**Diablo Valley College**

Phone: (925) 685-1230

Catalog: http://www.dvc.edu/org/info/catalog/pdfs/catalog1112.pdf

Website: www.dvc.edu/

**Computer Information Systems – Associates, Certificate**

**Program Information**

The computer information systems associate in science pro­gram prepares the student for jobs in business and govern­ment as information technologies and management work­ers. Principal areas of study are computer software appli­cations, internet technologies, database systems, project management systems and basic network principles.

**Career Opportunities**

These CIS courses prepare students for a career path in computer information systems and technologies. These courses teach terminology and provide hands-on laboratory experience with operating and network systems and stand alone and internet based applications.

**Upon Completion of this program, the student will be able to:**

• analyze development projects and divide them into smaller production tasks.

• build a project while utilizing the project development model.

• manage a programming project, both individually and as a member of a team, from initial concept through design, programming, debugging, testing, and deployment.

• evaluate a program to determine how it will meet the needs of its intended audience.

• design, write, test, debug, and implement computer programs in a structured language, a low-level language, and an object-oriented language.

• create programs utilizing both Windows and Linux operating systems.

**Computer Science – Associates (Transfer), Certificate**

**Program Information**

The associate in science in computer science is designed as a two-year curricular pathway that offers students a broad general education while integrating an in-depth study of computer science. Students will be prepared to assume entry-level positions in business and industry. Many of the courses are also applicable toward advanced levels of study. Students who intend to transfer to a four-year program in computer science should consult with a counselor regard­ing other mathematics and science requirements.

**Career Opportunities**

Computer Information Systems graduates are prepared to enter the workforce in computer and information technology professions. Individuals possessing professional certifications of their skills will have advantages over other job applicants. Professional certificates for the certificate emphases listed below may be obtained from authorized testing centers. Please contact the Computer Science Department for details.

**Upon Completion of this program, the student will be able to:**

• analyze development projects and divide them into smaller production tasks.

• build a project while utilizing the project development model.

• manage a programming project, both individually and as a member of a team, from initial concept through design, programming, debugging, testing, and deployment.

• evaluate a program to determine how it will meet the needs of its intended audience.

• design, write, test, debug, and implement computer programs in a structured language, a low-level language, and an object-oriented language.

• create programs utilizing both Windows and Linux operating systems.

**Energy Systems/Photovoltaic – Associates, Certificate**

**Program Information**

This program prepares students for jobs installing, design­ing, servicing and maintenance of photovoltaic systems. Students from this program will be able to work with residential, commercial and industrial size photovoltaic systems. Many of the skills learned in these courses relate to solar thermal systems as well.

**Career Opportunities**

An area of increasing job opportunities is in the various fields of alternate or renewable energy. This includes areas related to solar photovoltaic, solar water heating, wind ener­gy systems, biodiesel and biofuels, biomass, fuel cells and related hydrogen energy devices and other small technolo­gies. Most of the jobs in these areas are involved with the installation, design or maintenance of these systems. Most of these areas require skills in electricity, science, and math. Students who focus on photovoltaic systems will be able to work with residential, commercial and industrial size photovoltaic systems. Many of the skills learned in these courses relate to solar thermal systems as well.

**Upon completion of this program, the student will be able to:**

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• describe the components in a complete grid tie photovoltaic system.

• construct solar photovoltaic battery charging systems.

• analyze test equipment data to determine the location of the “sweet spot” on a solar photovoltaic panel’s Current--Voltage(IV) curves.

• identify tools and test equipment necessary for solar photovoltaic panel installations.

• identify different sizes of wire according to American Wire Gauge (AWG) tables.

• analyze and describe the advantages of obtaining the NABCEP Entry Level Certificate of Knowledge Certificate.

• construct a simulated roof system using industry standard building materials.

• identify typical locations of electrical/mechanical failures in PV systems

• calculate the correct gauge wire and number of wires in a metal raceway according to National Electrical Code standards

• calculate the battery Amperage required for a stand-alone PV system

**Energy Systems/Solar Thermal – Associates, Certificate**

**Program Information**

This program prepares students for careers installing, designing, servicing, and maintaining solar thermal sys­tems. Successful completers of this program will be able to work with residential, commercial, and industrial-size solar thermal systems. Solar thermal systems include domestic water heating, radiant floor heating, swimming pool, and spa heating systems. Solar air heating and cooling systems are currently under development, and will be included once established.

**Career Opportunities**

Students who focus on solar thermal systems will be pre­pared for careers installing, designing, servicing, and maintaining solar thermal systems. Successful completers of this program will be able to work with residential, com­mercial, and industrial-size solar thermal systems. Solar thermal systems include domestic water heating, radiant floor heating, swimming pool, and spa heating systems. Solar air heating and cooling systems are currently under development, and will be included once established. Many of the skills learned in the solar thermal courses relate to photovoltaic systems as well.

**Engineering/Mechanical Design Drafting – Associates (Transfer)**

**Program Information**

The associate in science degree in mechanical design draft­ing technology provides students with the technical and analytical skills needed for employment in the field of mechanical engineering drafting. Through both academic and laboratory study students gain the practical skills need­ed for entry into the job market. Drafters prepare, interpret, and revise technical drawings using computer-aided-draft­ing (CAD) and may gather and categorize field data.

**Career Opportunities**

The engineering transfer program prepares students to enter four-year engineering schools as juniors. Upon completion of the B.S., students can become electrical, civil, mechanical, chemical, materials, aerospace or industrial engineers.

Career options in engineering technology include civil engineering technicians, surveying and mapping techni­cians (cartography), architectural and civil drafters, and mechanical engineering technicians. Engineering techni­cians may work as computer-aided design drafters, engi­neering aides, land surveyors, field assistants, planning technicians and technical sales people.

**Upon completion of this program, students will be able to:**

• Apply the principles of engineering.

• Identify, analyze, and solve technical problems.

• Plan, conduct, analyze, and interpret experiments.

• Communicate about engineering solutions effectively through speaking, writing, and graphics.