



Jordan University of Science and Technology
Faculty of Engineering
Civil Engineering Department

CE904 Advanced Finite Element Analysis - JNQF Level: 6

First Semester 2024-2025

Course Catalog

3 Credit Hours. This course presents effective finite element procedures for the nonlinear analysis of solids and structures. The finite element method is the ideal tool for solving complex static and dynamic problems in engineering and the sciences. Nonlinear analysis models kinematic and/or materially nonlinear effects. General nonlinear analysis techniques will be presented by emphasizing physical concepts. The mathematical foundation of nonlinear finite element techniques is given in light of these physical requirements.

Teaching Method: On Campus

Class Schedule & Room

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Develop a sound understanding of the fundamentals of nonlinear finite element analysis of solids and structures [1PI-1a] [1L6K1, 1L6K2, 1L6S2, 1L6S3]	50%	
Gain experience implementing FEM techniques and using FE software to solve realistic modelling problems [1L6S1, 1L6S2, 1L6S3]	50%	

Relationship to Program Student Outcomes (Out of 100%)

PI-1a	PI-2a	PI-2b	PI-2c	PI-2d	PI-3a	PI-4a	PI-4b	PI-5a	PI-6a	PI-6b	PI-7a
50											

Relationship to NQF Outcomes (Out of 100%)

L6K1	L6K2	L6S1	L6S2	L6S3
12.5	12.5	16.67	29.17	29.17

Evaluation

Assessment Tool	Weight
Midterm	25%
Assignment	25%
Final	50%

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