

CURRICULUM STANDARD

Effective Term
Fall 2013
[2013*03]

Curriculum Program Title	Computer-Integrated Machining	Program Code	A50210
Concentration	(not applicable)	CIP Code	48.0510

Curriculum Description

The Computer-Integrated Machining curriculum prepares students with the analytical, creative and innovative skills necessary to take a production idea from an initial concept through design, development and production, resulting in a finished product.

Coursework may include manual machining, computer applications, engineering design, computer-aided drafting (CAD), computer-aided machining (CAM), blueprint interpretation, advanced computerized numeric control (CNC) equipment, basic and advanced machining operations, precision measurement and high-speed multi-axis machining.

Graduates should qualify for employment as machining technicians in high-tech manufacturing, rapid-prototyping and rapid-manufacturing industries, specialty machine shops, fabrication industries, and high-tech or emerging industries such as aerospace, aviation, medical, and renewable energy, and to sit for machining certification examinations.

Curriculum Requirements*

[for associate degree, diploma, and certificate programs in accordance with 1D SBCCC 400.10]

- I. **General Education.** Degree programs must contain a minimum of 15 semester hours including at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics. Degree programs must contain a minimum of 6 semester hours of communications. Diploma programs must contain a minimum of 6 semester hours of general education; 3 semester hours must be in communications. General education is optional in certificate programs.
- II. **Major Hours.** AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit. *(See second page for additional information.)*
- III. **Other Required Hours.** A college may include courses to meet graduation or local employer requirements in a certificate, diploma, or associate in applied science program. These curriculum courses shall be selected from the Combined Course Library and must be approved by the System Office prior to implementation. Restricted, unique, or free elective courses may not be included as other required hours.

	AAS	Diploma	Certificate
Minimum General Education Hours	15	6	0
Minimum Major Hours	49	30	12
Other Required Hours	0-7	0-4	0-1
Total Semester Hours Credit (SHC)	64-76	36-48	12-18

*Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic use of computers.

Major Hours

- A. Core.** The subject/course core is comprised of subject areas and/or specific courses which are required for each curriculum program. A diploma program offered under an approved AAS program standard or a certificate which is the highest credential level awarded under an approved AAS program standard must include a minimum of 12 semester hours credit derived from the subject/course core of the AAS program.
- B. Concentration** *(if applicable)*. A concentration of study must include a minimum of 12 semester hours credit from required subjects and/or courses. The majority of the course credit hours are unique to the concentration. The required subjects and/or courses that make up the concentration of study are in addition to the required subject/course core.
- C. Other Major Hours.** Other major hours must be selected from prefixes listed on the curriculum standard. A maximum of 9 semester hours of credit may be selected from any prefix listed, with the exception of prefixes listed in the core or concentration. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit.

Computer-Integrated Machining A50210

	AAS	Diploma	Certificate
Minimum Major Hours Required	49 SHC	30 SHC	12 SHC
A. Core <i>Courses required for the diploma are designated with *</i> Required Subject Areas: *Machining Fundamentals: MAC 111 Machining Technology I 6 SHC <i>or</i> MAC 141 Machining Applications I 4 SHC <i>or</i> <i>(certification course set)</i> MAC 171 Measure/Material & Safety 1 SHC <i>and</i> MAC 172 Job Plan, Bench & Layout 1 SHC <i>and</i> MAC 173 Manual Milling/Drilling 2 SHC <i>and</i> MAC 174 Manual Turning 2 SHC *Intermediate Machining: Select One Course: MAC 112 Machining Technology II 6 SHC MAC 142 Machining Applications II 4 SHC *Blueprint Reading/CAD Fundamentals. Select One Course: BPR 111 Print Reading 2 SHC MAC 131 Blueprint Reading/Mach I 2 SHC *Computer Numerical Control Emphasis. Select One Course: MAC 121 Intro to CNC 2 SHC MAC 122 CNC Turning 2 SHC MAC 124 CNC Milling 2 SHC MEC 110 Intro to CAD/CAM 2 SHC	12-16 SHC	12-16 SHC	
B. CONCENTRATION <i>(Not applicable)</i>			
C. OTHER MAJOR HOURS <i>To be selected from the following prefixes:</i> ALT, ASM, ATR, AUT, BPR, BUS, CIS, CSC, DDF, DFT, EGR, HYD, ISC, MAC, MEC, MNT, OMT, PLA, SST, TDP, WBL, and WLD <i>Up to two semester hour credits may be selected from ACA.</i> <i>Up to three semester hour credits may be selected from the following prefixes: ARA, ASL, CHI, FRE, GER, ITA, JPN, LAT, POR, RUS and SPA.</i>			