ORIGINAL COURSE IMPLEMENTATION DATE: September 2020
REVISED COURSE IMPLEMENTATION DATE: September 2024
COURSE TO BE REVIEWED (six years after UEC approval)**:** March 2030
Course outline form version: 28/10/2022

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: ELTR 220	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Statistics for Electronics **Course Short Title:** Statistics for Electronics	
Faculty: Faculty of Applied and Technical Studies	**Department (or program if no department):** Electronics

Calendar Description:

An introduction to the theory and practice of statistics and probability for engineering. First, the concepts of function, limit, continuity, differentiation, and integration are revisited. Students are then taught the concepts of survey sampling and graphical and numerical descriptive statistics. Students will also learn to work with the MATLAB application's statistical toolbox in the lab part of the course.

Prerequisites (or NONE):	ELTR 100, ELTR 130, ELTR 150, and ELTR 190.
Corequisites (if applicable, or NONE):	NONE
Pre/corequisites (if applicable, or NONE):	NONE

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number:

Cross-listed with:

Equivalent course(s):

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	30
Supervised laboratory hours (computer lab)	15
Total hours	**45**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: ☒ No ☐ Yes

Course Details

Special Topics course: **No**

(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **No**

(See policy 207 for more information.)

Grading System: **Letter grades**

Delivery Mode: **Face-to-face only**

Expected frequency: **Fall only**

Maximum enrolment (for information only)**: 20**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Transfer Credit *(See **bctransferguide.ca**.)*

Transfer credit already exists: **No**

Submit outline for (re)articulation: **No**

(If yes, fill in transfer credit form.)

Department approval	**Date of approval:**	October 27, 2023
Faculty Council approval	**Date of meeting:**	December 2023
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 1, 2024

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Analyze and solve engineering technology/applied science problems applying statistics and statistical processes.
2. Organize data collection, specifying sampling methods, collecting, evaluating, and reporting data.
3. Solve basic problems involving probability and conditional probability including total law of probability, Bayes Theorem.
4. Develop sampling distributions, utilizing normal probability distribution and central limit theorem.
5. Compare and analyze distribution of discrete and continuous random variables.
6. Conclude confidence intervals for population mean and population proportion then determine and/or utilize relationships with respect to sample size and population variability.
7. Use MATLAB application to write statistical simulation programs.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Final exam:	40%	Quizzes/tests:	20%	
Assignments:	20%	Lab work:	20%	

Details:

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures and Lab

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	Textbook	Douglas C. Montgomery	Applied Statistics and Probability for engineers	2002
2.				
3.				
4.				
5.				

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

Course Content and Topics

- Probability
- Discrete random variables and their probability distributions
- Continuous random variables and their probability distributions
- Random sampling and data description
- Simple linear regression and correlation analysis
- Statistical quality control