ORIGINAL COURSE IMPLEMENTATION DATE: September 2020
REVISED COURSE IMPLEMENTATION DATE: September 2022
COURSE TO BE REVIEWED (six years after UEC approval): January 2026
Course outline form version: 09/08/2021

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

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

Course Code and Number: ELTR 110	**Number of Credits:** 3 Course credit policy (105)

Course Full Title: Electronics Manufacturing Processes
Course Short Title: Electronics Manufacturing

Faculty: Faculty of Applied and Technical Studies	**Department (or program if no department):** Electronics

Calendar Description:

The basics of electronic manufacturing practices and techniques. Topics include electronics assembly/repair tools and methods, common wiring tools and wiring practice, safe procedures and wiring standards in multiple work environments, the importance of proper wiring and routing, and the results of common wiring mistakes. IPC standards and safe work place practices will be emphasized.

Prerequisites (or NONE):	None.
Corequisites (if applicable, or NONE):	None.
Pre/corequisites (if applicable, or NONE):	ELTR 100.

Antirequisite Courses *(Cannot be taken for additional credit.)*	**Course Details**
Former course code/number:	Special Topics course: **No**
Cross-listed with:	*(If yes, the course will be offered under different letter designations representing different topics.)*
Equivalent course(s):	Directed Study course: **No**
(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.)	*(See policy 207 for more information.)*
	Grading System: **Letter grades**
	Delivery Mode: **May be offered in multiple delivery modes**
	Expected frequency: **Fall only**
	Maximum enrolment (for information only): **36**

Typical Structure of Instructional Hours

Lecture/seminar	15
Supervised labroratory hours (design lab)	30
Total hours	**45**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Scheduled Laboratory Hours

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

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 meeting:**	November 9, 2021
Faculty Council approval	**Date of meeting:**	November 18, 2021
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	January 28, 2022

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. Use computer aided design to produce a printed circuit board layout for given/any schematic.
2. Hand solder through hole and surface mount components on PCB.
3. Adjust, align, replace, or repair electronic circuit and assemblies.
4. Apply general safe work practices when working with hazardous products.
5. Practice the use of common industry wiring tools such as crimper.
6. Create harnesses and route wiring bases on job specifications.
7. Investigate effects of noise and Ground loops.
8. Investigate electrical noise, shielding, grounding, wiring and isolation solutions.

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

Quizzes/tests:	25%	Lab work:	50%		%
Assignments:	25%		%		%

Details:

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

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.	No textbook required			
2.				
3.				
4.				
5.				

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

Course Content and Topics

Students will use wire strippers and crimper and practice industry accepted wiring techniques. Students will mostly be using the tools and will be evaluated based on the quality of work assigned.

- Unit 1 - Workplace Safety
- Unit 2 - Hand soldering Through-hole and surface mount components
- Unit 3 - PCB Manufacturing process and considerations
- Unit 4 - Introduction to Layout and schematic capture software
- Unit 5 - Wires, Wire selection and Wire routing