DDGT 231 - Digital Architectural Drafting & Design 2 Course Outline

Approval Date: 03/14/2019
Effective Date: 08/12/2019

SECTION A

Unique ID Number	CCC000604147
Discipline(s)	Drafting
Division	Career Education and Workforce Development
Subject Area	Digital Design Graphics Technology
Subject Code	DDGT
Course Number	231
Course Title	Digital Architectural Drafting & Design 2
TOP Code/SAM Code	0953.00 - Drafting and Design Technology/Technician, General* / C - Occupational
Rationale for adding this course to the curriculum	This update is tying in with the creation of a one year Architectural Drafting and Design Certificate of Achievement. Course content updates. Unit updates. SLO updates.
Units	5
Cross List	*N/A*
Typical Course Weeks	18

Total Instructional Hours

	Contact Hours
Lecture	54.00
Lab	108.00
Activity	0.00
Work Experience	0.00
Outside of Class Hours	108.00

Total Contact Hours	162
Total Student Hours	270

Open Entry/Open Exit	No
Maximum Enrollment	15
Grading Option	Letter Grade or P/NP

Distance Education Mode of Instruction On-Campus

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Description The second of a two-course series in Digital Architectural Drafting and Design. This course enables the student to learn and apply advanced skills towards the creation of graphical architectural documents per current industry standards using Building Information Modeling (BIM). This class focuses on, but is not limited to, commercial design. Topics include advanced study of digital graphic representations used by the architectural field, building codes, symbology, floor plans, sectional views, interior/exterior elevations, and 3D rendering as relates to commercial architecture and design using the latest release of the Autodesk Revit software.

Schedule Description

SECTION D

Condition on Enrollment

1a. Prerequisite(s)

- DDGT 230 with a minimum grade of C or better

1b. Corequisite(s): *None*

1c. Recommended: *None*

1d. Limitation on Enrollment: *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

A. Autodesk Certification.
B. Implement advanced technical skills in the creation of construction documents utilizing the latest release of the Autodesk Revit Architecture software as pertains to commercial design.
C. Understand and apply industry standard technological terms, symbols, and the standard views used to describe commercial building design.

2. Course Objectives: Upon completion of this course, the student will be able to:

A. Develop a schematic design for a commercial structure.
B. Create and use an advanced building program.
C. Analyze and diagram site conditions.
D. Evaluate a building site for zoning code compliance and appropriate building location.
E. Interpret and apply applicable building codes.
F. Apply various methods and materials of commercial construction.
G. Understand strategies for sustainable design including energy efficiency, water efficiency, indoor environmental health, and resource efficiency.
H. Interpret and apply accessibility requirements for ADA compliance.
I. Apply fundamental principles of fire rated construction.
J. Create advanced Building Information Models (BIM).

K. Manage model views to generate advanced construction document (floor plans, elevations, site plans, roof plans, building sections, wall sections, reflected ceiling plans, interior elevations, and details).
L. Design advanced ramps, stairs, and railings.
M. Develop door, window, and material schedules.
N. Edit and create custom parametric BIM families.
O. Create and utilize conceptual and massing model studies.
P. Create and modify custom project and family templates.
Q. Produce advanced 3D renderings.
R.

3. Course Content

A. Design and Industry Standards
    a. Fundamentals of sustainable design
    b. Building programming, determining client values, and setting project goals
    c. Building code and zoning requirements
    d. ADA (Americans with Disabilities Act of 1990) and other accessibility requirements
    e. Fire rated construction requirements
    f. Site analysis and diagramming
    g. Materials and methods of commercial construction
    h. Floor plan design
    i. Elevation design
    j. Use and application of architectural symbology
    k. Vertical circulation methods and design
B. Advanced use of Building Information Modeling (BIM)
    a. Small office (walls, grids, dimensions, door, windows, annotations and dimensions, exterior walls, interior walls, elevators)
    b. Stairs and railings
    c. Ramps and sloped floors
    d. Roofs and skylights
    e. Floor systems and reflected ceiling plans
    f. Interior and exterior elevations
    g. Annotations
    h. Sections and details
    i. Interior design
    j. Schedules
    k. Site and rendering
    l. Printing
    m. Manipulation of toposurfaces
    n. Creating custom templates
    o. Creating schedules
    p. Custom system families
    q. Component family concepts
    r. Advanced family techniques
    s. Additional family types
    t. Creating architectural specific families
    u. Creating MEP (Mechanical Electrical and Plumbing) specific families
    v. Creating structural specific families
    w. Massing studies
    x. Space planning & area analysis

y. Visualization
z. 3D Rendering

C. Construction Documentation
a. Scheduling and product selection
b. Interpreting written specifications
c. Dimensioning and notation
d. Construction detailing
e. Creation and modification of technical drawings (floor plans, elevations, sections, details, etc.)
f. Use and application of architectural graphics, scales, symbols, and dimensioning
g. Materials and methods of commercial construction
h.

4. Methods of Instruction:

Activity:
Lecture:
Projects:
Other: Hands on lab assignments, projects, and readings from textbook.

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Typical classroom assessment techniques

Quizzes -- Quizzes to cover material covered in assigned readings and class lectures.
Projects -- Drawings
Home Work -- Assigned practices from the ASCENT courseware.
Final Exam --
Mid Term --

Additional assessment information:

Evaluation of drawing assignments
One midterm examination and final examination.

Letter Grade or P/NP

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

A. Reading Assignments
Assigned readings from textbook and courseware.
B. Writing Assignments
C. Other Assignments
Creation of working drawings.
Creation of a 3D digital architectural commercial model.

7. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Book #1:

Author:	Daniel John Stine
Title:	Commercial Design Using Autodesk Revit
Publisher:	SDC Publications
Date of Publication:	2018
Edition:	Latest

Book #2:

Author:	Francis D.K. Ching
Title:	Building Construction Illustrated
Publisher:	Wiley
Date of Publication:	2014
Edition:	5th

Software #1:

Title:	Revit Architecture
Publisher:	Autodesk
Edition:	Latest

B. Other required materials/supplies.

- ASCENT - Revit BIM Management: Template and Family Creation (To be supplied by instructor with purchase of lab materials fee.)
- ASCENT - Revit Architecture: Conceptual Design & Visualization (To be supplied by instructor with purchase of lab materials fee.)