Learning Plan 2025-26

Course Name: Basic Calculus

Course Code: Math 20

Program(s): Civil Engineering Technology Instrumentation and Control Engineering Technology

Delivery Method: Face to Face ☒ | Hybrid ☐ | Hyflex ☐ | Online (Synchronous) ☐ | Online (Asynchronous) ☐

Name of Faculty: Frank Secretain

Contact Information: fsecretain@sl.on.ca

Name of Associate Dean: Brad Barbeau

Date prepared: 6/9/2025

Semester: Fall ☒ | Winter ☐ | Spring ☐ | Summer ☐

Location of Course Offering: Kingston Campus ☒ | Brockville Campus ☐ | Cornwall Campus ☐ | Online ☐ |

or Other (e.g., off-campus location): Click or tap here to enter text.

Assessment Plan

Students will demonstrate learning in the following ways:

Assessment Strategy*	CLO**	VLO / PLO***	Description (e.g. Frequency, details)	% of Grade	Total %	Tentative Due Dates
Quizzes	1-10	-	x10 Online practice module quizzes	10x1	10	Week 2 to 12
Written tests	1-10	-	x3 In class tests on modules	3x20	60	Week 4,7,12
Project	1-12	-	x1 Take home project	10	10	Week 7 to 13
Final exam	1-10	-	x1 In class test on course	20	20	Week 14

*Assessment Strategy: refer to **Academic Assessment Policy** for more details; **CLO:** Course Learning Outcome; ***VLO/PLO:** Vocational Learning Outcome / Program Learning Outcome. Information about CLO/VLO/PLO is provided in the associated Course Outline document.

Program Specific Continuance Policy

Does this course belong to a program with a "program specific" continuation policy?

Yes ☐ No ☐

If "Yes", the details of the program specific **Progression Policy (see Appendix A)** are included in the table below.

If "No", this table will include a "N/A" and the course will adhere to the standard continuation requirements outlined in the **Progression Policy**.

Academic Policies

Academic Policies at St. Lawrence College ensure that protocols for grading, advancement and related academic elements are established, reviewed and publicly communicated to students. The college's **Academic Policies**[1] are all available online via the college website.

Required Learning Resources & Materials

The required learning resources (e.g., readings, web links, etc.) and materials (e.g., software, lab equipment, etc.) are listed in the table below.

Text Book: Basic Technical Mathematics with Calculus by Allyn J. Washington (Pearson, 10th edition) The textbook is optional in this course. The textbook will be an essential part of your college career and will be required in other courses in your program. The textbook will provide further explanation on topics covered in class. Calculator: A scientific calculator is required in this course. A recommended calculator that will be referred to in class is: Casio fx-991 MS calculator. Blackboard and YouTube: Students are required to access their blackboard account to obtain class material, track grades and performance, get access to important announcements, access assessments (such as quizzes and tests) online, get in contact with the instructor. Students are required to access YouTube links (available in blackboard) to watch videos of required lecture material before the assigned dates assigned. Homework: You must be prepared and willing to do homework in this course. For each hour in the physical or virtual classroom you should expect to devote approximately one hour to practice questions and assigned homework.

As per the Ministry of Colleges & Universities (MCU) directive on Education costs, please reference the College Bookstore for the most recent textbook cost for this course. Students may also explore options to rent or purchase used textbooks using the posted ISBN. Some courses may also use Open Educational Resources.

- **Learn more about the College Bookstore***

*Please note that this information is subject to change.

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[1] Academic Policies are posted online within the **Reports and Policies** section of the website.

Additional Notes

Information about this course, such as regulatory and accreditation requirements, is listed below.

Delivery Schedule

Please Note:

i)   If this is a lab-based course, lab safety procedures and protocol must be specifically taught or reinforced prior to any activity taking place in the lab environment.

ii)   Any changes to this delivery schedule will be communicated in writing by the professor to the students.

Module Title	Module Topic(s)	CLO*	Learning Experiences	Resources	Dates
Sequences and Series	Arithmetic series Geometric series Binomial theorem	2, 9-10	Direct Instruction Demonstrations Hands-on practice	Material available on Blackboard.	week 1-2
Introduction to Calculus	Mathematical limits to functions Concept of slope Concept of area under the curve	3, 9-10	Direct Instruction Demonstrations Hands-on practice	Material available on Blackboard.	week 3

Derivatives	Definition of a derivative
	
	Derive the derivative for:
	
	    $y=ax^n$ (polynomial form)
	
	    $y=a^x$ (exponential form)
	
	    $y=sin(x)$ (trigonometry form)
	
	Rules of differentiation
	
	    Product rule
	
	    Quotient rule
	
	    Chain rule
		1, 4-5, 9-10	Direct Instruction
			Demonstrations
			Hands-on practice
				Material available on Blackboard.	week 4-5

Derivatives	Application of derivatives
	
	    Tangents and normal functions
	
	    Max./Min. Problems
		1, 4-5, 9-10	Direct Instruction
			Demonstrations
			Hands-on practice
				Material available on Blackboard.	week 5-7

Module Title	Module Topic(s)	CLO*	Learning Experiences	Resources	Dates
	Applied word problems				
	Higher order derivatives				

Anti-Derivative (integral)	Definition
	Indefinite integrals
	   Polynomial form
	   Exponential form
	   Trigonometric form
	Rules of integration
	   Substitution
	   By parts
		1, 6-10	Direct Instruction
			Demonstrations
			Hands-on practice
				Material available on Blackboard.	week 8-11

Anti-Derivative	Definite integrals Applied word problems	1, 6-10	Direct Instruction Demonstrations Hands-on practice	Material available on Blackboard.	week 12-14

*CLO: Course Learning Outcome

July 7 2025

Associate Dean Signature: ___*Brad Barbean*___ Date: Click or tap to enter a date.