

BUILDING INFO. MODELING MGMT. (BIMM)

BIMM 1000 Introduction to Virtual Design and Construction 2 Credits

This course is an introduction to the VDC industry, operations, and roles of stakeholders, and career opportunities. Students will explore the economic, social, and environmental impacts of the built environment through a survey of industry history and current trends, and how VDC/BIM processes improve coordination and control of construction and civil engineering projects.

BIMM 1501 Construction Mat & Methods 3 Credits

This course is an introduction to the basic building materials and systems in the construction industry. Topics include common terminology and units of measurements, composition and properties of materials, foundations, framing, finishes, and usage of wood, steel, concrete, and manufactured components.

BIMM 2105 Fundamentals of CAD & BIM 4 Credits

This course provides students with an introduction into Computer-Aided Design (CAD) and Building Information Modeling (BIM) for the Architectural, Engineering, and Construction (AEC) industry. Students will use industry-standard AEC software (Autodesk AutoCAD, Autodesk Revit, Trimble SketchUp, Tekla Structures, etc.) to model construction projects, create and distribute architectural drawings, and produce both 2D and 3D outputs.

BIMM 3000 Building Codes & Standards 3 Credits

This course examines current building codes and standards with emphasis on the International Codes (I-Codes) as published by the International Code Council (ICC). State and local regulations will also be introduced.

BIMM 3100 Construction Blueprint Reading 3 Credits

This course introduces the fundamental skill of blueprint reading, which construction professional in all fields must understand accurately. Students will gain basic knowledge and practice in reading plans and understanding specifications, as well as construction/working drawings of steel, wood frame, masonry construction, and MEP construction. Topics include plan, elevation, and section views along with details, symbols, schedules, specifications, and abbreviations used in architectural and engineering drawings.

BIMM 3130 Construction Finance & Admnstr 3 Credits

This course introduces the concepts and principles of construction financial management and administration. Topics include business ownership and organization, financial systems and statements, budget development, contract administration and management, depreciation analysis, labor, overhead, project controls, cost and profit-center analysis, and economic decision making.

Prerequisite(s): ECON 2105 and ACCT 2101.

BIMM 3305 Steel Structures & Design 4 Credits

This course introduces fundamental properties, strengths, and shapes of structural steels, and explores the purpose of steel elements in various structural systems. Topics include, but are not limited to tension members, beams, column, beam columns, and connections. Students will develop competencies in steel detailing and producing construction output for industrial, residential, commercial, and/or public spaces using industry-accepted BIM software to design structural steel systems.

Prerequisite(s): BIMM 1501 and BIMM 2105.

BIMM 3505 Concrete Structures & Design 4 Credits

This course introduces fundamental materials properties, characteristics, and behavior of structural concrete, and explores the purpose of concrete elements in various structural systems. Topics include, but are not limited to walls, beams, joints, slabs, footings, and flexural analysis. Students will develop competencies in concrete detailing and producing construction output for industrial, residential, commercial, and/or public spaces using industry-accepted BIM software to design structural concrete systems.

Prerequisite(s): BIMM 2105.

BIMM 3730 Const Plan Schd & Estimodeling 3 Credits

This course covers the fundamentals and techniques of planning and scheduling for construction projects, theory and practice of construction project bidding and estimation, and utilization of estimodeling software to prepare estimates from 3D models. Students will prepare estimates, competitive bids, and schedules. Topics include Critical Path Method, cost-time trade-offs, earned value method, lean construction principles and practices, computerized scheduling techniques, proposal preparation, types of estimates, measuring work, quantity takeoffs, direct and indirect costs, labor and equipment costs, and project budgeting.

Prerequisite(s): BIMM 3130.

BIMM 3905 MEP Systems 4 Credits

This course is an introduction to the designing, planning, installing, commissioning, and maintaining mechanical, electrical, and plumbing (MEP) systems. Students will produce a model and output which includes architectural and structural components. Project changes both before and after construction has begun will be examined.

Prerequisite(s): BIMM 2105.

BIMM 4225 Sustainable Design & Construct 3 Credits

This course is a study of the techniques and methods of sustainable construction. Topics include Leadership in Energy and Environmental Design (LEED) core concepts including construction and design for sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design. The course also examines the economic, social, and environmental impacts of sustainable construction operations.

Prerequisite(s): BIMM 2105.

BIMM 4310 VDC Project Management 3 Credits

This is an advanced course in the management of a construction project through all phases and dimensions of BIM workflow and applications. Comprehensive project management will be covered utilizing leading software and web-based tools. Topics include planning, estimating, scheduling, logistics and supply chain principles, and project controls. Communication and coordination among multiple stakeholders, leadership and management strategies, and problem-solving using BIM technologies will be emphasized.

Prerequisite(s): BIMM 3730.

BIMM 4610 Principles of Facilities Mgmt 3 Credits

This course focuses on the principles of facilities operations after a structure is completed and delivered. Different scenarios as they relate to aspects of the structure will include safety, security, maintenance, inspections, business continuity planning, daily operations, and environmental impacts. Students will prepare a model in the final stages of a project and work with the structure after delivery of the completed building.

Prerequisite(s): BIMM 3130.

BIMM 4899 BIM/VDC Capstone 3 Credits

This course will prepare students for VDC/BIM professional practice through a semester-long project encompassing the entire lifecycle of a construction project. Students are required to integrate knowledge and skills gained throughout the program to solve problems not previously encountered. The course will culminate in student presentations to an audience of faculty and industry representatives.

Prerequisite(s): 30 hours of upper division coursework.

BIMM 4999 BIM VDC Internship 3 Credits

This internship experience provides students the opportunity to engage in practical work experience with an approved employer.

Prerequisite(s): Permission of dean or program chair.