The Structures/Materials Program encompasses a multitude of areas such as structural analysis and design, steel and concrete structures, timber and masonry structures, matrix and computer methods, buildings, bridges and dams, power plant design, wind analysis and design, finite element method, earthquake analysis and design, stability of structures, nonlinear structural analysis, structural failure, prestressed concrete structures, lifeline analysis and design, applied optimal design, probabilistic methods, structural dynamics, composite materials, stress analysis, cement based materials, experimental methods etc.

Recent graduates have been employed in a variety of different organizations and companies both in the private and the public sector. Job opportunities include small and large consulting firms that deal with structural analysis and design, federal agencies and laboratories such as Federal Highway Administration (FHWA), Bureau of Reclamation (BUREC), Corps of Engineers, Air Force, Army, Navy, NASA, U.S.Geological Society, Sandia Labs etc., state agencies such as Arizona Department of Transportation (ADOT), county and city engineering offices etc., large companies such as Shell Oil, Boeing, Honeywell, Motorola, Intel, Ford, General Motors etc. and small companies that deal with structural problems. As can be seen by the list, the employment and career opportunities span the spectrum and are not limited to certain specialty government agencies or private sectors, or to certain geographical regions.

STRUCTURES FACULTY

- Apostolos Fafitis, Associate Professor
- Barzin Mobasher, Professor
- Subramaniam Rajan, Professor (Specialty Area Coordinator)
- Narayanan Neithalath, Associate Professor
- Keith Hjelmstad, Professor (former University Vice President and Dean of the College of Technology and Innovation)
M.S. PROGRAM

The advisor, in consultation with the student, will establish a Graduate Supervisory Committee (GSC). The GSC shall be composed of a minimum of three members from the CEE tenure-track faculty with at least two being from the Structures Group. Participation of individuals from institutions external to the ASU is encouraged but these shall be non-voting members. The advisor shall serve as the chair of the GSC.

The Plan of Study (POS) must be in accordance with Graduate College and CESE requirements. The candidate must complete at least 30 semester hours of approved course and research work distributed as follows:

1) at least fifteen (15) hours of Graduate Structures courses
2) at least three (3) but no more than six (6) hours in a minor area
3) at least three (3) but no more than six (6) hours of mathematics
4) not more than three (3) hours of CEE590
5) 6 hours of thesis (CEE599)

M.S.E. PROGRAM

The Graduate Supervisory Committee (GSC) shall consist of all tenure-track Structures faculty. The advisor shall serve as the chair of the GSC.

The Plan of Study (POS) must be in accordance with Graduate College and CESE requirements. The candidate must complete at least 30 semester hours of approved course work distributed as follows:

1) at least twenty one (21) hours of Graduate Structures courses including the core courses
2) at least three (3) but no more than six (6) hours in a minor area
3) at least three (3) but no more than six (6) hours of mathematics

A final written comprehensive exam is administered by the Structures Group the week before the last week of classes during the Fall and Spring semesters. The final exam is a comprehensive exam covering four core areas. Students must demonstrate mastery in all four areas.

Area 1. Structural Mechanics covering material from a graduate level course in mechanics of materials (e.g. CEE521) and structural dynamics (e.g. CEE536). Student must show proficiency in either advanced mechanics of materials or structural dynamics.

Area 2. Structural Analysis and Engineering Mathematics covering material from a graduate level course in engineering mathematics (MAE501 or MAE502) based structural analysis (e.g. CEE526). Student must show proficiency in either advanced mathematics or structural dynamics.

Area 3. Structural Design covering material from a graduate level course in concrete design (e.g. CEE527), steel design (e.g. CEE524) and prestressed concrete design (e.g. CEE530). Student must show proficiency in design using either concrete or steel.

Area 4. Structural Materials covering material from a graduate level course in material characterization and behavior (e.g. CEE515, CEE522, CEE598S1, CEE598S2, CEE598S3).

It is important for all doctoral students to read the Civil, Environmental and Sustainable Engineering Ph.D. program manual.