COSC 601 Construction Practices
Credits 3. 3 Lecture Hours.
Materials and methods of construction with emphasis on the
design and construction process; includes structural steel and other
metals, foundation materials, precast and tilt wall concrete, concrete
reinforcement including pre-stressing, wood dimension lumber framing,
and heavy timber framing.

COSC 602 Construction Cost Estimating
Credits 3. 3 Lecture Hours.
Determination of quantities for various types of construction materials
and works including earthwork, foundations, structural systems,
mechanical and electrical systems, and building finishes; methods used
for pricing of construction works including labor, materials, equipment,
sub-contractors, overhead and profit; use of various types of cost data
catalogs available in the industry.

COSC 603 Construction Scheduling
Credits 3. 3 Lecture Hours.
Introduction to commonly used techniques and computer applications
for the planning, scheduling, monitoring, and controlling of construction
projects; includes key scheduling techniques such as Gantt Chart, CPM,
PERT, LSM, and EVM; practical scheduling practices such as tracking,
controlling, and forecasting trends of schedules, cost control, and
reporting.
Prerequisite: COSC 602 or equivalent.

COSC 606 Mechanical and Electrical Construction
Credits 3. 3 Lecture Hours.
Building environmental systems with a major emphasis on the design
and control of the heating, ventilation and cooling systems, plumbing and
drainage systems, electrical, fire and lightning protection, and lighting;
conceptual opportunities, calculations, equipment selection and economics
as they relate to design and construction.

COSC 608 Structural Principles and Practices
Credits 3. 3 Lecture Hours.
Investigations into practical applications of structural design including
the analysis and design of structural members in steel and concrete;
surveys and studies of various structural systems.

COSC 620 Construction Company Operations
Credits 3. 3 Lecture Hours.
Running a construction company; strategic planning; business planning;
organizational theory; competitor analysis; risk management; financial
analysis; human resources; management information systems;
leadership; codes of ethics; best practices.

COSC 621 Advanced Project Management
Credits 3. 3 Lecture Hours.
Theoretical, practical, and strategic development in the management
of contemporary construction projects; advanced techniques used in
scheduling and evaluating progress in construction project control;
exploration of state-of-the-art management principles and practices, and
development of additional insights.
Prerequisite: COSC 603 or COSC 475.

COSC 622 Construction Economics
Credits 3. 3 Lecture Hours.
Foundation in Life Cycle Cost Analysis computation within the context
of current issues in environmental sustainability and evidence-based
thinking; lean construction as a strategy to overcome the hurdle of first
cost.

COSC 624 Construction Business Development
Credits 3. 3 Lecture Hours.
Acquisition of new work in the construction industry; understanding
available project delivery systems; competitor analyses; acquisition
procedures including response techniques for complex requests for
proposals; understanding concepts of sales and marketing, branding,
backlog, and business development budgeting in construction.

COSC 628 Construction Contracts and Risk Management
Credits 3. 3 Lecture Hours.
Advanced construction law, contracts, and risk management applicable
to construction management; identification of common disputes
and construction risks among the owner, design professionals, and
contractor; analysis of construction contracts with an emphasis on
troublesome provisions and solutions; demonstration of tools of
negotiation and dispute resolution; ethics in construction.

COSC 631 Advanced Productivity and Lean
Credits 3. 3 Lecture Hours.
Introduction to lean history, concepts and methods; deduction of basic
training modules in lean project delivery; application of lean management
in construction projects.

COSC 642 Construction Information Technology
Credits 3. 3 Lecture Hours.
Exploration of emerging technologies for the construction industry
including hardware and software systems such as BIM, RFID, Wireless/
Mobile, information systems, construction specific programs, and
information strategy planning; using information strategy planning
by owners and contractors to effectively enhance the management of
business entities and projects in construction.

COSC 644 Advanced Construction Systems
Credits 3. 3 Lecture Hours.
Theoretical, practical, and strategic development in contemporary
construction systems; exploration of state-of-the-art innovations in
environmental control systems, structural principles and practices;
integration of innovations with information technologies, and
development of additional insights.

COSC 650 Advanced Construction Visualization
Credits 3. 3 Lecture Hours.
Introduction to the theory and application of 3-D computer models in the
design/build construction process; creation, positioning in 3-D space, and
linking of building components to a database record; creation of a wide
range of construction related information useful in controlling project
quality.

COSC 663 Sustainable Construction
Credits 3. 3 Lecture Hours.
Contribution of materials and methods to meeting the needs of the
present without compromising the ability of future generations to meet
their own needs; overview of international, national and local programs
promoting sustainable construction; characteristics of the components
of successful sustainable construction projects; theories and practices
through case studies.
COSC 670 Facilities Asset Management
Credits 3. 3 Lecture Hours.
Fundamentals of facility asset management and property management including concepts, theories, and principles of design, construction, accounting, finance, and management of the built environment; an overview of a project throughout its entire life cycle from various perspectives including the owner, users, designers, constructors and facility management personnel.

COSC 681 Seminar
Credit 1. 1 Lecture Hour.
Discussion and review of degree requirements, career opportunities, and current research activities in construction management.
Prerequisite: Graduate classification.

COSC 684 Professional Internship
Credits 3 to 6. 3 to 6 Other Hours.
Approximately 400-600 hours with a construction or construction-related company that exposes the student to construction-related activities; an initial report, monthly progress reports, a final report, and a final completion letter are required.
Prerequisites: Graduate classification; approval of graduate coordinator; approval of internship coordinator.

COSC 685 Directed Studies
Credits 1 to 6. 1 to 6 Other Hours.
Individual problems in the area of building construction involving the application of theory and practice.
Prerequisite: Approval of instructor.

COSC 689 Special Topics in...
Credits 1 to 4. 1 to 4 Lecture Hours.
Selected topics in an identified field of construction management. May be repeated for credit.
Prerequisite: Approval of instructor.

COSC 690 Theory of Research in Construction Management
Credits 3. 3 Lecture Hours.
Introduction to research, research tools, proposal writing and research reports; emphasis on research planning and design, conducting a comprehensive review of literature, quantitative and qualitative research methodologies, defining research problems in construction science, and the development of research proposals.
Prerequisite: STAT 651 or concurrent enrollment.

COSC 691 Research
Credits 1 to 23. 1 to 23 Other Hours.
Research for thesis.
Prerequisites: COSC 690 or concurrent enrollment; approval of graduate coordinator.

COSC 693 Professional Study
Credits 1 to 6. 1 to 6 Other Hours.
Approved professional study of project undertaken as terminal requirement for Master of Science, non-thesis option. Preparation of a record of study summarizing the rationale, procedure and results of the completed study. May be repeated for credit.
Prerequisite: COSC 690 or concurrent enrollment; approval of graduate coordinator.