Construction Classes:

**CE 366 Project Management and Economics (3-0)** Three hours.
Prerequisite: CE 262
Applying engineering economic principles to construction and engineering problems; project management processes and methods in planning, scheduling, and monitoring engineering projects.

**CE 469 Construction Internship (0-0)** Three hours.
Prerequisite: CE 366, CE 464 (350 work hours during a term)
Practical field experience in working with management of construction.

**CE 414 Information Systems Design (3-0)** Three hours.
Prerequisites: CS 114 and IE 321.
An overview of management information, systems (MIS), focusing on practical aspects, applications, and methodology of MIS, particularly from the industrial engineer’s perspective. Covers information systems design methodology in detail.

**CE 415/515 Advanced Engineering Economics (3-0)** Three hours.
Prerequisite: IE 203 and GES 255 or GES 400 or GES 500
Capital budgeting, decision making under risk and uncertainly utility theory, cost estimation, and design of financial control through management simulation.

**CE 416/516 Advanced Information Systems Design (3-0)** Three hours
Prerequisite: CCE414
Current concepts in information systems architecture and applications. Includes decision support systems and CASE tools. Emphasis is placed on expanded use of systems design methodology.

**CE 417/517 Advanced Project Management (3-0)** Three hours.
Prerequisite: IE 203 and GES 255 or equivalent.
This is an engineering management course designed to introduce students to the functions of project engineers and managers. It details the processes of planning and controlling project scope, time and cost.

**CE 418/518 Engineering Management (3-0)** Three hours.
Prerequisite: CCE 366 or consent of instructor
An introduction to management principles and the management functions of planning, organizing, motivating, and controlling. Management of research design, manufacturing and quality will be studied.

**CE 461/561 Horizontal Construction Methods (3-0)** Three hours
Prerequisite: CCE 366
Introduction to horizontal construction equipment and methods; Design of horizontal construction systems; and construction operation analysis and simulation.

*(X-Y); X is number of lecture hours, Y is number of laboratory hours
CE 462/562 Vertical Construction Methods (3-0) Three hours.
Prerequisite: CCE 366
Construction of buildings, including mechanical, electrical, plumbing and controls systems; design of temporary structures; and planning and design of lifts.

CE 463/563 Construction Cost Estimating (3-0) Three hours
Prerequisites: CCE 366
Addresses the estimating and cost control function from conceptual planning through project execution. Topics include productivity analysis, organization of estimates, cost forecasting, estimating tools and techniques, contingency planning, and relationship to contract types and project execution strategies.

CE 464/564 Safety Engineering (2-3) Three hours.
Prerequisites: CS 114 and IE 321
An introduction to safety management and accident prevention, including related state and federal laws. Topics include motivation, planning, implementation, accident investigation, costs, statistics, reporting and human factors.

CE 466/566 Front End Planning (3-0) Three hours.
Prerequisite: CCE 366
Principles and applications for effective early planning of capital facilities, including: finance, economics decision making, risk management, team alignment, and front end planning processes and tools.

CE 467/567 Construction Administration and Finance (3-0) Three hours.
Prerequisite: CCE 366
Financial management of construction projects. Topics include alternative selection, life-cycle analysis, applied financial management techniques, insurance/indemnification, risk management, and tax implications.

CE 468/568 Construction Scheduling (3-0) Three hours.
Prerequisite: CCE 366
Planning, scheduling, organizing, and controlling construction project using current techniques including CPM, PERT, and computer software.

CE 469 Construction Internship (3-0) Three hours.
Prerequisite: CCE 366
Practical field experience working with management of construction.

CE 480/580 Forensic Engineering (3-0) Three hours.
Prerequisite: CCE 366
When failures in the built environment occur, whether during design, construction, or in-service, a thorough examination of the causes is essential to both the evolution sound engineering practices and to dispute resolution though the legal system. The role of the engineer in this process is examined.

CE 481/581 Legal Aspects of Engineering and Construction (3-0) Three hours.
Prerequisites: CCE 366
The management structure of construction companies and the laws, regulations, practices, tools and processes used in planning, scheduling, and monitoring construction projects.
Other Classes Often Taken:

**CE 320 Introduction to Environmental Engineering** (3-3) Four hours.
Prerequisite: CH 101,102 or B.S. degree in compatible field.
Introduction to the scientific and engineering principles needed to analyze and solve environmental engineering problems.

**CE 350 Highway Design and Construction** (3-0) Three hours.
Prerequisite: CE 260
Introduction to highway geometric design, drainage, traffic-control devices pavements, economic analysis, and construction.

**CE 378 Water Resources Engineering** (4-0-) Four hours.
Prerequisite: AEM 264 and AEM 311
Mechanics of steady and unsteady flow in closed and open conduits, hydrology; water supply and wastewater disposal.

**CE 485/591 Construction Site Erosion Control** (3 hours)
Prerequisite: CCE 378 (or consent of instructor)

**GES 401/501 Operations Research** (3-0) Three hours.
Prerequisite: GES 255 or GES 400/GES 500
Model construction, linear programming, network models, dynamic models, stochastic models, queuing theory, and decision theory.

**ME 407 Heating, Ventilating, and Air-Conditioning**. (3-0) Three hours.
Prerequisites: ME 309
Fundamentals and practice associated with heating, ventilating, and air conditioning; study of heat and moisture flow in structures, energy consumption, human comfort and health; and design of practical systems.

**ME 417 Heating, Ventilating, and Air-Conditioning System Design.** (2-3) Three hours
Prerequisite: ME 407 or ME 416
Design of conventional and unconventional environmental systems: air-conditioning, heating, refrigeration, control systems, and thermal storage.