COSC - CONSTRUCTION SCIENCE

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 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 3 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.