DEPARTMENT OF CIVIL AND ARCHITECTURAL ENGINEERING

Contact Information
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Email: francisco.aguiniga@tamuk.edu  
Building Name: Engineering Complex  
Room Number: 376D

Mission
The mission of the Department of Civil and Architectural Engineering at Texas A&M University-Kingsville is to create a respectful learning environment that prepares graduates to meet industry needs, demonstrate professional responsibility, and pursue fulfilling careers.

M.S. in Civil Engineering Objectives:
After completing the M.S. in Civil Engineering degree, master's graduates will demonstrate the following skills beyond those expected of a baccalaureate recipient:

1. A deeper understanding of problem-solving and research skills in civil engineering field.
2. An ability to design increasingly complex systems in the fields of geotechnical, structural, transportation, and/or water resources engineering.
3. Professional communication skills.

Faculty
Graduate Faculty
Aguiniga, Francisco  Professor, Department of Civil and Architectural Engineering; Interim Chair; B.S., University of Michoacan (Mexico); M.S., University of Illinois at Urbana-Champaign; Ph.D., Texas A&M University.

Bailey, Breanna  Associate Professor, Department of Civil and Architectural Engineering; B.S., Texas A&M University; M.S., University of Illinois at Urbana-Champaign; Ph.D., Texas A&M University.

Choi, Jong-Won  Assistant Professor, Department of Civil and Architectural Engineering; B.S., Korea University (South Korea); M.S., Georgia Institute of Technology; Ph.D., Georgia Institute of Technology.

Faruqi, Mohammed A  Professor, Department of Civil and Architectural Engineering; B.S.C.E., Texas A&M University; M.S.C.E., Texas A&M University; M.Eng., Pennsylvania State University; Ph.D., University of Arkansas.

Leelani, Pat T  Professor, Department of Civil and Architectural Engineering; B.S.C.E., Chulalongkorn University (Thailand); M.S.C.E., The University of Akron; Ph.D., The University of Akron.

Sai, Joseph O  Professor, Department of Civil and Architectural Engineering; B.S.C., University of Ghana (Ghana); M.S., University of California, Davis; Ph.D., Texas A&M University.

Sun, Dazhi  Professor, Department of Civil and Architectural Engineering; B.S., Tongji University (China); M.S., Tongji University (China); Ph.D., University of Illinois at Urbana-Champaign.

Associate Member
Al-Hamdan, Osama  Assistant Professor, Department of Civil and Architectural Engineering; B.Sc., Jordan University of Science and Technology (Jordan); M.Sc., University of Alabama in Huntsville; Ph.D., University of Alabama in Huntsville.

Glusing, James  Associate Professor, Department of Civil and Architectural Engineering; B.Arch., University of Houston; M.Arch., University of Houston.

Hessami, Amir  Assistant Professor, Department of Civil and Architectural Engineering; B.S., Ferdowsi University (Iran); M.S., Sharif University of Technology (Iran); Ph.D., Texas A&M University.

Liu, Xiaoyu  Assistant Professor, Department of Civil and Architectural Engineering; B.S., Nanjing University of Science and Technology (China); M.S., Tongji University (China); Ph.D., University of Nebraska-Lincoln.
Courses

Civil Engineering (CEEN)

CEEN 5303  Advance Topics in Civil Eng  1-3 SCH (1-3)
One or more advanced topics. May be repeated for credit with change in topic.

CEEN 5304  Internship in Civil Eng  1-3 SCH (1-3)
Allows civil engineering graduate students the opportunity to participate in internships with industry, government, and consulting companies in career-based practical activities to broaden the skills obtained through curricular education. Attention will be given to select opportunities where the job training enhances the particular research needs of each student. Credit/Noncredit.

CEEN 5305  Graduate Research Project  3 SCH (3)
Designed for project option students and requires completion of research project. Prerequisite: departmental approval. May be repeated for a maximum of 6 semester hours.

CEEN 5306  Thesis  3 SCH (3)
Designed for thesis option students. The course requires completion of thesis research. Prerequisite: departmental approval. May be repeated for maximum of 6 semester hours.

CEEN 5311  Adv Reinforced Conc Design  3 SCH (3-0)
Analysis and design of flat plate, flat slab and two-way slab systems for gravity loads and lateral loads. Yield line theory of slabs. Deep beams, shear-friction, brackets and corbels. Length effects on braced and unbraced columns. Prerequisite: CEEN 3304.

CEEN 5315  Hydraulics of Open Channels  3 SCH (3)
Application of momentum and energy principles to advanced topics in uniform, nonuniform, gradually varied and rapidly varied flow problems. Backwater flow profile computation in steady flow. The method of characteristics applied to unsteady flows. Jeffreys-Verdenikov criteria. Flood routing calculations by advanced computer methods. Prerequisite: CEEN 3392 or CHEN 3392.

CEEN 5316  Eng Mechncs of Fiber Composits  3 SCH (3-0)
Introductions of basic composite material technologies, properties of classic laminate theory, transformation of stresses and strains, failure theories, performance under adverse conditions, structural design considerations, computer applications, application of composites to concrete structures and practical case studies. Prerequisite: graduate standing in engineering.

CEEN 5320  Foundation Engineering I  3 SCH (3-0)
Engineering characteristics of soils, consolidation, soil strength and bearing capacity for the analysis and design of spread and continuous footings, compensated foundations and deep foundations. Prerequisite: graduate standing in engineering.

CEEN 5321  Structural Dynamics  3 SCH (3-0)
Dynamic disturbances, such as earthquakes and blasting. Vibration of beams, frames and floor systems; response to various types of external disturbances; energy methods. Prerequisite: MEEN 3355.

CEEN 5326  Adv Construction Management  3 SCH (3-0)
Advanced theory, methods, and analytical tools to efficiently plan, schedule, estimate, organize, implement, and monitor civil engineering projects from inception to construction and start-up.

CEEN 5332  Structural Wood Design  3 SCH (3-0)
Design of wood structures with focus on allowable stress design considering material properties and environmental effects. Analysis and design of diaphragms, flexural members, axial members, and connections.

CEEN 5333  Advanced Strength of Materials  3 SCH (3-0)
Torsion of noncircular sections, membrane theory of shells, bending of plates and beams on elastic foundations. Two dimensional elasticity theory. Prerequisite: CEEN 3311.

CEEN 5335  Prestressed Concrete  3 SCH (3-0)
Principles and methods of design of members subject to linear prestressing; time-dependent variables and long-time deflections. Prestressed columns. Prerequisite: CEEN 3304.

CEEN 5337  Advanced Structural Analysis  3 SCH (3-0)

CEEN 5340  Water Resources Engineering  3 SCH (3-0)
Comprehensive integration of engineering, economics, environmental, legal and political considerations in water resources development and management, current issues and future direction for planning and management of water resources.

CEEN 5342  Adv Geotechnical Engineering I  3 SCH (3-0)
Advanced principles of geotechnical engineering including elastic deformation of soil, one-and two-dimensional fluid flow through soil, soil consolidation, strength of soil, stability of earth retaining structures, and slope stability.
CEEN 5350  Transportation Eng I  3 SCH (3-0)
Profession of transportation, transportation industry-systems and organizations, modes of transportation and their characteristics, transportation planning, forecasting travel demand by mode, evaluation of transportation alternatives including economic criteria, transportation systems management.

CEEN 5352  Design of Asphalt Pavements  3 SCH (3-0)
Asphalt pavement design and material selection including design of sub-grade, base, and hot mix pavement. Laboratory specifications, environmental concepts, and performance specifications.

CEEN 5353  Design of Intelligent Tran Sys  3 SCH (3-0)
The use of modern electronics and communication technologies to improve the performance of the transportation system. Basic principles of design intelligent transportation systems for urban and rural areas will be introduced.

CEEN 5354  Pavement Management Systems  3 SCH (3-0)
Development of pavement management systems considering life-cycle cost estimation, software applications, infrastructure asset management, pavement distress types, and pavement preservation.

CEEN 5355  Groundwater Hydrology  3 SCH (3-0)
An applied course dealing with groundwater hydrology and its interrelation with surface water, water well design, well pumps, well hydraulics, pumping tests and safe yield of aquifers, artificial recharge, flow nets, salt water intrusion and some modeling of groundwater flow. Prerequisites: CEEN 3392 or CHEN 3392.

CEEN 5361  Adv Structural Steel Design  3 SCH (3-0)
Design of steel structural members, including composite beams, plate girders and connections following the AISC LRFD specifications, economy evaluation of building design and design of frame structures including second order effects. Prerequisite: graduate standing in engineering.

**Degree Requirements**

**Civil Engineering, M.S.**
For all M.S. Civil Engineering students, no more than three graduate-level courses (9 credit) from outside Civil Engineering may be applied to degree. The first three graduate-level courses (9 credit total) must be Civil Engineering courses.

**Thesis Track**
Students must complete 8 graduate-level courses and successfully defend a thesis proposal and thesis (CSEN 5306, 6 credit).

**Research Project Track**
Students must complete 11 graduate courses and successfully defend a research project report (CEEN 5305, 3 credit).

**Course-Only Track**
Student must completed 12 graduate-level courses and successfully pass a comprehensive exam.

All students must complete at least one graduate-level course in each of the four civil engineering technical areas of the M.S. Civil Engineering degree, to be selected from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Semester Credit Hours</th>
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<tbody>
<tr>
<td><strong>Geotechnical Engineering</strong></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CEEN 5320</td>
<td>Foundation Engineering I</td>
<td></td>
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<tr>
<td>or CEEN 5342</td>
<td>Adv Geotechnical Engineering I</td>
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<td>3</td>
</tr>
<tr>
<td>CEEN 5353</td>
<td>Design of Intelligent Tran Sys</td>
<td></td>
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