COMPUTER GRAPHICS & DESIGN

CGD 2 — 2D / 3D Technical Computer Graphics I
Units: 3.0 **Hours:** 2.0 Lecture and 3.0 Laboratory
Transferable: CSU

Introduces specialized communication skills and knowledge while developing graphic and design competencies used by architects, engineers, game/simulation developers, industrial designers and others who plan, develop, manufacture and market real and/or virtual consumer products. Project based learning applies problem solving, design skills, drafting standards, professional ethics, and research skills. Uses freehand sketches, SolidWorks and/or other industry standard used for drafting and design tools to develop 3D models, drawings, and animations needed to produce functional objects that meet human needs in an environmentally sound, cost effective, and aesthetically pleasing manner. This course has the option of a letter grade or pass/no pass. ADVISORY: MATH 430, Algebra I; English 250, Practical Writing; and English 260, Preparation for College Reading.

CGD 4 — 2D / 3D Technical Computer Graphics II
Units: 3.0 **Hours:** 2.0 Lecture and 3.0 Laboratory
Transferable: CSU

Intermediate computer graphics design course expands skills and concepts introduced in CGD 2. Applies technical design, drafting standards, and graphic communications to develop, present, analyze, test, manufacture, and market consumer products. Produces 2D and 3D technical drawings to graphically communicate feasibility of proposed products to be manufactured in terms of usability, material selection, and design intent. Project based assignments demonstrate technical design and problem solving skills required for success in and array of technical design career(s). ADVISORY: Completion of CGD 2 with a grade of C or better.

CGD 6 — Advanced Computer Graphics
Units: 4.0 **Hours:** 2.0 Lecture and 6.0 Laboratory
Transferable: CSU

Technical skills for using computer design for precision manufacturing, including ANSI/ASME Y14.5 2009 geometric dimensioning and tolerancing (GD&T). Prepares students for careers as designers, engineers; CAD/CAM/CAE specialist; drafter, inspectors, machinists, technical sales, and other jobs that interpret engineering drawings. Students may concurrently enroll in CGD 110. ADVISORY: Eligible for English 250, 260 and Mathematics 233. Computer lab work can be done both in lab and off-site.

CGD 8 — Advanced Computer Graphics for Design Application I
Units: 3.0 **Hours:** 2.0 Lecture and 3.0 Laboratory
Transferable: CSU

Advanced course in applied computer graphics and associated interdisciplinary design proficiencies required by careers that design, engineer, manufacture and/or market products. Applies theories, principles and skills covered in CGD 4 and integrates business, sustainable design, and hybrid products. Design solutions reflect technical understanding, aesthetic principles and addresses societal needs in a cost effective manner. Presentations include animating and rendering models of real and/or virtual products that address human factors/ergonomics, usability, life cycle analysis and sustainability. Portfolios support advancement in student-selected career pathways by communicating competence in computer graphics and design. ADVISORY: Eligible for English 250, 260 and Mathematics 233.

CGD 9 — Advanced Computer Graphics for Design Application II
Units: 3.0 **Hours:** 2.0 Lecture and 3.0 Laboratory
Transferable: CSU

Advanced computer graphics and design course that combines technical computer graphic skills with interdisciplinary design proficiencies including creating computer imagery, transformations, and rendering to create 3D model using geometric primitives, projections for computer animation and data visualization. Includes structural analysis and emphasis on developing products that include ergonomic features and sustainable materials. Work within electronic portfolio demonstrates skills and knowledge of technical graphic design to visualize, develop and present products to meet societal needs. ADVISORY: Satisfactory score on the English placement exam or a grade C or better in English 250, completion of Mathematics 233 or satisfactory Mathematics placement. Completion of CGD 2 and CGD 8 with a grade of C or better. Computer lab work can be done both in lab and off-site.

CGD 30 — Environmental Design
Units: 3.0 **Hours:** 2.0 Lecture and 3.0 Laboratory
Transferable: CSU

Design and develop conceptual plans using freehand sketches and building information modeling (BIM) to produce rendered interior and exterior pictorials. Refine resultant 3D BIM models to address complexity of architectural design by meeting user's needs with an environmentally sound, cost effective, aesthetically pleasing design solution that complies with planning requirements and building code regulations. Generate plans and schedules to produce portions of construction documents required for obtaining building permits and providing bidding documents. Prepares students with technical design sills required for entering environmental planning and construction management. ADVISORY: CGD 2.

CGD 110 — Computer Graphics Lab
Units: 1.0 TO 4.0 **Hours:** 3.0 TO 12.0 Laboratory
Transferable: CSU

Complements computer graphics and art courses by providing additional competence in software applications, libraries, and graphical user interfaces to support computer graphics and design projects by providing supervised practice and individualized computer assisted learning on software and techniques commonly found in the computer graphic design field. This is an open entry/exit class. This course has the option of a letter grade or pass/no pass. ADVISORY: Concurrent enrollment in corresponding computer graphic and design classes. Computer lab work can be done both in lab and off-site.

CGD 160 — Technical Desktop Publishing / Graphics
Units: 3.0 **Hours:** 2.0 Lecture and 3.0 Laboratory
Transferable: CSU

Create multimedia presentations to effectively communicate ideas and market designs. Applies concepts, theories and principles of typography, color and design to create digitally based portfolios for application to four year colleges or for entry level employment. ADVISORY: Eligible for English 250, 260 and Mathematics 233. Familiarity with word processing, keyboarding, and DOS file management. Computer lab work can be done both in lab and off-site.

CGD 190 — Occupational Work Experience / Computer Graphics & Design
Units: 1.0 TO 4.0 **Hours:** 5.0 TO 20.0 Laboratory
Transferable: CSU

Occupational work experience for students who have a job related to their major. A training plan is developed cooperatively between the employer, college and student. (P/NP grading) 75 hours per semester paid work = 1 unit. 60 hours non-paid (volunteer) work per semester = 1 unit. May be taken for a maximum total of 16 units. Minimum 2.00 GPA. REQUIRED: Declared vocational major.

COMPUTER SCI & INFO SYSTEMS

CSIS 1 — Computer Literacy - MS Office
Units: 2.0 **Hours:** 2.0 Lecture
Transferable: CSU, UC; GAV-GE:E2

An introduction to terminology, design, operation for the novice user. Student will gain experience using the Internet for searches and email. They will complete projects using various software including word processing, spreadsheets, database, presentation graphics, and integration. This course has the option of a letter grade or pass/no pass. ADVISORY: Eligible for English 250 and English 260; completion of CSIS 122.

CSIS 2 — Computers in Business
Units: 4.0 **Hours:** 3.0 Lecture and 3.0 Laboratory
Transferable: CSU; GAV-GE:E2

Introduction to business information management systems. Topics include database management systems, computer hardware and software, networking, ethics, data security, ecommerce; includes hands-on experience applying these concepts to solve practical business problems using word processing software, spreadsheets, database management systems, presentation graphics and Internet applications. Students cannot receive credit for both CSIS 2 and CSIS 2L. Please see a counselor about degree, certificate, and transfer requirements. This course has the option of a letter grade or pass/no pass. (C-ID: BUS 140) ADVISORY: Eligible for Mathematics 233, English 260 and English 250, and CSIS 122