

# DDSN - Drafting Design

## DDSN 101 CAD 1-A: 2 Credits (2 Lec)

This course starts with basic software recognition and user interface concepts, introduces basic computer drafting principles and commands, including some intermediate concepts including 3D visualization and drafting and document publishing. Students will learn blocks, fields, CAD tips and shortcuts, and also create their own template and title block. The featured software is AutoCAD Architecture. There is no prerequisite. This course, when followed by DDSN 102 – CAD-1B, is equivalent to DDSN 118 CAD-1.

## DDSN 102 CAD 1-B: 2 Credits (2 Lec)

PREREQUISITE: DDSN 101

This course is a follow-up to DDSN 101 CAD 1-A: the two courses together, completed successfully, are equivalent to DDSN 118 CAD 1. In this course, students will focus on using AEC objects to create construction documents of designs created by others.

## DDSN 112 Professional Practices: 3 Credits (3 Lec)

(Sp) Students in this course will learn how to create a professional looking and effective résumé, understand their strengths and weaknesses, talents, and aptitudes, know how to properly seek employment in their chosen field, present themselves well in interviews and elevator pitches, know the basics of setting up their own business, understand the basic principles of the business of the Design Drafting field and learn how to continue to improve in all of these areas.

## DDSN 113 Technical Drafting: 3 Credits (3 Lec)

(F) This course is divided into two parts. The first half of the semester is devoted to free hand sketching. The second half of the semester is hand drafting with an emphasis on learning the components of residential construction. Traditional drafting tools will be used such as T Squares, triangles, scales, eraser shields, and mechanical pencils.

## DDSN 114 Introduction to CAD: 3 Credits (1 Lec, 2 Lab)

Provides the learner with an understanding of two-dimensional computer-aided drafting. Students explore and create two dimensional drawings with the aid of AutoCAD software (made by Auto desk). Drawings focus on architecture, mechanical and civil engineering applications.

## DDSN 118 CAD I: 4 Credits (4 Lec)

(F) (4 Lec) F This course starts with basic software recognition and user interface concepts, introduces basic Computer Aided Drafting principles and best practices. The course begins with the User Interface and progresses through 2D and 3D drafting and visualization. AEC Objects, and Document Publishing. Software featured: AutoCAD Architecture.

## DDSN 124 Descriptive Geometry: 4 Credits (4 Lec)

(4 Lec) S Prerequisite: DRFT 131. Advanced theory and practices in descriptive geometry construction and pattern development are covered in this course in preparation for advanced courses in Design Drafting. Descriptive Geometry teaches 3D visualization and how to solve geometric problems by drawing them in CAD. Typically Taken – 2nd Semester (Spring).

## DDSN 131 Introduction to Drafting and Design: 3 Credits (3 Lec)

(F, Sp) Introductory course, teaching hand and CAD drafting as it relates to Architecture, Engineering, Construction, and Industrial Design.

## DDSN 135 SolidWorks I: 3 Credits (3 Lec)

(Sp) This course is a study and application of standards used for producing working drawings, including the fundamentals of geometric dimensioning and tolerance. Both detail and assembly drawings will be produced. Typically Taken – 2nd Semester (Spring).

## DDSN 166 Revit I: 3 Credits (2 Lec, 1 Lab)

PREREQUISITE: CSTN 173 and DDSN 131 or IDSN 230. (F, Sp) Students will be introduced to Parametric Design and Building Information Modeling (BIM) that make up the base platform of this software as they work through a variety of drafting projects

## DDSN 186 Intermediate Drafting & Design: 3 Credits (3 Lec)

PREREQUISITE: DDSN 101 and 102 or DDSN 118 or DDSN 131 Explores advanced concepts, techniques, and customizability of AutoCAD. Create templates, set up and modify printers, generate shortcuts and subroutines, and increase drafting speed and efficiency. Transition from an AutoCAD user into a competent CAD manager. Typically Taken – 2nd Semester (Spring).

## DDSN 215 Mechanical Detailing: 3 Credits (3 Lec)

PREREQUISITE: CSTN 148, DDSN 135, MFTG 205. (F) Mechanical detailing introduces the fundamentals of Geometric Dimensioning & Tolerancing. Beginning with basics of blueprint reading, students will learn the terminology, rules, and symbols of GD&T as outlined in the ASME Y14.5M standards Repeatable up to 18 credits.

## DDSN 235 SolidWorks II: 3 Credits (3 Lec)

PREREQUISITE: DDSN 135 or consent of Instructor, or approval by Program Director. (F) This course presents the advanced use of new designing techniques and capabilities of solid modeling using the SolidWorks software, including the integration of the advanced parametric modeling and drawing tools for SolidWorks

## DDSN 236 Product Design Challenges: 3 Credits (3 Lec)

PREREQUISITE: MFTG 205, DDSN 135. (F) This course takes students through a series of design assignments & a semester-long project exploring the design processes used by companies in the prototyping and product design industry

## DDSN 244 GIS and Mapping: 3 Credits (3 Lec)

Fundamentals of reading, interpreting, analyzing and designing maps. Topics of emphasis include 1.) the nature of geographic information, 2.) how geographic information systems (GIS) facilitates data analysis, and 3.) how cartographic design principles can be used to create maps that excel at effective visual thinking and communication. Students will create design effective reference and thematic maps for specific users. Typically Taken – 4th Semester (Spring).

## DDSN 245 Civil Drafting: 3 Credits (3 Lec)

(F, Sp) S Prerequisite: DDSN 118 or DDSN 101 or Program Director Approval. This course builds upon previous CAD experience and applies those skills to creating drawings specifically for the Civil Engineering industry. Instruction will be given relating to basic engineering principles like: survey data, acquisition, contour/break line creation, azimuth/bearing calculations, coordinate systems, latitude/longitude, and slope/grade calculations. Projects will primarily use AutoCAD Civil 3D software.

## DDSN 265 Architectural Drafting: 3 Credits (3 Lec)

PREREQUISITE: CSTN 173, DDSN 118 or DDSN 131 or DDSN 166. (F) The students in this course will create, from scratch, an entire two story home, and draw the plans in CAD to the level where it is ready to be submitted for permit to the City of Bozeman or other municipality. Plans will include: Site Plan, Four Exterior Elevations, Foundation Plan, Main Floor Plan, Second Floor Plan, Electrical Plans, Sections and Details as required. All drawings must follow current codes including: International Residential Code, International Mechanical Code, Fuel Gas Code, International Energy Conservation Code, Uniform Plumbing Code, and National Electrical Code. Historical US Home Styles and Space Planning Problems will also be explored

**DDSN 266 Revit II: 3 Credits (3 Lec)**

(F) S Prerequisite: DDSN 166. Students will be introduced to Parametric Design and Building Information Modeling (BIM) that make up the base platform of this software as they work through a variety of drafting projects. Typically Taken 4th Semester (Spring).

**DDSN 275 Computer Rendering: 3 Credits (3 Lec)**

PREREQUISITE: DDSN 101 and 102 or DDSN 118 or DDSN 131. (F) This course will introduce basic computer rendering concepts and explore the use of current popular software. 2D and 3D concepts will be explored. Featured software: Adobe Photoshop and Google Sketchup. Typically Taken - 1st Semester (Fall)

**DDSN 276 Presentation & Animation: 3 Credits (3 Lec)**

(Sp) Excites the student through immersion into the topic of 3D computer graphics and animation. Digital environments are explored using the 3D Studio Max software. Interdisciplinary projects are created utilizing digital object construction, lighting, camera, kinetic and artistic techniques.

**DDSN 291 Mechanical Detailing: 1-4 Credits ()**

PREREQUISITE: DDSN 131, DDSN 135, MFTG 205. Mechanical detailing introduces the fundamentals of Geometric Dimensioning & Tolerancing. Beginning with basics of blueprint reading, students will learn the terminology, rules, and symbols of GD&T as outlined in the ASME Y14.5M-2009 standards

**DDSN 298 Internship: 4 Credits (4 Other)**

(F, Sp, Su) F,S,Su Prerequisite: Program Director approval only. Job experience within your chosen field. Typically Taken – 4th Semester (Spring).

**DDSN 299 Capstone: 3 Credits (3 Lec)**

(Sp) In this capstone class students will create a professional portfolio (both digital and physical) using InDesign in addition to the software which they have learned throughout the program. This will be the ultimate demonstration of their knowledge, skill, and experience gained over the previous two years. Students will learn how to find employment in the hidden job market, conduct informational interviews and present themselves and their work in a professional setting.