ARCHITECTURE, ENGINEERING, CONSTRUCTION (AEC)

AEC 101 Fundamentals of Drafting 5 Credits

Introduces basic drafting skills and concepts with an emphasis on projection theory.

Prerequisite: None.

AEC 102 Introduction to CAD 5 Credits

Develops fundamental skills for computer aided drafting (CAD) with an emphasis on the application of AutoCAD.

Prerequisite: Prerequisite: AEC 101 or instructor's permission. Concurrent enrollment in AEC 102 or AEC 112.

AEC 103 Introduction to 3D Modeling 5 Credits

Explores 3D modeling fundamentals and how they apply to simple geometric forms and building modeling. Hands-on use of Revit and other industry-standard 3D modeling applications.

Prerequisite: Prerequisite: AEC 101 or instructor's permission. Concurrent enrollment in AEC 102 or AEC 112.

AEC 112 Accelerated Drafting & CAD 10 Credits

Develops fundamental skills for computer aided drafting (CAD) with an emphasis on the application of AutoCAD. This course combines all content from AEC 101 & AEC 102. It is intended for students who have not taken AEC 101.

Prerequisite: Prerequisite: Concurrent enrollment in AEC 103.

AEC 120 Construction Methods and Materials 5 Credits

Develops a fundamental understanding of construction materials, sizes, detailing, volume estimates, and applications related to the building industry.

Prerequisite: Prerequisite: AEC 102 or instructor's permission.

AEC 121 Architectural BIM I 5 Credits

Covers development of 3D models and construction drawings utilizing industry standard 3D BIM software. Emphasis on residential architectural construction in modeling and documentation.

Prerequisite: Prerequisite: AEC 120 and AEC 103 or instructor's permission.

AEC 122 Architectural BIM II 5 Credits

Covers development of construction documents utilizing industrystandard 3D building information modeling software. Emphasis on creating complete plan sets by building on work completed in AEC 121, with the goal of finalizing industry standard, permit-ready plan sets. **Prerequisite:** Prerequisite: AEC 121 or instructor's permission.

AEC 160 Introduction to Civil Engineering and Survey 5 Credits

Develops fundamental concepts and skills for civil engineering and survey. Applies general survey principles in team survey activities. **Prerequisite:** Prerequisite: AEC 102 or concurrent enrollment, or instructor's permission.

AEC 161 Civil CAD I 5 Credits

Develops fundamental skills to work with surfaces and points in civil engineering drafting. Emphasizes the application of Civil 3D. **Prerequisite**: Prerequisite: AEC 160 or instructor's permission.

AEC 162 Civil CAD II 5 Credits

Develops fundamental skills in roadway design in civil engineering drafting. Emphasizes creating and editing plan views, profile views, section views, and corridors.

Prerequisite: Prerequisite: AEC 161 or instructor permission.

AEC 171 Commercial BIM I 5 Credits

Introduces essential Building Information Modeling tools and concepts for developing a multi-story commercial building. Emphasis on design intent and commercial industry best practices in modeling and documentation.

Prerequisite: Prerequisite: AEC 103 or instructor's permission.

AEC 172 Commercial BIM II 5 Credits

Continues on building project started in AEC 171 using intermediate to advanced BIM tools/techniques in coordinate systems, phasing, and detailing. Strong emphasis on extracting information from a building model and coordinating multiple project files. Continues development towards a full set of industry standard construction drawings.

Prerequisite: Prerequisite: AEC 171

AEC 263 Civil CAD III 5 Credits

Develops fundamental skills in site planning, pipe networks design, and quantity take-off in civil engineering drafting with an emphasis on the application of Civil 3D.

Prerequisite: Prerequisite: AEC 162 or instructor's permission. Concurrent with AEC 264.

AEC 264 Survey I 3 Credits

Develops skills in topographic survey, data collection using robotic total stations, and topographic map creation using Civil 3D.

Prerequisite: Prerequisite: AEC 162 or instructor's permission. Concurrent enrollment in AEC 263.

AEC 273 Building Information Modeling III 5 Credits

Explores multi-discipline building information modeling tools while developing structural, mechanical, electrical, and plumbing systems. Emphasizes collaboration, introduces the fundamentals of custom content creation, and integrates with AEC 274.

Prerequisite: Prerequisite: AEC 172 or instructor's permission. Concurrent enrollment in AEC 274.

AEC 274 Building Information Modeling IV 4 Credits

Integrates BIM skills acquired during the AEC program pathway while exploring virtual design and construction (VDC) processes and tools. Students work collaboratively to assemble a multi-discipline building model for evaluation of construction processes and presentation to stakeholders.

Prerequisite: Prerequisite: AEC 172 or instructor's permission. Concurrent enrollment in AEC 273.