

Engineering Management (EM)

Courses

EM 101 Introduction to Construction Project Management 3 Cr.

This course provides a broad overview of the managerial, technological and physical processes that are involved in the creation of the built environment. It specifically focuses on understanding the issues in the management of a construction project. (Prerequisites: none. 3 credit-hours - 2 hours lecture and 3 hours lab).

EM 210 Building Information Modeling and Integrated Practices 4 Cr.

Use of Building Information Modeling technologies for facility design, visualization, quality estimation, cost estimation, scheduling, coordination, construction, operation, management and maintenance. Current BIM technologies will be covered, as well as BIM tools such as Autodesk Revit: Structural, Architectural, and MEP. Creation of 4-D animations using Autodesk NavisWorks and 3-D models created in Autodesk Revit: Structural. Examination of the technical logistics required to set up successful projects using BIM technologies. Classroom 3 hours plus 3 hours lab. Prerequisite: EG 110 and CE 264.

EM 220 Advanced Project Estimating 3 Cr.

The course covers the principles and practices of estimating integrated with supply chain management with particular emphasis on issues related to engineering and construction projects. Students will learn the principles of supply chain management, estimating, and purchasing in an environment characterized by inter firm relationships. 3 hours of class time per week. Prerequisite: CE 264. Co-requisite: AP 325.

EM 320 Construction Productivity 3 Cr.

This course focuses on the planning and execution of the construction of vertical and horizontal construction projects. The course emphasizes the means and methods associated with heavy civil projects, earthwork, and the construction of the project's structural elements. Equipment selection and methods will be a major focus. Prerequisites: Junior standing. 3 credit-hours lecture.

EM 322 Construction Safety 3 Cr.

Administration and application of the OSHA Act in the construction industry; includes standards, hazard identification and the development of a safety plan. Fulfills the requirements for the 30-hour OSHA safety training certifications. Classroom 3 hours. Prerequisite: junior or senior status.

EM 399 Special Construction Systems 3 Cr.

EM 401 Pre-Construction Management 3 Cr.

This course addresses the initial phases of the building creation process. It focuses on addressing the owner's design and construction needs and the delivery of value to the owner. Business development, estimating, planning and presentation skills are emphasized. A Design/ Build model is employed to encompass the full spectrum of architecture, engineering and construction (AEC) requirements. Classroom 3 hours. Prerequisites: EM 302 and CE 460.

EM 461 Project Management 3 Cr.

The course covers the principles and practices of project management with particular emphasis on issues related to engineering and construction projects. Students will learn the principles of project management within the firm and in an environment characterized by inter firm relationships. 3 hours of class time per week. Prerequisite: CE 460.

EM 475 Senior Project Planning 1 Cr.

Each student will work with a mentor and together will define and analyze a project so that an efficient design can be completed. The project scope will be developed, tasks will be laid out, and a schedule to complete the project will be created. All of this will be presented orally and in written form in a project proposal. Prerequisite: Senior status. Corequisite: CE 460.

EM 480 Construction Management Practices 3 Cr.

A capstone and practicum course in construction management engineering that explores the processes of management as applied to actual construction projects. Topics will be reviewed in the seminar and students will work in teams to review how these topics were applied in an actual construction project and to design a construction management plan for a proposed project during laboratory. Two 1.5 hour seminar periods and a 3 hour laboratory per week. Prerequisites: EM 220 and EM 461.