Dalhousie Faculty of Engineering

COURSE OUTCOMES WORKSHEET

COURSE NUMBER AND NAME__ECED 4260_____ **PROGRAM / AU** _____

COMPILED BY (instructor?): ___Yuan Ma_____ **CHECKED BY** _____, _____

COURSE OUTCOMES (a maximum of 6 - 8, which should **NOT** just be a list of topics) (Outcomes should include: a **VERB**, **WHAT THE STUDENT WILL LEARN**, and the **CONTEXT** in which they will apply their learning. **How the outcomes will be measured** should also be noted (assignments, project, exam, labs, field trip reports, research reports, presentations, student electronic portfolios & questionnaires, debates, log books, case studies .... Rubrics will probably be needed to measure some of these.) **Circle on the second page which Graduate Attributes will be measured**.

Course Outcome 1:

verb:	what the student will learn:	context of learning (where applied):
Review and Use	Classical Sequential Logic	In general digital circuit (1c, 2b)

Measurement means: _____Assignments and exams_____

Course Outcome 2:

verb:	what the student will learn:	context of learning (where applied):
Demonstrate	Use of hardware description language and simulation	1c, 5b

Measurement means: _____Assignments and exams_____

Course Outcome 3:

verb:	what the student will learn:	context of learning (where applied):
Design and Test	Register-transfer level components and small scale digital system	1c, 2b, 3b

Measurement means: _____Laboratory investigation_____

Course Outcome 4:

verb:	what the student will learn:	context of learning (where applied):
Apply	The solution of fast addition and multiplication to binary numbers.	1c, 2b, 3b, 4b

Measurement means: _____Assignments and exams_____

Course Outcome 5:

verb:	what the student will learn:	context of learning (where applied):
Demonstrate	Independent learning of digital circuit design skills	12c

Measurement means: _____ Laboratory Investigation _____

DALHOUSIE UNIVERSITY

Graduate Attribute Performance Indicators

			Indicators		
			A	B	C
Attributes	1	Knowledge Base for Engineering	Explain and apply mathematics for analysis and synthesis in engineering.	Explain and apply foundational knowledge in natural sciences. Understand and use the scientific method.	Explain and apply knowledge in engineering science.
	2	Problem Analysis	Identify and define a technical problem.	Break a complex problem into manageable elements, using appropriate assumptions.	Perceive sources of error and uncertainty, and quantify their significance.
	3	Investigation	Collect, assess, critique and use information from appropriate sources, with appropriate citation	Design and/or perform discipline-specific experimental or data collection procedures, including safety/ethical considerations	Analyze and interpret data and form conclusions
	4	Design	Define functional requirements	Conceptualize and evaluate alternative approaches; perform appropriate design to fit requirements	Synthesize components into an integrated whole, considering constraints, risks, and tradeoffs.
	5	Use of Engineering Tools	Demonstrate proficiency in appropriate current computer-based packages.	Identify appropriate engineering tools to apply to a problem, identify their limitations and inherent assumptions.	Be competent in the use of current engineering tools.
	6	Individual and Team Work	Manage time and processes effectively, prioritizing competing demands to achieve goals.	Show initiative and leadership while respecting others' agreed roles in a team.	Be a responsible, respectful and contributing member of a team.
	7	Communication Skills	Produce clear engineering diagrams, drawings and/or sketches.	Be effective in written communications. Maintain professional journals and records; produce clear technical reports with appropriate citations.	Be effective in oral communications.
	8	Professionalism	Demonstrate professional behaviour; adhere to student code of conduct and rules of academic integrity.	Identify and apply relevant discipline statutory requirements and codes.	Understand and practice the appropriate occupational health and safety regulations. Demonstrate an awareness of the responsibility to protect the public interest.
	9	Impact of Engineering on Society	Identify, review and plan for safety and sustainability issues. Develop approaches for maintaining safety and sustainability.	Explain interactions between technical systems and social, cultural, environmental, economic and political contexts.	Assess risk in relation to users, the community and the environment.
	10	Ethics and Equity	Discuss and apply the engineering code of Ethics.	Understand accountability, liability and professional responsibility.	Treat all persons fairly, without bias, and with respect.
	11	Economics and Project Management	Conduct engineering economic analyses using time value of money, inflation and taxes.	Plan, control and monitor engineering projects, using quantitative techniques such as resource analysis and scheduling.	Implement project plans, including procedures for the management of change and risk.
	12	Life-long Learning	Explain requirements for continuing professional development and how these can be met.	Recognize limits to own knowledge, seek advice, and determine areas for development.	Demonstrate independent learning.