NORTHWESTERN POLYTECHNIC

DEPARTMENT of Science

COURSE OUTLINE – Fall 2024

MA1401 A2, S1: Technical Mathematics I – 3 (3-1-0) 60 Hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR: Brian Redmond
OFFICE: J206
OFFICE HOURS: WF 10:00 AM - 11:30 AM (or by appointment)

PHONE: 780-539-2982
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CALENDAR DESCRIPTION:

This course covers foundational mathematical topics relevant to engineering technologies such as algebraic manipulation, trigonometry, geometry, exponents, logarithms, and functions as well as basic linear algebra concepts. It aims to improve problem-solving and critical thinking skills and prepare students for studies in calculus and applied engineering physics.

PREREQUISITE:

Math 30-1 or 65% in 30-2 or equivalent.

REQUIRED TEXT/RESOURCE MATERIALS:

- Basic Technical Mathematics with Calculus, SI Version, Canadian Edition, 11th edition
- Scientific calculator

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DELIVERY MODE(S):

Lectures Mondays and Wednesdays 2:30 PM – 3:50 PM in J107
Seminars Mondays 4:00 PM – 4:50 PM in J107

LEARNING OUTCOMES:

By taking this course, students will:

- Develop proficiency in manipulating formulas and factoring algebraic expressions.
- Acquire knowledge of geometry and trigonometry.
- Understand the properties and applications of exponents and logarithms.
- Analyze functions and their graphs.
- Gain a basic understanding of linear algebra concepts such as vectors and matrices.
- Solve systems of linear equations using Gaussian elimination.
- Apply mathematical concepts to engineering technologies.
- Develop critical thinking skills through problem-solving exercises.
- Enhance their quantitative reasoning skills.
- Communicate mathematical concepts effectively.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page http://www.transferalberta.alberta.ca.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

EVALUATIONS:

Assignments	30%
Midterm	25%
Final Exam	45%

GRADING CRITERIA:

Grades for this course will be assigned as a percentage. The minimum passing grade is 65%.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Lecture/Seminar	Date	Topic	Reading
	Mon. Sept. 2	Labour Day – no classes	

L1	Wed. Sept. 4	Chapter 1	1.1, 1.2, 1.3
L2	Mon. Sept. 9	Chapter 1	1.4, 1.5, 1.6
S1	Mon. Sept. 9	Worksheet 1	
L3	Wed. Sept. 11	Chapter 1	1.7, 1.8, 1.9
L4	Mon. Sept. 16	Chapter 1	1.10, 1.11, 1.12
S2	Mon. Sept. 16	Worksheet 2	
L5	Wed. Sept. 18	Chapter 2	2.1, 2.2, 2.3
L6	Mon. Sept. 23	Chapter 2	2.4, 2.5, 2.6
S3	Mon. Sept. 23	Worksheet 3	
L7	Wed. Sept. 25	Chapter 3	3.1–3.6
	Mon. Sept. 30	National Day for Truth and Reconciliation – no classes	
L8	Wed. Oct. 2	Chapter 4	4.1, 4.2, 4.3
L9	Mon. Oct. 7	Chapter 4, 8	4.4, 4.5, 8.1
S5	Mon. Oct. 7	Worksheet 4	
L10	Wed. Oct. 9	Chapter 8	8.2, 8.3, 8.4
	Mon. Oct. 14	Thanksgiving – no classes	
L11	Wed. Oct. 16	Chapter 6	6.1, 6.2, 6.3, 6.4
L12	Mon. Oct. 21	Chapter 6	6.5, 6.6, 6.7, 6.8
S7	Mon. Oct. 21	Worksheet 5	
L13	Wed. Oct. 23	Chapter 7	7.1-7.4
L14	Mon. Oct. 28	Chapter 11	11.1, 11.2, 11.3
S8	Mon. Oct. 28	Worksheet 6	
L15	Wed. Oct. 30	Chapter 11	11.4, 11.5
L16	Mon. Nov. 4	Chapter 13	13.1, 13.2, 13.3, 13.4
S9	Mon. Nov. 4	Worksheet 7	

L17	Wed. Nov. 6	Chapter 13	13.5, 13.6, 13.7
	Mon. Nov 11	Remembrance Day – no classes	
	Wed. Nov. 13	Fall Break – no classes	
L18	Mon. Nov. 18	Midterm	1-4, 6, 7, 8, 11
S10	Mon. Nov. 18	Worksheet 8	
L19	Wed. Nov. 20	Chapter 5	5.1-5.6
L20	Mon. Nov. 25	Chapter 9	9.1, 9.2, 9.3
S11	Mon. Nov. 25	Worksheet 9	
L21	Wed. Nov. 27 (Last Day to Withdraw)	Chapter 9	9.4, 9.5, 9.6
L22	Mon. Dec. 2	Chapter 16	16.1, 16.2, 16.3
S12	Mon. Dec. 2	Worksheet 10	
L23	Wed. Dec. 4	Chapter 16	16.4, 16.5, 16.6
L24	Mon. Dec. 9	Review	
S13	Mon. Dec. 9	Review	

Final exam period: Thursday, December 12 – Thursday, December 19, inclusive.

STUDENT RESPONSIBILITIES:

This is a challenging course. Success requires regular attendance, timely completion of assignments, and at least 10 hours of weekly study outside of class. Collaboration with classmates is encouraged, but each student must submit their own work and ensure they understand it fully.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at https://www.nwpolytech.ca/about/administration/policies/index.html.

**Note: all Academic and Administrative policies are available on the same page.