

Land Surveying / Civil Engineering Technology Diploma - 2023 Student Information

Welcome to the St. Cloud Technical and Community College and to the Land Surveying / Civil Engineering Technology Program. The following information should be helpful to you, as a student in this program.

Your Advisors are:

Dan Kvaal (e-mail: dkvaal@sctcc.edu)
Office 1-386B and phone is (320) 308-5061
Sean Clark (e-mail: sclark@sctcc.edu)
Office 1-386C and phone is (320) 308-5012

The training you receive at SCTCC will prepare you for an exciting and rewarding career as a Surveying, Civil Engineering, and CAD Technician. Most of our graduates end up doing a combination of either Surveying/CAD or Civil Engineering/CAD. An abundance of job opportunities exist in Minnesota's private sector with surveying and engineering companies and also in the public sector with state, county, and municipal surveying/ engineering departments.

Many of the surveying classes in this program are hands-on, crew based activities, so it is important that you are present every day, on time, performing your share of the work. Lack of participation with your crew during assigned projects will result in reduced grades. Good attitude and effort are very important in school, just as they are very important to your future employers.

The graduation requirement for our Diploma is successful completion of 63 semester credits. ***You need to earn a grade of C or better for every core class in the Land Surveying/Civil Engineering Technology Program*** to obtain credit. You must also have a minimum cumulative grade point average of 2.0 in order to graduate from St. Cloud Technical and Community College. You must complete all courses in the sequence listed in the program planner because the skills you learn early will help you complete courses that you take later.

The books and course materials you will need for this program are available at the St. Cloud Technical and Community College bookstore. You may also purchase the books and course materials online. It is required that you purchase all these items before the first day of school. The staff at the bookstore will assist you in finding the books and materials you will need or order them online. You also must have adequate outdoor clothing, like a winter jacket, boots, hat, and gloves, because you will occasionally work on surveying projects during the colder months.

In addition to books and course materials, students will be required to purchase a scientific calculator capable of performing trigonometric functions (sine, cosine, tangent). Check with Instructors at registration with any questions prior to purchasing course materials for this program.

Students in this program will need a laptop computer by their first week of classes. Laptops may be purchased directly from vendors on our website or through a business of your choice. Minimum specifications for the laptop are included in this packet. Students will be able to download a free version of Microsoft Office 365 (Word, Excel, Power Point, etc.) and other free software as needed for your classes. AutoCAD Civil 3D software is currently available at no charge through Autodesk and will be downloaded during the first week of school as a class exercise.

The surveying equipment you will be using is as good as or better than the equipment that many Surveyors in our Industry use. It is also very expensive. You will be performing survey operations with equipment mounted on a tripod or staff, having costs that range from \$2,000 to \$30,000. Treat the equipment as if you were required to replace it if damaged!

Again, welcome to the Land Surveying/Civil Engineering Technology Program. We wish you well in your new endeavor.



A member of Minnesota State

Student Orientation Checklist - 2023
Diploma
Land Surveying / Civil Engineering Technology
St. Cloud Technical & Community College

Advisors: Dan Kvaal and Sean Clark

Student Name _____

<input checked="" type="checkbox"/>	Topics	Comments
	Diploma	63 credits in 2 years (late August – early May)
	14 - 17 credits per semester	Refer to program planner worksheet
	6 General Education credits	See program planner worksheet.
	Graduation requirements	Every LSCE class must be passed with a C or better
	Math requirements	Take Technical Computations TECH 1545 1 st semester
	Laptop (\$2000 +/-)	Requirement of program. Follow link for more info: https://sctcc.edu/laptop-program Specs in this packet.
	Software (Free)	Microsoft Office 365 (Word, Excel, Power Point, etc.), Autodesk AutoCAD Civil 3D, HydroCAD
	Weather issues	Cold weather gear, winter jacket, boots, hat, gloves
	Scientific/Eng. Calculator (\$15 - \$100)	Required scientific calculator (Capable of performing Trigonometry functions)
	Financial Aid (FAFSA)	Fill out forms to find out if qualified at SCTCC
	Scholarships	Several available through industry and SCTCC
	Transfer credits/ transcripts	Turn in to SCTCC admissions as soon as possible
	Attendance/ Participation	Integral part of the program - Will affect your grade
	Orientation	Attend to register for classes

Class List (Fall 2023)

(1st year LSCE Students)

Land Surveying/Civil Engineering Technology Curriculum

AAS DEGREE and DIPLOMA students need to register for:

Subj	#	Title	Dates	Days	Time	Cr/Hr	Instructor	Delivery Method
LSCE	1510	<u>Civil Drafting Methods</u>	08/21 - 12/21 08/22 - 12/21 08/23 - 12/21	n/a T Th W	n/a 9:00am - 9:50am 8:00am - 9:50am	3.0	Kvaal, Daniel Kvaal, Daniel Kvaal, Daniel	Blended/Hybrid
LSCE	1518	<u>Materials, Estimating, and Specifications</u>	08/21 - 12/21 08/21 - 12/21 08/22 - 12/21	M n/a T Th	9:00am - 10:50am n/a 8:00am - 8:50am	3.0	Kvaal, Daniel Kvaal, Daniel Kvaal, Daniel	Blended/Hybrid
LSCE	1530	<u>Survey Fundamentals</u>	08/22 - 12/21	T W Th	12:00pm - 2:50pm	5.0	Clark, Sean	Blended/Hybrid

In addition, DIPLOMA students need to register for:

Subj	#	Title	Dates	Days	Time	Cr/Hr	Instructor	Delivery Method
TECH	1545	<u>Technical Computations</u>	08/21 - 12/21 08/22 - 12/21	n/a T W Th	n/a 10:00am - 10:50am	3.0	Kvaal, Daniel Kvaal, Daniel	Blended/Hybrid

General Education Requirements

AAS Degree

MATH 1360	College Algebra	3 Credits	Take Fall 1 st Year
MATH 1370	College Trigonometry	3 Credits	Take Spring 1 st Year
	MnTC Goal Area 2, 5, 6, or 7	3 Credits	Online
	MnTC Goal Area 1 Communications-Oral	3 Credits	Take Fall 2 nd Year
	MnTC Goal Area 1 Communications-Written	4 Credits	Online

Diploma

	MnTC Goal Area 1	3 Credits	Take Fall 1 st Year
	MnTC Goal Area 5, 6, or 7	3 Credits	Take Spring 1 st Year

St. Cloud Technical and Community College
Land Surveying / Civil Engineering Schedule
Diploma - 2023

Remember to turn in any transfer credits to records & registration

Course Name	Section	Cr	Semester	
Civil Drafting Methods	LSCE 1510	3	Fall	Hybrid Online
Materials, Est, & Specs	LSCE 1518	3	Fall	Hybrid Online
Technical Computations	TECH 1545	3	Fall	Or MATH 1360 for an AAS Degree, Hybrid Online
Survey Fundamentals	LSCE 1530	5	Fall	
General Educ. Courses				

Hour	Monday	Tuesday	Wednesday	Thursday	Friday
8 a.m.		1518	1510	1518	
9 a.m.	1518	1510	1510	1510	
10 a.m.	1518	1545	1545	1545	
11 a.m.					
12 p.m.		1530	1530	1530	
1 p.m.		1530	1530	1530	
2 p.m.		1530	1530	1530	
3 p.m.					

Semester: Fall 2023

Instructor's Name: Sean Clark & Dan Kvaal

Land Surveying/Civil Engineering Technology

Name: _____ Academic Year: 2023-2024

Major: Diploma Credits: 63

Course #	Course Title	Prerequisites	Credits	Semester: Fall, Spring	Grade
Suggested Technical Studies Semester I					
LSCE 1510	Civil Drafting Methods		3		
LSCE 1518	Materials, Estimating, and Specifications		3		
TECH 1545	Technical Computations		3		
LSCE 1530	Survey Fundamentals		5		
MnTC Goal Area 1			3		
		Semester Total	17		
Suggested Technical Studies Semester II					
LSCE 1502	Surveying Principles I		3		
LSCE 1506	Advanced Survey	LSCE 1502, LSCE 1530	5		
LSCE 1514	Civil CADD I	LSCE 1510	3		
LSCE 1527	Technical Computations II	LSCE 1510, LSCE 1522	3		
MnTC Goal Area 5, 6, or 7			3		
		Semester Total	17		
Suggested Technical Studies Semester III					
LSCE 2502	Control and Digital Surveys	LSCE 1506	5		
LSCE 2514	Civil CADD II	LSCE 1514	3		
LSCE 2518	Utility Design I	LSCE 1527	3		
LSCE 2526	Subdivision Design	LSCE 1502	4		
		Semester Total	15		
Suggested Technical Studies Semester IV					
LSCE 2507	Construction Design and Surveying	LSCE 2502	3		
LSCE 2510	Surveying Principles II	LSCE 2526	3		
LSCE 2522	Civil CADD III	LSCE 2514	3		
LSCE 2530	Utility Design II	LSCE 2518, LSCE 2526	3		
LSCE 2540	LSCE Internship	LSCE 2502	2		
		Semester Total	14		
Total Credits			63		

What Math Class Do I Take?

Gateway Math Course by Pathway

QUANTITATIVE REASONING STATISTICS STEM MATH FOR TEACHERS COLLEGE ALGEBRA & STATISTICS

MATH LEVEL 1
MATH 0720
Math Literacy

MATH LEVEL 2-4
MATH 0831
Bridge to
Quantitative
Reasoning

MATH 1331
Quantitative
Reasoning

MATH LEVEL 5+
MATH 1331
Quantitative
Reasoning

MATH LEVEL 1
MATH 0720
Math Literacy

MATH LEVEL 2
MATH 0831
Bridge to
Quantitative
Reasoning

MATH 1331
Quantitative
Reasoning

MATH LEVEL 3-5
MATH 0951
Bridge to
Statistics
MATH 1351
Statistics

MATH LEVEL 6+
MATH 1351
Statistics

MATH LEVEL 1
MATH 0720
Math Literacy

MATH LEVEL 2-5
MATH 0860
Beginning
Algebra for
STEM Students

MATH LEVEL 6-7
MATH 0960
Intermediate
Algebra for College
Algebra Students

MATH 1360
College Algebra

MATH LEVEL 8+
MATH 1360
College Algebra

OR
MATH 1380
Precalculus

MATH LEVEL 1
MATH 0720
Math Literacy

MATH LEVEL 2-3
MATH 0860
Beginning
Algebra for
STEM Students

MATH LEVEL 4-6
MATH
0941 or 0945
Bridge to Elements
of Math I or II

**MATH
1341 or 1345**
Elements of
Math I or II

MATH LEVEL 7+
MATH
1341 or 1345
Elements of
Math I or II

MATH LEVEL 1
MATH 0720
Math Literacy

MATH LEVEL 2
MATH 0860
Beginning
Algebra for
STEM Students

MATH LEVEL 3-5
MATH 0951
Bridge to
Statistics
MATH 1351
Statistics

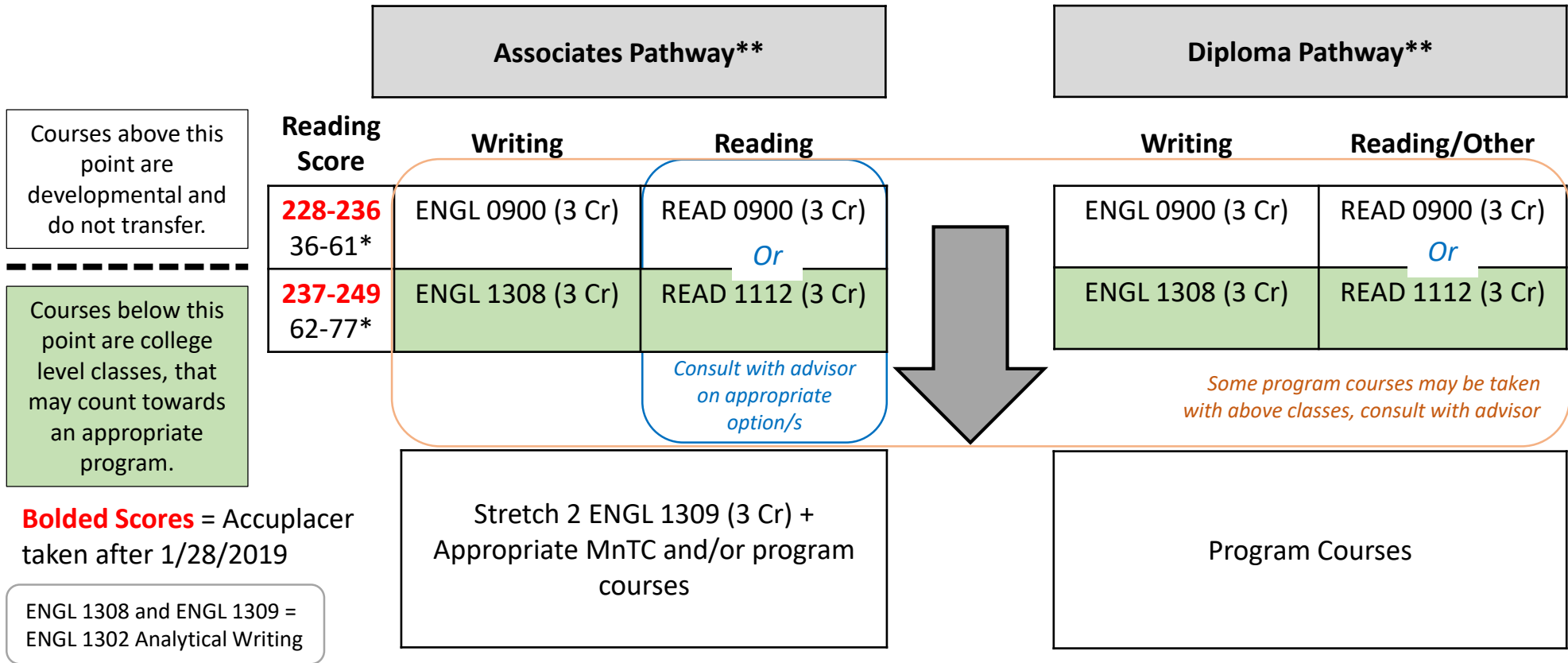
MATH LEVEL 6-7
MATH 0960
Intermediate
Algebra for College
Algebra Students
MATH 1360
College Algebra

OR
MATH 1351
Statistics

MATH LEVEL 8+
MATH 1360
College Algebra

OR
MATH 1351
Statistics

Developmental Education Course Pathway***



*Students will be placed in the appropriate level according to their Reading Accuplacer score and their desired program pathway.
 **To move on from each level of Dev. Ed. courses, students must earn a "C" or better
 ***This information is subject to change. Please speak with an advisor when choosing your courses.

ESOL Course Pathway***

ESOL Reading Score	Level	Grammar & Writing	Reading & Vocabulary	Listening & Speaking
45-65*	1	ESOL 0710 (4 Cr)	ESOL 0720 (4 Cr)	ESOL 0730 (4 Cr)
66-85*	2	ESOL 0810 (4 Cr)	ESOL 0820 (3 Cr)	ESOL 0830 (3 Cr)
86*+	3	ESOL 0910 (3 Cr)	ESOL 0920 (3 Cr)	ESOL 0930 (3 Cr)

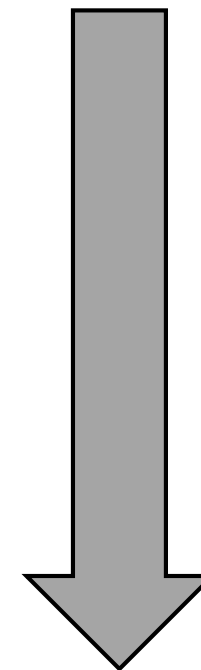
Some program courses may be taken with above classes, consult with advisor on appropriate options

Courses above this point are developmental and do not transfer.

Courses below this point are college level classes, that may count towards an appropriate program.

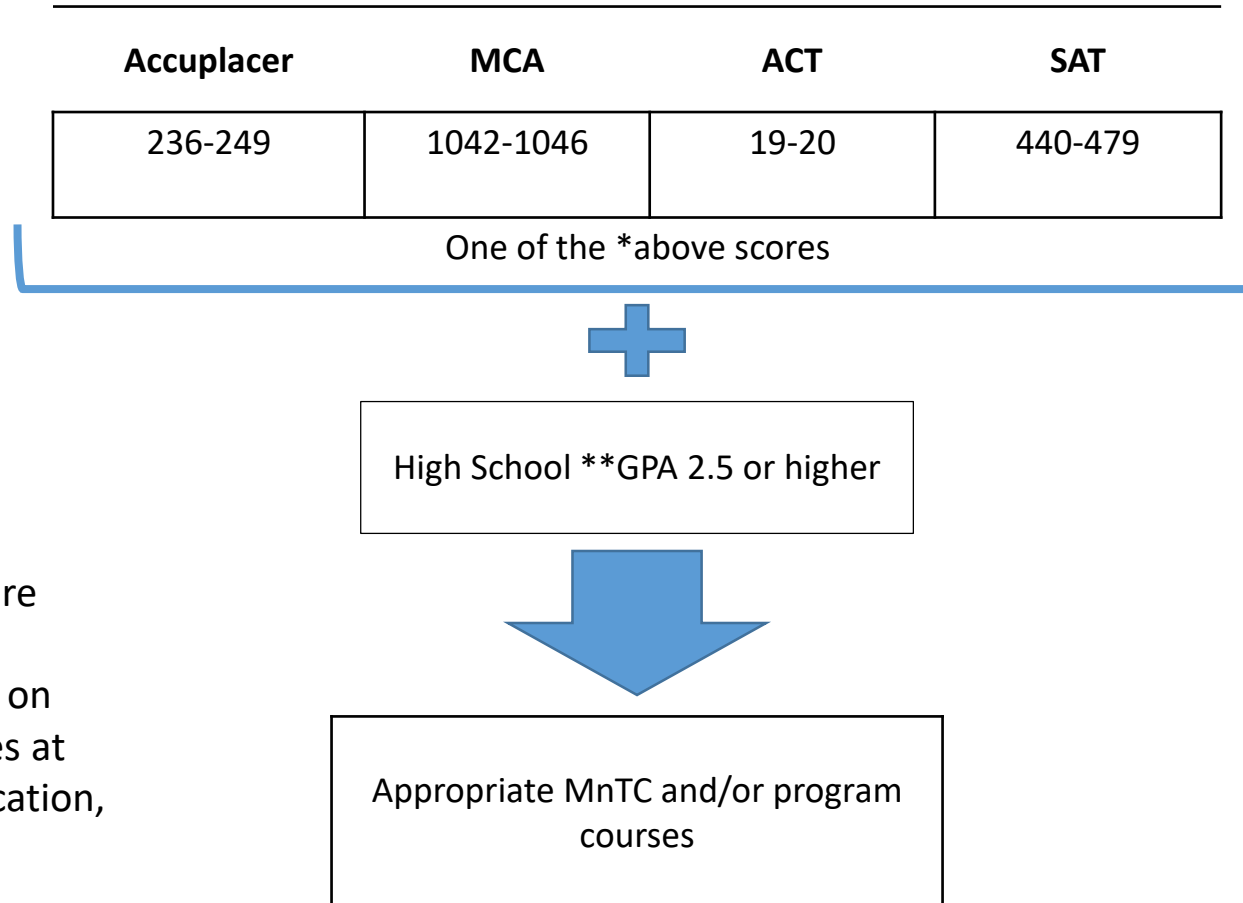
ENGL 1308 and ENGL 1309 = ENGL 1302 Analytical Writing

Associates Pathway**	Diploma Pathway**
Stretch 1 ENGL 1308 (3 Cr)	Stretch 1 ENGL 1308 (3 Cr) + Program Courses
Stretch 2 ENGL 1309 (3 Cr) + Appropriate MnTC and/or program courses	Program Courses



- *Students will be placed in the appropriate level according to their ESL Reading Accuplacer score.
- **To move on from each level of ESOL courses, students must earn a "C" or better
- ***This information is subject to change. Please speak with an advisor when choosing your courses.

Multiple Measures Reading Criteria***



NOTE: Students are evaluated for placement based on multiple measures at the time of application, or by the Testing Center.

*All scores are only valid 5 years from test date

**High School GPA must be within the last 10 years, and from a qualifying high school using a 4.0 GPA scale

*****This information is subject to change. Please speak with an advisor when choosing your courses.**

St. Cloud Technical and Community College (SCTCC) is accredited by the Higher Learning Commission. SCTCC is a member of the Minnesota State. Affirmative Action/Equal Opportunity Educator and Employer. ADA accessible facility. This document is available in alternative formats to individuals with disabilities by calling 1-800-222-1009 or by calling the Minnesota Relay Service at 1-800-627-3529.

Non-Tuition Costs for LSCE Program

2/27/2023

Fall First Year Diploma			Fall First Year AAS		
Engineering Scale	\$15.00		Engineering Scale	\$15.00	
Textbook: Civ. Drafting Methods	\$40.00		Civ. Drafting Methods	\$40.00	
Textbook: Survey Book	\$188.00		Survey Book	\$188.00	
Spec Book	\$0.00 (Free download)		Spec Book	\$0.00 (Free download)	
Textbook: Tech. Computations	\$216.00				
Safety Vest	\$20.00		Safety Vest	\$20.00	
Safety Glasses	\$10.00		Safety Glasses	\$10.00	
USB Thumb Drive	\$15.00		USB Thumb Drive	\$15.00	
calculator (scientific)	\$15.00		calculator (scientific)	\$15.00	
		\$519.00			\$303.00
Spring First Year Diploma			Spring First Year AAS		
Textbook: Cadd I Book	\$49.00		Cadd I Book	\$49.00	
		\$49.00			\$49.00
Fall Second Year Diploma			Fall Second Year AAS		
Textbook: Cadd II & III Book	\$56.00		Cadd II & III Book	\$56.00	
Textbook: Utility Book	\$188.00		Utility Book	\$188.00	
		\$244.00			\$244.00
Spring Second Year Diploma			Spring Second Year AAS		
Textbook: Surv. Princ. II	\$42.00		Surv. Princ. II	\$42.00	
		\$42.00			\$42.00
General Education Textbooks	\$	300.00	General Education Textbooks	\$	500.00
			MyMathLab program (Algebra, Trigonometry)	\$	172.00
Laptop	\$	2,000.00	Laptop	\$	2,000.00
TOTAL		\$3,154.00			\$3,310.00

Laptop Requirements Fall 2023

First-year students in the programs listed below are required to purchase laptop computers and software. Laptops running Windows 10 are highly recommended. Apple computers using MAC OS or Apple devices using iOS, Chromebooks or tablets using Android OS are not recommended for use with the following programs.

Programs requiring personal computers:

- Architectural Construction Technology
- Computer-Aided Mechanical Design Technology
- Computer Programming
- Land Surveying/Civil Engineering Technology
- Energy & Electronics:
 - Mechatronics
 - Energy Technical Specialist
 - Robotics and Automation
 - Instrumentation and Process Control
- Information Technology:
 - Network Administration
 - Cyber Security
 - PC Specialist

Students in programs requiring laptops may order their laptop computers from a recommended vendor. The recommended company, Now Micro, has established a website for our students' use and their prices will be posted on the site. Sales tax will be added to the cost of computers and software. The recommended laptops are dependable and capable of performing the functions needed. They are high-end computers that will perform well during college years as well as after graduation.

Instructions for Purchasing SCTCC Standard Laptop Bundles

1. Go to the vendor website where you will find laptop pricing and specifications. Vendor site: <https://portal.nowmicro.com>
2. Register as an individual and follow the prompts to set-up online profile or login in if you already have an account.
3. Once you submitted registration, please check your email for password.
4. Once logged into the store site, enter keyword "SCTCC" under the product search to access school-approved laptop bundle options.

***NOTE:** Customers must select Credit Card as Payment Method, and either FedEx Ground or Will Pick Up at Store as Delivery Method. Orders that do not comply with these instructions will not be processed.

LSCE Program Laptop Requirements – 2023



HP ZBook Fury 16 G9 Mobile Workstation or equal

Wolf Pro Security - Intel Core i7 12800HX / 2 GHz - Win 11 Pro (includes Win 11 Pro License) - NVIDIA RTX A1000 / Intel UHD Graphics - 16 GB RAM - 512 GB SSD NVMe, TLC - 16" IPS 1920 x 1200 - Wi-Fi 6E, Bluetooth - kbd: US - with HP Wolf Pro Security Edition

Not Acceptable: Apple computers using MAC OS or Apple devices using iOS, Chromebooks or tablets using Android OS

Minimum specifications below...

Processor: Intel Core i7 or better, 2 GHz or better recommended

Memory: 16 GB RAM

Storage: 512 GB

Operating System: Windows 11 Pro, 64-bit

Camera (webcam) w/ built in microphone

Bluetooth capable

Dimensions: 17" screen recommended, but a 15" will work and is less expensive

Ports and Slots: 2 minimum USB, HDMI port

Wireless mouse

More Information on SCTCC Website: <https://www.sctcc.edu/laptop-program>

System requirements for AutoCAD 2022 including Specialized Toolsets (Windows)	
Operating System	64-bit Microsoft® Windows® 11 and Windows 10. See Autodesk's Product Support Lifecycle for support information.
Processor	Basic: 2.5–2.9 GHz processor Recommended: 3+ GHz processor
Memory	Basic: 8 GB Recommended: 16 GB
Display Resolution	Conventional Displays: 1920 x 1080 with True Color High Resolution & 4K Displays: Resolutions up to 3840 x 2160 supported on Windows 10 (with capable display card)
Display Card	Basic: 1 GB GPU with 29 GB/s Bandwidth and DirectX 11 compliant Recommended: 4 GB GPU with 106 GB/s Bandwidth and DirectX 12 compliant
Disk Space	10.0 GB
Network	See Autodesk Network License Manager for Windows
Pointing Device	MS-Mouse compliant
.NET Framework	.NET Framework version 4.8 or later

Microsoft Word/Office software

- FREE Download for SCTCC Students: Microsoft Office 365 ProPlus Help Desk: www.sctcc.edu/student-help-desk
- SCTCC's Office 365 subscription allows current students to download and run Microsoft Office on up to 5 machines (PC or Mac) and also on up to 5 mobile devices (Android, iPhone etc.).