAC), Electrical, Plumbing-Sanitary and Gas System (PSG)].
- Sent out monthly corrective maintenance (CM) and preventive maintenance (PM) reports to Managers / Engineers to ensure timely closure of work orders to hit target key planning indicators (KPI's).

A.3 FULL TIME INSTRUCTOR OF CIVIL ENGINEERING
Northwest Samar State University, Philippines
January 2001 – March 2007 (**7 years**)

Responsibilities:

- Delivered Civil Engineering courses such as AutoCAD, Engineering Mechanics, Engineering Management and Fluid Mechanics.
- Delivered sciences and mathematics courses including Physics and Calculus.
- Performed advising to Civil Engineering students.
- Reviewed Civil Engineering curriculum for continouos improvement program.
- Performed extension and research activities in Civil Engineering.
- Performed administrative work and assisted the Dean of the College of Engineering in other administrative-related activities.

A.3 QUANTITY SURVEYOR Cum AutoCAD Draftsman
Hitech Metallic Decors PTE LTD, Sharjah, UAE
February 2008 – July 2008 (**1 year**)

Responsibilities:

- Drafted detailed shop drawings of railings, balusters, staircases, automatic gates using AutoCAD.
- Performed the calculation of detailed quantities of aluminum, galvanized steel bar and accessories for the metal décor.
- Prepared technical report and submittted to the immediate supervisor.

A.4 QUANTITY SURVEYOR
J.L. Construction, Philippines
January 2001 – December 2001 (**1 year**)

Responsibilities:

- Performed quantity take-off and cost estimation of building projects
- Prepared BID documents for bidding purposes
- Prepared summary report for submission to the immediate supervisor

B. EDUCATION AND ELIGIBILITY

Masters in Engineering Program - Civil Engineering
Northwest Samar State University, Calbayog City, Philippines
Year of Graduation: Did not graduate (lacking Thesis requirement)

Bachelor of Science in Civil Engineering
Northwest Samar State University, Calbayog City, Philippines
Year of Graduation: March 2000

Licensed Civil Engineer (Philippines)
Year of License Board Exam: November 2000

C. TRAINING

- Autodesk Revit MEP - June 2016
- Autodesk Revit STRUCTURE - June 2016
- Building Information Management - November 2015
- MS Office Excel Specialist - December 2013
- AutoCAD 2000 Fundamentals & Intermediate – October to December 2001

D. MEMBERSHIP TO PROFESSIONAL ORGANIZATION / ACADEMIC COMMITTEES

- American Society of Civil Engineers (ASCE)
- Society of American Military Engineers (SAME) – Guam Post
- Philippine Institute of Civil Engineers (PICE)
- General Education Review Committee (GERC) - UOG
- Enrollment Task Force Member (Retention) - UOG
- Curriculum Review and Development Committee - NwSSU