Computer Integrated Design and Graphics

The Computer Integrated Design and Graphics (CIDG) program at Victor Valley College is growing to keep pace with our High Desert community. We have many new and exciting courses, programs, and certificates to meet the needs of our students. Our focus is on designing courses and certificate programs that will provide students with the knowledge and skills to secure a job in a career field that has unlimited potential.

The cornerstone of the department remains our Computer Aided Drafting & Design (CADD) program. There are five new certificates that have been designed to meet the needs of students new to the field of CADD and those experienced professionals looking to upgrade their software knowledge. A core certificate is offered for students with a limited knowledge of drafting, mathematics and blueprint reading. (Drafting Technician I) Two entry-level certificates are offered in the areas of CADD and Computer Animation. We have also included two specialized certificates in the areas of Architectural CADD.

Digital Animation has become one of the fastest growing careers within the computer graphics industry. The CIDG Department's 3D Animation courses are designed for individuals seeking training in advanced techniques and procedures currently used in today's 3D production workplace. Designed for both beginning and advanced students, the department's 3D animation curriculum is geared toward individuals interested in creating video games, television commercials, product or architectural visualizations, animated logos, 3D website motion graphics or film-based special effects. Learning essential principles and techniques for creating professional quality work, students are introduced to problem-solving situations similar to those encountered in a real world production environment. Students successfully completing the program's courses possess entry-level skills that apply to a wide variety of career opportunities (see below). Several program certificates are currently offered. The primary software package used in all 3D Animation courses in the CIDG Department is Autodesk 3ds Max.

3D Animation classes are also offered through the college's Media Arts Department. Please see the Media Arts (MERT) section of the catalog for the courses the department currently offers.

Career Opportunities

CAD Careers: Architect, Architectural Drafter, CAD Management, CAD Operator, Cabinet Shop Detailer, Civil Drafter, Computer Animator, Community College Instructor, Construction Technician, Desk-Top Publisher, Electrical Drafter, Electronics Drafter, GIS Technician, Graphics Designer, Interior Designer, Landscape Architect, Landscape Designer, Mapping Specialist, Mechanical Drafter, Public Works Technician, Rendering Specialist, Steel Fabricator Drafter, Structural Drafter, Technical Illustrator

3D Animation Careers: Modeler, Texture Artist/Painter, Lighting Specialist, Character Designer, Character Animator, Special F/X Animator, Environment Designer, Game Level Designer, Architectural Animator, Mechanical Design Animator, Medical Visualization Artist, Courtroom Visualization Artist, Web Graphics Animator, Storyboard Artist, Layout Artist, Graphic Designer, Compositor

Faculty

Claude Oliver | Steve Nelle

Degrees and Certificates Awarded

Associate in Science, CIDG	Drafting Technician I Certificate
CADD I Technician Certificate	Architectural CADD Technician I Certificate
Digital Animation Technician I Certificate 3ds Max	Expanded Animation Technician 3ds Max Certificate
Digital Animation Artist 3ds Max Certificate	Digital Filmmaker Certificate

Program Learning Outcomes

For Cad & Drafting
• To create compelling two and three dimensional project that meet current industry standards
• To discuss the key components of design, process, layout, and function as it relates to the real work

For Animation
• To discuss the key components of design, process, layout, and function as it relates to the real world
• To develop scene aesthetics that emphasizes creativity and storytelling

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Associate Degree

To earn an Associate in Science degree with a major in CIDG, complete a minimum of 18 units from any of the certificate requirements or from any CIDG courses, and meet all Victor Valley College graduation requirements. CIDG 138 may be used as elective credit but may not be used to fulfill major requirements.

Transfer

Not a transfer major. Most CIDG courses transfer as electives or fulfill subject credit requirements. Some CIDG courses fulfill lower division requirements for a related major. Students in this program sometimes choose to pursue a bachelor's degree in Architecture or Engineering. See Architecture and Engineering for transfer requirements for these majors.

For Additional Animation classes see Media Arts

DRAFTING TECHNICIAN I CERTIFICATE OF CAREER PREPARATION

The Drafting Technician I certificate prepares students to work in the fields of architecture, engineering, and drafting as a drafter. Students will have a working knowledge of mechanical and architectural drawing. Students will understand the concepts of lineweights, lettering, orthographic projection, and sketching.

Units Required: 15-17.00		
CIDG 101	Introduction to Drafting	3.0
CIDG 103	Blueprint Reading for Construction	3.0
CT 105	Technical Sketching	3.0
CT 107	Technical Mathematics *or*	3.0
MATH 90	Intermediate Algebra	4.0
CT 108	Advanced Technical Math or	3.0
MATH 104	Trigonometry	4.0

ARCHITECTURAL CADD (COMPUTER AIDED DESIGN AND DRAFTING) TECHNICIAN I CERTIFICATE OF CAREER PREPARATION

The Architectural CADD (Computer-Aided-Drafting and Design) Technician I certificate prepares students to work in the field of Architecture as a CADD drafter. Students will be knowledgeable in Revit and AutoCAD software and understand the basics of producing construction documents using both Revit and AutoCAD. Students will have a conceptual knowledge of 3-D modeling and rendering. Students will also be able to perform print reading tasks as they relate to commercial and residential architecture.

Units Required: 12.0		
All of the following must be completed.		
CIDG 103	Blueprint Reading for Construction	3.0
CIDG 108	Architectural Presentation	3.0
CIDG 110	Two-dimensional Autocad	3.0
CIDG 250	Using REVIT for Architectural CAD	3.0

CADD (COMPUTER AIDED DESIGN AND DRAFTING) TECHNICIAN I CERTIFICATE OF CAREER PREPARATION

The Drafting Technician I certificate prepares students to work in the fields of Architecture, Engineering, and Drafting as a drafter. Students will have a working knowledge of mechanical and architectural drawing.

Units Required: 9.0		
All of the following must be completed.		
CIDG 110	Two Dimensional AutoCAD	3.0
CIDG 210	Advanced Two Dimensional AutoCAD	3.0
CIDG 120	3-D CADD Using Inventor	3.0

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DIGITAL ANIMATION TECHNICIAN I 3DS MAX CERTIFICATE OF CAREER PREPARATION

The 3ds Max certificate is designed to offer students a detailed look at one of the Animation industry's premier 3D packages. The courses taken to complete the certificate provide students an opportunity to learn a variety of topics, including how to model 3D objects, how to create realistic textures and materials, the art of camera and lighting techniques, and a variety of keyframing solutions to bring their ideas to life. In addition to completing both individual and group projects, students also delve into the traditional principles of animation that serve to heighten the level of realism and believability of an individual's work.

Units Required: 9.0

All of the following must be completed.

CIDG 160	3ds Max Fundamentals	3.0
CIDG 260	3ds Max Advanced Modeling and Materials	3.0
CIDG 261	3ds Max Character Animation and Advanced Keyframing Techniques	3.0

DIGITAL FILMMAKER CERTIFICATE OF CAREER PREPARATION

The Digital Filmmaker certificate is designed to teach students to look at films as an art form, rather than as entertainment. The courses taken to complete the certificate provide students invites to explore the expressive and communicative nature of film while also examining the process by which films are made. The courses cover topics such as camera operation, lighting, composition, script-writing, storyboarding, audio, editing, compositing, and practical film making techniques. Individual projects will give students the opportunity to hone their personal skillset, while large group and class projects will teach students to work collaboratively, a necessary skill in this demanding industry.

Units Required: 6.0

All of the following must be completed with a grade of "C" or better.

ART 104	Film as an Art Form	3.0
MERT 74	Digital Video Production	3.0

EXPANDED ANIMATION TECHNICIAN 3DS MAX CERTIFICATE OF CAREER PREPARATION

This certificate crosses over all the software taught under the CIDG and MERT programs, any student who achieves this certificate has gone through the program and successfully completed the demo reel project, they have learned to work in a large complex environment and complete assigned tasks on an individual and group level. The student has learned the functions required to work on a large structured project in which their skill sets in a CG environment are tested and judged by peers in the class and the instructor when the project is finalized.

Units Required: 12.0

All of the following must be completed with a grade of "C" or better.

CIDG 160	3ds Max Fundamentals	3.0
CIDG 260	3ds Max Advanced Modeling and Materials	3.0
CIDG 261	3ds Max Character Animation and Advanced Keyframing Techniques	3.0
MERT 53	Advanced Animation/Demo Reels	3.0

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DIGITAL ANIMATION ARTIST 3DS MAX CERTIFICATE OF CAREER PREPARATION

The Digital Animation Artist certificate is designed to expand an individual's expertise in 3D Animation by requiring additional training in traditional art principles and techniques. Employers many times view an animator who possesses the ability to both draw and more thoroughly understand concepts and practices specific to traditional art painting as more well-rounded and work-ready. By earning the Digital Animation Artist certificate, students will better position themselves for employment opportunities in this fast-paced and competitive field. An Adobe Photoshop course specific to 3D Animation applications is also required to earn a certificate.

Units Required: 15.0

	Group I: All of the following must be completed:	
CIDG 160	3ds Max Fundamentals	3.0
CIDG 260	3ds Max Adv Modeling and Materials	3.0
CIDG 261	3ds Max Character Animation and Advanced Keyframing Techniques	3.0
MERT 56	Photoshop for Animators	3.0
	Group I: All of the following must be completed:	
ART 101	Survey of Art History	3.0
ART 104	Film As an Art Form	3.0
ART 112	Design I	3.0
ART 113	Design II	3.0
ART 122	Life Drawing I	3.0
ART 124	Anatomy of Life Drawing	3.0
ART 125	Drawing I	3.0
ART 141	Sculpture I	3.0

Computer Integrated Design and Graphics Courses

CIDG 50 DRAFTING LABORATORY

Units Required: 1-4.0 | **48-54 hours of laboratory required for each unit**

(No prerequisite.)

Drafting laboratory provides the additional time, equipment, and instruction necessary to develop problem solving, board or AutoCAD skills at each individual's own pace.

CIDG 65 3DS MAX ADVANCED EFFECTS AND COMPOSITING

Units Required: 3.0 | **32-36 hours lecture and 48-54 hours laboratory**

(Prerequisite: CIDG 160. Grade Option)

Students will learn advanced concepts and procedures required for creating high quality 3D special effects. Topics will include particle systems, Space Warps, and MassFX. Rendering techniques incorporating depth of field, motion blur, and anti-aliasing filters will also be discussed. Alpha channel compositing techniques will be addressed in detail. Students will also explore and analyze relevant issues pertaining to the computer animation industry.

CIDG 80 GEOGRAPHICAL INFORMATION SYSTEMS FOR EMERGENCY MANAGEMENT AND GOVERNMENT SERVICES I

Units Required: 3.0 | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite)

This course provides an in depth introduction to: (a) why GIS matters and (b) the role of Geographic Information Systems (GIS) in the modern economy. This course combines three learning methods aimed at helping students to master the use of the software: (a) Class lecture that reinforces the conceptual understanding of theory behind various tasks performed in ArcGIS. (b) Detailed step-by–step instructor lead exercise that exposes students to various workflows and specific ArcGIS Tools, (c) Exercise assignment designed for students to perform specific GIS tasks. Specific topics taught will include an understanding of GIS terminology, raster and vector data structures, data sources and accuracy, methods of data acquisition, conversion and input, requirements for metadata, working with spatial data databases (map features and attribute tables), and spatial analysis (map overlays, buffers, networks).

CIDG 81 GEOGRAPHICAL INFORMATION SYSTEMS FOR EMERGENCY MANAGEMENT AND GOVERNMENT SERVICES II

Units Required: 3.0 | **32-36 hours lecture and 48-54 hours laboratory**

(Prerequisite: CIDG 80)

This course introduces students to the current roles of GIS in support of emergency management activities at both local and federal levels. These roles are considered at each of the four stages of crisis management namely mitigation, preparation, response, and recovery. The course will introduce students to the some of the basic maps requested during emergency including Incident Action Plan maps (IAP), Briefing maps, damage prediction maps, basic census demographics, transportation maps, aerial operation maps, situational plan maps and progression maps. This course introduces students to the various GIS techniques deployed to help government and businesses to operate in the constantly changing environment. The course will consist of two parts: lecture/discussion and a lab. The lecture/discussion period will cover methodology, theory, concepts, and application of GIS in emergency management and governments (local and federal).

CIDG 95 INTRODUCTION TO SOLIDWORKS

Units Required: 3.0 | *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite)

This course is designed to introduce the student to three-dimensional parametric solid modeling with SolidWorks. Students will begin with basic parametric solid modeling techniques and advance into complex assemblies requiring animation. CIDG 101

CIDG 101 INTRODUCTION TO DRAFTING

Units Required: 3.0 | *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite)

This survey course will explore the basic techniques used in the drafting industry. The course will emphasize proper use of instruments, lettering, and line quality. Course includes work in the fields of architectural, mechanical, and computer aided drafting.

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CIDG 103 BLUEPRINT READING FOR CONSTRUCTION

Units Required: 3.0   *CSU* | **48-54 hours lecture**

(No prerequisite)

A course designed to develop skills necessary to interpret both residential and commercial construction drawings and blueprints.

CIDG 108 ARCHITECTURAL PRESENTATION

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite. Grade Option)

A study of two common architectural presentation techniques: model making and illustration. Students will develop skill in creating architectural models using paper, mat board, wood, plastic, and styrene foam. The illustration portion of this course will include work with perspectives in pencil, watercolor, and airbrush.

CIDG 110 TWO DIMENSIONAL AUTOCAD

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite. Grade Option)

An introduction to the AutoCAD program including all necessary basic commands required for computer aided drafting. Students will master drawing setup, common draw, edit and viewing commands and plotting. Lectures and exercises are designed to provide a comprehensive knowledge of all basic computer drafting functions.

CIDG 120 3-D CADD USING INVENTOR

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite)

Solid Modeling and Three Dimensional CADD will introduce students to a new auto desk software package entitled INVENTOR. Students will understand the concepts involved in Parametric Modeling. Students will begin by constructing basic shapes and proceed to building intelligent solid models and create multi-view drawings. Assembly drawings, section views, auxiliary views, sheet metal drawings, and details will also be produced. Students will develop their drafting and computer skills through drawings and projects that emphasize teamwork and the design process. Students will also learn various hardware, software and peripheral components related to operating a CADD station.

CIDG 138 COOPERATIVE EDUCATION

See Cooperative Education listing (1-8 units). *CSU*

CIDG 160 3DS MAX FUNDAMENTALS

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite. Grade Option)

Students will learn the basics of 3D modeling, how to create and apply realistic textures, lighting principles and techniques, camera types and their appropriate usage, and fundamental keyframing procedures. Other topics to be covered include storyboards, the traditional principles of animation, current industry trends and issues pertaining to rendering output for different mediums (film, video, Internet, etc.).

CIDG 210 ADVANCED TWO DIMENSIONAL AUTOCAD

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite)

Recommended Preparation: CIDG 110. A working knowledge of AutoCAD is necessary. This course will explore the more advanced two-dimensional features of the AutoCAD program including entity filters, at- tributes, external reference files, paper space, and slide presentations. Projects include sectional description of compound shapes and developments.

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CIDG 250 USING REVIT FOR ARCHITECTURAL CAD

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(No prerequisite. Grade Option)

This course is designed to develop computer drafting skills necessary to produce residential working and presentation drawings using the REVIT software. Design principles will be explored through the use of the AutoCAD/AutoDESK Architectural Desktop program.

CIDG 260 3DS MAX ADVANCED MODELING AND MATERIALS

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(Prerequisite: CIDG 160)

Students will learn the more advanced modeling features of 3ds Max. Complex aspects of building materials and textures will be covered in depth. The course will culminate with students being introduced to the video game environment, having the opportunity create their own game level. The course will prepare students for work in the entertainment, commercial, and computer gaming industries.

CIDG 261 3DS MAX CHARACTER ANIMATION AND ADVANCED KEYFRAMING TECHNIQUES

Units Required: 3.0   *CSU* | **32-36 hours lecture and 48-54 hours laboratory**

(Prerequisite: CIDG 160. Grade Option)

Students will learn advanced animation techniques including editing keyframes through Track View, animating with controllers and constraints, wiring parameters, and using hierarchies. Character animation will be addressed in depth. Character Studio and Bones will be utilized to build skeletal systems for both characters and creatures. The course will prepare students for work in the entertainment, commercial, and computer gaming industries.