**Sierra College**

Phone: (916) 624-3333

Catalog: http://www.sierracollege.edu/AboutUs/publications/documents/catalog-2011-12.pdf

Website: http://www.sierracollege.edu

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

**Program Information**

This program is a comprehensive exposure to programming languages, algorithms and problem solving in preparation for upper division computer science courses. The Computer Science degree includes substantial course work in mathematics as is required by most university computer science programs.

**Career Opportunities**

Technical positions include computer operator, computer program­mer, system analysts, database administrators, computer support, or help desk specialists, Web developers, and application develop­ers.

Opportunities in networking include network support specialists, network administrators and technicians, network security special­ist, computer forensics specialist, Webmasters, Web developers, and Web site designers.

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

• Evaluate various programming language solutions to a pro-posed problem.

• Recommend tools and techniques for each step in the development of a computer program.

• Integrate the basic mathematical knowledge that is fundamental to Computer Science into the solutions of proposed problems.

• Evaluate the theories and core techniques of computer science using scientific methods.

**Engineering – Associates (Transfer)**

**Program Information**

program provides the foundation in mathematics, physics, and engineering necessary to transfer to a four-year institution and complete a bachelor’s degree in engineering. Students should consult the institution to which they wish to transfer for the specific lower division requirements. This degree and certificate emphasizes the knowledge and skills required for entry level success in the engineering professions. These include a basic preparation within the scientific fields including physics, mathematics, chemistry, and material sciences. These sciences are applied to technical analysis and graphic communication standards and practices. In addition, projects include environmental and sustainable design issues, product economics, and legal considerations. Current computer technologies and various analytical design and documentation software are emphasized throughout the program.

**Career Opportunities**

Upon completion of the degree or certificate program the engineering technician will be prepared to go directly into the employment market as a technical assistant to engineers, or other technical employment. For every engineer, several support technicians are required. Engineering technicians are needed in the fields of manufacturing, architecture, construction, materials testing, public utilities, and many other fields.

**Upon completion of this program, the student 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.

**General Engineering Technology – Certificate**

**Program Information**

successful completion of the curriculum in general engineering technology will prepare students for entry-level positions as engineering technicians. The certificate is designed to provide knowledge and career technical skills in mathematics, physics, chemistry, and engineering

**Career Opportunities**

assist engineers in fields such as fabrication, HVAC, building maintenance, environmental, industrial, safety, mechanical equipment and medical equipment.

**Upon completion of this program, the student 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.

**Environmental Studies and Sustainability– Associates (Transfer)**

**Program Information**

Successful completion of the environmental studies and sustain-ability curriculum will prepare students for transfer to four-year colleges or universities. The major has been designed to meet lower-division requirements for environmental studies

**Career Opportunities**

Environmental Analyst, Pollution Analyst, Pollution Measurement Technician, Environmental Planner, Naturalist, Environmental Consultant, Energy Conservation Specialist, Environmental Journalist, Environmental Health Specialist, Lobbyist, Environmental Education, Environmental Economist, Recycling Coordinator, Hazardous Materials Specialist, Legislative Researcher, Water Quality Technician, Park Interpretative Specialist, Transportation Planner, Waste Management Specialist, Levee Management Specialist, Conservation Analyst, Environmental Investigator, Environmental Interpreter, Environmental Resource Planner, Park Ranger

**Photovoltaic – Certificate**

**Program Information**

the purpose of the Photovoltaic skills Certificate is to provide students with the knowledge and skills required to obtain employment as Photovoltaic system installers and technicians. emphasis is on the critical skill competencies as recommended by the North American Board of Certified energy Practitioners for entry level photovoltaic systems work. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

**Career Opportunities**

This certificate prepares students for entry level employment in a wide variety of positions in the photovoltaic industry.

It is also valuable for people working in the PV industry to upgrade their skills to include the newest advancements in solar technology.

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

• 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.

• 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.

• maximize communication effectiveness by specifying, planning for, and adapting to the specific audience.

• identify and analyze factors that contribute to effective design, development, and delivery of presentations.

• relate the communication process to public speaking situations.

• assess the ways to start a business and which form of business organization should be used. Describe the financing process and how to access capital.

• explain the importance of a business plan, a financial plan, and a marketing plan. Apply principles of management and marketing relevant to the small business.

• evaluate financial reports.

• analyze the impact of legal requirements and government regulations as related to the operation of the small business.

**Photovoltaic Advanced – Certificate**

**Program Information**

the purpose of the Photovoltaic skills Certificate is to provide students with the knowledge and skills required to obtain employment as Photovoltaic system installers and technicians. Emphasis is on the critical skill competencies as recommended by the North American Board of Certified energy Practitioners for entry level photovoltaic systems work. A skills certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

**Career Opportunities**

This certificate prepares students for entry level employment in a wide variety of positions in the photovoltaic industry.

It is also valuable for people working in the PV industry to upgrade their skills to include the newest advancements in

solar technology.

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

• 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.

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• explain the importance of a business plan, a financial plan, and a marketing plan. Apply principles of management and marketing relevant to the small business.

• evaluate financial reports.

• analyze the impact of legal requirements and government regulations as related to the operation of the small business.