COSC - CONSTRUCTION SCIENCE

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.

COSC 604 Construction Accounting and Financial Management
Credits 3. 3 Lecture Hours.
Fundamental theories and applied methods of construction accounting and construction financial management including cash flow analysis, financial planning, risk analysis, and project financing.

COSC 605 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 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; design opportunities, calculations, equipment selection and economics as they relate to design and construction.

COSC 607 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 608 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 609 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 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.