

# CONSTRUCTION MANAGEMENT (ETCM)

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## **ETCM 1363. Wood Frame Construction. 3 Hours. [TCCN: ARCH 2312]**

This course is a study of materials and methods of wood frame construction found in residential and commercial construction focusing on aspects of load-bearing structural design elements. Instruction is given in the correct use of hand tools and machine tools, job safety, job-site controls, material handling, equipment, and application. Laboratory experiences include design and construction of a wood frame structure with elements typically found in residential construction. (2-2). Course Equivalents: ITEC 1363.

## **ETCM 2350. Surveying. 3 Hours. [TCCN: ENGR 1307]**

Students learn fundamentals of surveying methodologies and apply them to construction and civil engineering projects. Course topics may include theory of errors in observations, distance measurements, leveling methods, angles, azimuths and bearings, total station methods, and traverse computations.

**Prerequisite:** ETCM 1363.

## **ETCM 2363. Architectural Design. 3 Hours.**

This course consists of the development of a set of plans and specifications for a small residence. Course Equivalents: ITEC 2363, ETDD 2363

**Prerequisite:** ETDD 1390 or ETDD 1361 or ETCM 1363 or FACS 1360 or FACS 2364.

## **ETCM 2367. Metal Building Systems. 3 Hours.**

This course is a study of materials and methods of construction found in metal building systems. Instruction is given in the correct use of hand and power tools, job safety, job-site controls, material handling, equipment and application. Aspects of load design calculations, fastener use, metal coatings, and erection equipment are studied. Laboratory instruction includes basic metal working processes (welding, sheet-metal, foundry) used in metal frame construction. Course Equivalents: ETCM 3367, ETDD 2367, ITEC 1367

**Prerequisite:** ETCM 1363.

## **ETCM 2396. Special Topic. 3 Hours.**

This course of faculty-led study is designed to provide exposure of undergraduate students to new construction management and technology topics and concepts in a course setting. This course is designed to be a multi-topic course. The student can take the course under various special topics being offered.

**Prerequisite:** ETEC 1010 and ETCM 1363.

## **ETCM 3320. Mechanical, Electrical & Plumbing (MEP) Systems in Buildings. 3 Hours.**

Students design and implement typical Mechanical, Electrical and Plumbing (MEP) systems that are part of residential and commercial construction. Topics include design criteria, installation, and operation methods used to conserve both energy and water in buildings.

**Prerequisite:** PHYS 1301 or 1302 and Sophomore Standing.

## **ETCM 3353. Construction Project Management. 3 Hours.**

Students practice the management principles and techniques associated with managing construction projects. Students apply the most proven methods in construction project management as well as new techniques emerging from the current construction industry and recent research. Lecture and Lab.

**Prerequisite:** MATH 1316 and ETCM 1363.

## **ETCM 3368. Concrete/Masonry Construction. 3 Hours.**

This course is a study of materials and methods of construction found in concrete and masonry structures. Concrete chemistry, mixing and placement equipment, testing, finishing techniques, reinforcing, formwork, specification, and job-site safety implementing these materials are studied. Laboratory experiences include batch sampling and testing and small group projects implementing concrete and masonry methods and materials. Sophomore standing. Course Equivalents: ITEC 3368

**Prerequisite:** ETCM 1363.

## **ETCM 3370. Construction Technology II. 3 Hours.**

This course focuses on non-structural construction typically found in cabinetry, trim, and furniture construction. Included is the study of woods, synthetic materials, hardware, and wood joinery. Instruction is given in the correct use of hand and machine tools, job safety, job-site controls, and material specification. Lab experiences include designing, planning, construction, and finishing of a piece of cabinetwork or furniture. Sophomore standing. Course Equivalents: ITEC 3370

**Prerequisite:** ETCM 1363.

## **ETCM 3371. Civil Design Technology. 3 Hours.**

This course will consist of drafting techniques and requirements necessary for civil engineering offices. Topics include survey drafting, map drafting, topos, site plans, subdivision plats, profile drawings and other related topics. Sophomore standing. Course Equivalents: ITEC 3371

**Prerequisite:** ETDD 1361 or ETDD 1390.

## **ETCM 3372. Construction Drafting. 3 Hours.**

This course is a study of drafting techniques and requirements for the commercial and heavy construction industries and will add to the skill set of construction management students. Topics will include foundation design, commercial building design, structural detail, and premanufactured metal constructed building design. Demonstrations, student inquiry, in-class problem solving, and three dimensional (3D) modeling will be utilized. Course Equivalents: ITEC 3372

**Prerequisite:** ETDD 1361 or ETCM 1363.

**ETCM 4096. Directed Study. 1-6 Hours.**

Arranged professional and developmental learning experiences incorporating a practical application of construction management skills and practices. To include internships, individual research and industry studies. Variable Credit (1-6).

**Prerequisite:** Sophomore standing.

**ETCM 4310. Construction Cost Estimating. 3 Hours.**

Students learn the procedures for estimating construction costs of residential and light commercial projects. Topics may include the preparation of quantity surveys (take-offs), organizing cost information for contract documents, and the development of material, labor, and equipment costs. Lectures cover the skills and background to perform construction estimating, and students gain practical experience in estimating costs for material, labor, and equipment in labs.

**Prerequisite:** MATH 1316 and ETCM 2363.

**ETCM 4315. Construction Scheduling. 3 Hours.**

Students learn the concepts used in planning and scheduling of construction projects, including development of a project plan, progress reports, and deliverables. Students acquire the skills and background to perform construction scheduling, and they gain practical and software experience in using schedule networks, critical path methods, resource allocation, and project control techniques in labs.

**Prerequisite:** MATH 1316 and ETCM 2363.

**ETCM 4330. Construction Equipment & Procedures. 3 Hours.**

This course is designed to provide a general knowledge of construction applications and procedures. Emphasis is on site preparation, foundations, and concrete. Emphasis will be placed on the responsibility of general or prime contractors and specialty contractors. Students will be taught cost estimation and procedures for bidding. Course Equivalents: ITEC 4330

**Prerequisite:** ETCM 1363 or ETDD 1361.

**ETCM 4368. Building Materials. 3 Hours.**

The study of the materials used in building and construction projects including properties, mechanics, and life-cycle impact. Emphasis is placed on chemical, physical, and electrical properties of materials with specific attention to soil, asphalt, steel, and sustainability. Course Equivalents: ITEC 4368

**Prerequisite:** ETCM 2367 and ETCM 3368.

**ETCM 4369. Special Topic. 3 Hours.**

Individual study in specialized areas of Construction Management. To be directed and approved by the Industrial Technology advisor. This course is designed to be a multitopic course. The student can take the course under various special topics being offered.

**ETCM 4370. Construction Plans & Documents. 3 Hours.**

This course is designed to give a clear insight into the particular problems of construction and proper construction procedures. The site selection, availability of services, grading, subsurface explorations to determine foundation needs, construction organization, and other activities of construction are presented in logical units. Course Equivalents: ITEC 4370

**Prerequisite:** ETCM 2363 or ETCM 3372 and ETCM 3368 and Junior standing.

**ETCM 4371. Building Information Modeling. 3 Hours.**

This course focuses on current issues in the construction industry from a Building Information Modeling standpoint. This approach incorporates the integrated project delivery method, productivity measurement, digital modeling, and construction process modeling for construction scheduling.

**Prerequisite:** ETCM 2363 or ETCM 3372.