Masters of Engineering in Civil Engineering and Engineering Mechanics

General ME Program Requirements (based on UA MEng. Program approval – October 9, 2015)
1) All programs of study will require completion of at least 30 graduate credits.
2) Each program will require 3 credit hours of courses in each of the following subject areas:
    a. Engineering management/business
    b. Applied engineering mathematics
    c. Entrepreneurship/Innovation/Design
    d. Advanced Engineering Science

The subject areas are intended to be broadly interpreted.

Program of study template

Course Requirements	Credit Hours
Engineering Management/Business (Category 1)	3
Applied Engineering Mathematics (Category 2)	3
Entrepreneurship/Innovation/Design (Category 3)	3
Advanced Engineering Science (Category 4)	3
Major Requirements and Electives	18
TOTAL	30

CEEM Program Specific Requirements
Major requirements and electives (18 units, 1 unit of Graduate seminar)
- Developed by student and approved by advisor,
- The majority of these units must be Civil Engineering and Engineering Mechanics courses
- A maximum of 3 units of independent study may be applied
- These courses must 500 or above with course approval from advisor

Practice-oriented project (0 units)
- No project is required for this degree
- A 3 unit independent study can be used to provide this experience

A student must focus in one emphasis area (geotechnical, hydraulics, structures, transportation, or engineering mechanics) but may take elective courses in more than emphases.

Category 1 – Engineering management/business (3 units) – Valid for all emphases
SIE/ENGR 514 Law for engineers/scientists
SIE/ENTR 557 Project Management
Other courses may be approved by Department Advisor

Category 2 – Applied engineering mathematics (3 units)
CE/EM 502 Introductory Finite Element Method
Other courses may be approved by Department Advisor

Category 3 – Entrepreneurship/Innovation/Design (3 units)
CE 540 Foundation Engineering
CE 527 Computer Applications in Hydraulics
CE 537 Advanced Structural Design in Concrete
CE 560 Special Topics in Transportation Engineering
Other courses may be approved by Department Advisor

Category 4 – Advanced Engineering Science (3 units)
CE 510 Probability in Civil Engineering
Other courses may be approved by Department Advisor

Major requirements and electives are defined and approved by Department Advisor. Representative courses are listed below by specialization.

Specializations

Engineering Mechanics
CE/EM 606 Wave Propagation in Solids & Ultrasonic NDE
EM 633 Structural Dynamics and Earthquake Engineering
EM 634 Advance Structural Dynamics
CE 510 Probability in Civil Engineering
EM 504 Theory of Elasticity
EM 508 Fracture Mechanics
EM 605 Mechanical Behavior of Materials II

Geotechnical
CE 548 Numerical methods in Geotechnical engineering
CE 540 Foundation Engineering
CE 541 Earth Structures in Geotechnical Engineering
CE 546 Geotechnical Earthquake Engineering
CE 510 Probability in Civil Engineering
CE 542 Ground Improvement
CE 544 Special Topics in Geomechanics
CE 545 Geoenvironmental Engineering

Hydraulics
CE 522 Open Channel Hydraulics
CE 529 Numerical Methods in Hydraulics
CE 526 Watershed Engineering
CE 527 Computer Applications in Hydraulics
CE 510 Probability in Civil Engineering
CE 523 Hydrology
CE 549 Statistical Hydrology
CE 622 Sedimentation Engineering
CE 655 Stochastic Hydrology

Structural
CE 532 Advanced Structural Design in Steel
CE 534 Design of Wood and Masonry Structures
CE 535 Prestressed Concrete Structures
CE 537 Advanced Structural Design in Concrete
CE 539 Developing Next Generation L-ion Batteries
CE 633 Reinforced Concrete
CE 510 Probability in Civil Engineering
CE 638 Structural Stability

Transportation
CE 563 Traffic Flow and Capacity Analysis
CE 566 Highway Geometric Design
CE 568 Urban Transportation Planning
CE 569 Travel Demand Modeling
SIE 561 Traffic modeling and simulation
CE 560 Special Topics in Transportation Engineering
CE 663 Advanced Traffic Modeling and Engineering
CE 510 Probability in Civil Engineering
CE 565 Transportation Data Management and Analysis