

**Simulation and Game Development Certificate with a Specialization in SG Windows/Consol Programming (C25450-C5)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 113 SGD Programming	2	3	0	0	3
SGD 213 SGD Programming II	2	3	0	0	3
SGD 123 Windows/Consol Programming	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Handheld Programming (C25450-C6)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 113 SGD Programming	2	3	0	0	3
SGD 213 SGD Programming II	2	3	0	0	3
SGD 170 Handheld SG Programming	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Flash Programming (C25450-C7)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 113 SGD Programming	2	3	0	0	3
SGD 213 SGD Programming II	2	3	0	0	3
SGD 171 Flash SG Programming	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Linux Programming (C25450-C8)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 113 SGD Programming	2	3	0	0	3
SGD 213 SGD Programming II	2	3	0	0	3
SGD 169 Linux SG Programming	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Design Certificate (C25450-C9)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 112 SGD Design	2	3	0	0	3
SGD 212 SGD Design I	2	3	0	0	3
SGD 163 SG Documentation	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Level Design (C25450-10)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 112 SGD Design	2	3	0	0	3
SGD 174 SG Level Design	2	3	0	0	3

SGD 274 SG Level Design II	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Engine Design (C25450-11)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 112 SGD Design	2	3	0	0	3
SGD 113 SGD Programming	2	3	0	0	3
SGD 126 SG Engine Design	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG 3D Modeling (C25450-12)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 111 Introduction to SGD	2	3	0	0	3
SGD 162 SG 3D Animation	2	3	0	0	3
SGD 114 3D Modeling	2	3	0	0	3
SGD 214 3D Modeling II	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Simulation and Game Development Certificate with a Specialization in SG Character Development (C25450-13)**

*Major and Related Course Requirements*

	Class	Lab	Hours Clinical	Work Exper.	Credits
SGD 162 SG 3D Animation	2	3	0	0	3
SGD 114 3D Modeling	2	3	0	0	3
SGD 165 SG Character Development	2	3	0	0	3
SGD 166 SG Physiology/Kinesiology	2	3	0	0	3
<b>Total Credit Hours</b>					<b>12</b>

**Substance Abuse**

See **Human Services Technology**

**Surveying Technology (A40380)**

The Surveying Technology curriculum provides training for technicians in the many areas of surveying. Surveyors are involved in land surveying, route surveying, construction surveying, photogrammetry, mapping, global positioning systems, geographical information systems, and other areas of property description and measurements.

Course work includes the communication and computational skills required for boundary, construction, route, and control surveying, photogrammetry, topography, drainage, surveying law, and subdivision design, with emphasis upon applications of electronic data collection and related software including CAD.

Graduates should qualify for jobs as survey party chief, instrument person, surveying technician, highway surveyor, mapper, GPS technician and CAD operator. Graduates will be prepared to pursue the requirements necessary to become a Registered Land Surveyor in North Carolina.

**Degree Awarded**

The Associate in Applied Science Degree - Surveying Technology will be awarded by the College upon completion of this program.

**Admissions**

- A high school diploma or equivalent is required.
- CPCC placement tests are required in English and Mathematics. Developmental classes in English and Mathematics courses are available for students to build basic skills and knowledge.
- A counseling/orientation appointment follows placement testing.
- Students entering this program should take the courses in bold print first if at all possible.
- Students should see a Faculty Advisor before registration.
- Many courses have prerequisites or corequisites; check the Course Descriptions section for details.

**Additional Information**

**Note**

Students who do not take program-related courses for a one year period must reenter the program under the Catalog in effect at the time of reentry.

**Contact Information**

The Surveying Technology program is in the Engineering Technologies Division. For more information, call 704.330.6578, or visit our web site at [www.cpcc.edu/civil\\_surveying](http://www.cpcc.edu/civil_surveying).

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 111 Basic PC Literacy	1	2	0	0	2
OR					
CIS 110 Introduction to Computers	2	2	0	0	3
CIV 110 Statics/Strength of Materials	2	6	0	0	4
OR					
MEC 250 Statics and Strength of Materials	4	3	0	0	5
EGR 115A Intro. to Tech Lab	0	3	0	0	1
CIV 125 Civil/Survey CAD	1	6	0	0	3
CIV 211 Hydraulics and Hydrology	2	3	0	0	3
EGR 115 Intro to Technology	2	6	0	0	3
SRV 110 Surveying I	2	6	0	0	4
SRV 111 Surveying II	2	6	0	0	4
SRV 210 Surveying III	2	6	0	0	4
SRV 220 Surveying Law	2	2	0	0	3
SRV 230 Subdivision Planning	1	6	0	0	3
SRV240 Topo/Site Surveying	2	6	0	0	4
SRV250 Advanced Surveying	2	6	0	0	4
PHY 131 Physics-Mechanics	3	2	0	0	4
OR					
PHY 151 College Physics-I	3	2	0	0	4
<b>Technical Electives</b> (to be selected from list below)					6
					48
<b>Technical Electives</b>					
CIV 212 Environmental Planning	2	3	0	0	3
CIV 215 Highway Technology	1	3	0	0	2
COE 112 Co-op Work Experience I	0	0	0	20	2
MAT 223 Applied Calculus	2	2	0	0	3
PHY 132 Physics-Elec & Magnetism	3	2	0	0	4
PHY 152 College Physics-II	3	2	0	0	4
SRV 260 Field and Office Practices	1	3	0	0	2
CIS 115 Introduction to Programming Logic	2	2	0	0	3

CIS 152 Database Concepts and Applications	2	2	0	0	3
<b>General Education Core Requirements</b>					
COM 231 Public Speaking	3	0	0	0	3
OR					
COM 110 Intro to Communications	3	0	0	0	3
ENG 111 Expository Writing	3	0	0	0	3
ENG 113 Literature-Based Research	3	0	0	0	3
OR					
ENG 114 Professional Research and Reporting	3	0	0	0	3
MAT 121 Algebra/Trigonometry I	2	2	0	0	3
MAT 122 Algebra/Trigonometry II	2	2	0	0	3
Students must choose a minimum of three (3) credit hours from the list of approved humanities courses listed at the end of this section of the catalog:	3	0	0	0	3
Students must choose a minimum of three (3) credit hours from the list of approved behavioral and social sciences courses listed at the end of this section of the catalog.	3	0	0	0	3
					25
<b>Total Credit Hours</b>					<b>73</b>

**Surveying Technology Certificates (C40380)**

**Surveying Technology Certificate with a Specialization in Surveying Fundamentals (C40380-C1)**

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIS 111 Basic PC Literacy	1	2	0	0	2
EGR 115 Introduction to Technology	2	6	0	0	3
EGR 115A Intro. to Tech Lab	0	3	0	0	1
MAT 121 Algebra/Trigonometry I	2	2	0	0	3
SRV 110 Surveying I	2	6	0	0	4
CIV 125 Civil/Surveying (CAD)	1	6	0	0	3
<b>Total Credit Hours</b>					<b>16</b>

**Surveying Technology Certificate with a Specialization in Route Surveying (C40380-C2)**

This certificate prepares individuals for entry-level positions in route surveying. Course work includes fundamental Mathematics, principles of surveying, fundamentals of route surveying, field practices and procedures associated with roadway, pipeline, transmission line and similar linear layouts, and CAD drafting. Course work will apply toward the Associates in Applied Science – Surveying Technology or the Associates in Applied Science – Civil Engineering Technology degrees.

**Certificate Awarded**

A certificate is awarded in Route Surveying upon completion of this program.

**Admissions**

- Completion of a high school diploma or equivalent is required.
- CPCC placement test is required in mathematics. Developmental courses are available for students to build basic skills and knowledge.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or co-requisites; check the Course Descriptions section for details.

**Prerequisite for Enrollment**

The Surveying Fundamentals Certificate, C40380-C1, must be completed prior to enrolling in this certificate.

**Additional Information**

**Contact Information**

The Surveying Technology program is in the Engineering Technologies Division. For more information, call 704.330.6578.

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIV 110 Static & Strength of Materials I	2	6	0	0	4
CIV 211 Hydraulics and Hydrology	2	3	0	0	3
CIV 215 Highway Technology	1	3	0	0	2
SRV 111 Surveying II	2	6	0	0	4
<b>Total Credits</b>					<b>13</b>

**Surveying Technology Certificate with a Specialization in Boundary Surveying (C40380-C3)**

This certificate prepares individuals for entry-level positions in boundary surveying. Course work includes fundamental Mathematics, principles of surveying, fundamentals of boundary surveying, field practices and procedures associated with boundary surveying, legal aspects of boundary location, and CAD drafting. Course work will apply toward the Associates in Applied Science – Surveying Technology.

**Certificate Awarded**

A certificate is awarded in Boundary Surveying upon completion of this program.

**Admissions**

- Completion of a high school diploma or equivalent is required.
- CPCC placement test is required in mathematics. Developmental courses are available for students to build basic skills and knowledge.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or co-requisites; check the Course Descriptions section for details.

**Prerequisite For Enrollment**

The Surveying Fundamentals Certificate, C40380-C1, must be completed prior to enrolling in this certificate.

**Additional Information**

**Contact Information**

The Surveying Technology program is in the Engineering Technologies Division. For more information, call 704.330.6578.

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
MAT 121 Algebra/ Trigonometry I	2	2	0	0	3
SRV 210 Surveying III	2	6	0	0	4
SRV 220 Surveying Law	2	2	0	0	3
SRV 260 Field and Office Practices I	3	3	0	0	2
<b>Total Credits</b>					<b>12</b>

**Surveying Technology Certificate with a Specialization in Land Development (C40380-C4)**

This certificate prepares individuals for entry-level positions in the development of land for residential use. Course work includes fundamental Mathematics; fundamentals of pressure and open channel hydraulics; fundamentals of hydrology with applications of the Rational Method; principles of boundary, topographic and site surveying; field practices and procedures associated with boundary, topographic and site surveying; fundamentals of residential subdivision layout; and CAD drafting. Course work will apply toward the Associates in Applied Science – Surveying Technology.

**Certificate Awarded**

A certificate is awarded in Land Development upon completion of this program.

**Admissions**

- Completion of a high school diploma or equivalent is required.
- CPCC placement test is required in mathematics. Developmental courses are available for students to build basic skills and knowledge.
- Students should see a faculty advisor before registration.
- Many courses have prerequisites or co-requisites; check the Course Descriptions section for details.

**Prerequisite for Enrollment**

Surveying Fundamentals Certificate, C40380-C1, and Boundary Surveying Certificate, C40380-C3, must be completed prior to enrolling in this certificate.

**Additional Information**

**Contact Information**

The Surveying Technology program is in the Engineering Technologies Division. For more information, call 704.330.6578.

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
CIV 110 Statics and Strength of Materials	2	6	0	0	4
CIV 211 Hydraulics and Hydrology	2	3	0	0	3
SRV 230 Subdivision Planning	1	6	0	0	3
SRV 240 TOPO/Site Surveying	2	6	0	0	4
SRV 250 Advanced Surveying	2	6	0	0	4
<b>Total Credits</b>					<b>18</b>

**Surveying Technology Certificate Specialization in Mapping (C40380-C5)**

**Major and Related Course Requirements**

	Class	Lab	Hours Clinical	Work Exper.	Credits
MAT-122 Algebra/Trigonometry II	3	0	0	0	3
SRV-210 Surveying III	4	0	0	0	4
SRV-240 TOPO/Site Surveying	4	0	0	0	4
SRV-250 Advanced Surveying	4	0	0	0	4
<b>Total Credits</b>					<b>15</b>