

1. CEE 3320 – Structural Mechanics
2. Course credit hours: 3
Contact hours per week: 4
Credit category: Engineering Topics
3. Course coordinator: Y. Jane Liu
4. Textbook: R.C. Hibbeler, *Structural Analysis*, 10th Edition, 2018

Supplemental materials: McCormac and Nelson, *Structural Analysis*, 4th Edition, 2007

5. Course information:

2020 Catalog description	Analysis of statically determinate and indeterminate structures; influence lines; and moving loads. Classical and computer methods.
Prerequisite(s)	CEE 3110
Course type	Required

6. Course instructional outcomes:

Course Outcome No.	Course Outcome (CO)	ABET Student Outcome
CO1	Analyze systems to determine their stability, determinacy, and indeterminacy	1
CO2	Analyze beams, frames, and trusses for both specific static load cases and moving load cases; become proficient in determining the maximum shear and moment in beams and frames (shear and moment diagrams)	1
CO3	Calculate deflections and/or rotations of beams, frames and trusses	1
CO4	Solve for reactions and draw shear and moment diagrams for statically indeterminate structures solved by a variety of methods	1
CO5	Calculate deflections and/or rotations of indeterminate beams, frames and trusses	1

ABET criterion 3 Student Outcomes addressed by this course:

SO No.	Student Outcome (SO)
3.1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

7. Course topics:
 1. Introduction to structures (2%)
 2. Structural stability, determinacy, and indeterminacy analysis (8%)
 3. Computation of external reactions and construction of internal force diagrams for beams and frames (16%)
 4. Truss member forces (10%)
 5. Influence lines (12%)
 6. Deflections and rotations for determinate structures (16 %)
 7. Analysis of indeterminate structures by force method (12 %)
 8. Deflections and rotations for indeterminate structures (10 %)
 9. Analysis of indeterminate structures by displacement method (10 %)
 10. Introduction to the Stiffness Method (4 %)

Program criteria (curriculum) addressed by this course:

1. Apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science
 2. Analyze and solve problems in at least four technical areas appropriate to civil engineering
8. Additional topics, assignments, or requirements for dual-level (4000/5000) course:
N/A
 9. Date: 02/11/2020