

BSE.EE Degree		Student Number _____ Student Name: _____		Email _____			
New Students 2015-2016		updated: May 31, 2017		Academic Adviser: _____ Email: _____			
YEAR 1		YEAR 2		YEAR 3		YEAR 4	
TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6	TERM 7	TERM 8
MATH 1003 Intro to Calculus I (3-0-0)	MATH 1013 Intro to Calculus II (4-0-0) Prereq: MATH 1003	MATH 2513 Multivariable Calculus (4-0-0) Prereq: MATH1013 and MATH 1503	MATH 3503 Differential Equations (3-1-0) Prereq: MATH 1503 Coreq: MATH 2513	ECE 3111 Electronics I (3-1-3*) Prereq: ECE 2711	ECE 3122 Electronics II (3-1-3*) Prereq: ECE2722, ECE3111	ECE 4040 Design Project (1*-0-6) CS 1023 or CS 1083, and 52 credit hours of ECE core courses	
MATH 1503 Linear Algebra (4-0-0)	ECE 1813 Electricity & Magnetism (3-1-2) CoRequisite: MATH 1003	ECE 2711 Electric Circuits (3-1-3*) Prereq: MATH 1013, ECE 1813	ECE 2722 Circuits & Sys (3-1-3*) Prereq: ECE2711 & MATH 1503 Coreq: MATH 3503	ECE 3511 Signals (3-1-3*) Prereq: ECE2722, MATH 3503 CoRequisite: STAT 2593	ECE 3312 Systems & Control (3-1-3*) Prereq: ECE2722, MATH 3503, ENGG1082	ENGG 4013 Law & Ethics (3-0-0) Required: 100 ch, Final Year	Engineering Econ ME3232 (3-0-0) CE3963 Required 60 ch.
CS 1003 Problem Solving and Programming (3-1-2)	CS 1023 Data Structures and Algorithms (3-1-2) Prereq: CS1003	HSS (CSE A) Tech & Society (3-0-3*) HIST 3925, HIST 3975 SOCI 2533, SOCI 2534 RCLP 2042, STS 1003 (STU) Others subject to Dept Approval	APSC 2023 Survey of 19th & 20th Cent Physics (3-0-3*) Prereq: PHYS 1081, MATH 1013	ECE 3612 Machines (3-1-2) Prereq: ENGG1082, MATH 2513, ECE2711	ECE 3031 Elect Design (3-1-3*) Prereq: ECE2722, ECE2214 or equivalent, ECE2412, ENGG1003 CoRequisite: ECE3111	TE (2)	TE (5)
PHYS 1081 Foundations of Phys for Engg (3-0-3) Co-Requisite: MATH 1003, MATH 1503	ENGG 1082 Mechanics for Engineers (3-0-3) PreRequisite: PHYS 1081, MATH 1003, MATH 1503	Basic Science (3-0-3) Life or Earth Sciences BIOL, CHEM, ESCI, GEOL, PHYS When in doubt check it out, with your academic advisor	APSC 2028 Lab for Survey (0-0-3) 19th & 20th Cent Co-requisite: APSC 2023	ECE 3821 Electromagnetics I (3-1-1.5) Prereq: MATH 3503, MATH 2513, ECE2711	TE (1)	TE (3)	TE (6)
ENGG1003 Technical Communications (2-0-3)	CHEM1982 Gen Chemistry Physical & Inorganic (3-0-3)	ECE 2214 Digital Logic Design (3-0-3) Prereq: CS1003 Recommended: ECE1813	ECE 2412 Simulation & Analysis (3-0-1.5) Prereq: CS1003, ECE1813, MATH 1013, MATH 1503	ECE 3221 Computer Organization (3-1-3*) Prereq: ECE2214 and ECE2215 or equivalent, CS1023	ECE 3232 Embedded System Design (3-0-2) Prereq: CS1023; ECE3221	TE (4)	TME 3313 Managing Engg & Inform. Tech Projects (3-0-2) 80 ch of approved courses
ENGG1015 Intro to Eng Design & Problem Solving (1-0-2) MATH 1003, MATH 1503	CHEM1987 Gen Chemistry Labs (0-0-2) CoRequisite: CHEM 1982	HSS (CSE B) (3-0-0) Anth, Classics, Literature, History, Philosophy, Political Science, Sociology	STAT 2593 Probability & Statistics (3-0-0) Prereq: MATH 1013			(CSE C)	
ENGG1001 Eng Practice Lecturing Series (1-0-0)	If the grades on this matrix appear different from your transcript, the transcript grades are used when calculating a degree completion. SPECIAL NOTE: Degree Requirements: - D's are excluded in the credit hour count. The minimum credit hour requirement for an Engineering Degree is 160ch.						

A minimum grade of C is required for all courses used for credit towards the B.Sc.E. degree.

Total Ch: 160

Electives

In addition to the core courses there is also a requirement to complete six technical elective courses (minimum of 24 ch), three complementary studies electives (minimum of 9 ch), and one Science Elective (minimum 3 ch).

Basic Science Elective

Each student is required to take one 3 ch basic science course chosen from Physics, Chemistry, and the life or earth sciences.

Complementary Studies Electives (CSE's)

The EE program requires a minimum of 9 ch of Complementary Studies electives.

The choice of courses is subject to the Faculty of Engineering regulations for Complementary Studies Electives and the following:

CSE A- The EE program requires 9 credit hours of Complementary Studies electives. The choice of courses is subject to the Faculty of Engineering regulations for Complementary Studies Electives and the following: At least 3 ch must be from the Humanities and Social Sciences related to technology and society (examples: HIST 3925 Technology and Society, SOCI 2534 Technology and Social Change). Others subject with Department pre-approval	CSE B- An additional 3 ch must come from Humanities and Social Sciences. Anthropology, Classics, Literature, History, Philosophy, Political Science and Sociology.	CSE C - The remaining 3 ch may be taken from: Administration, Technology Management and Entrepreneurship (TME) or the Humanities and Social Sciences. No more than 3 ch of language courses may be used for credit toward the B.Sc.E. Degree. ADM, ANTH, BA, CHNS, CLAS, ECON, ENGL, ENVS, FVI, FILM, FNAT, FR, FRILING, GEND, GEOG, GER, GRK, HIST, HUM, HTM, ICS, IDS, IS, JPNS, LAT, LING, LING/FR, PHIL, POLS, PSYC, RCLP, RUSS, SOCI, SPAN, TME, WMS, WLCS
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Students are encouraged to seek out courses of interest and value to them. The final choice of electives is subject to the approval of the Department of Electrical and Computer Engineering.

Technical Elective Courses (TE's)

Each student is required to take six technical elective courses (minimum of 24 ch). At least four of the electives must be ECE courses from the following list (minimum 16ch):

Note: Not all Technical Electives are offered every year.

ECE 3213 Advanced Software Engineering
ECE 3242 Computer Architecture
ECE 3812 Data Communications and Networking
ECE 3832 Electromagnetics II
ECE 4251 Real Time Systems
ECE 4261 Digital System Design
ECE 4273 VLSI System Design
ECE 4823 Communications Network Engineering
ECE 4253 Digital Communications

ECE 4133 Instrumentation Design
ECE 4143 Electronic Circuit Design
ECE 4173 Devices and Circuits for VLSI
ECE 4323 Industrial Control Systems
ECE 4333 Robotics
ECE 4343 Haptics
ECE 4433 Safety Critical System Design
ECE 4523 Communication Systems
ECE 4531 Digital Signal Processing I

ECE 4542 Digital Signal Processing II
ECE 4623 Advanced Electrical Machines
ECE 4633 Power System Analysis
ECE 4643 Power Electronics
ECE 4833 Microwave Engineering
ECE 4843 Optical Fiber Communication
ECE 4913 Independent Project
ECE 4923 Introduction to Biomedical Engineering
ECE 4943 Topics in Computer Engineering

Students are encouraged to take combinations of electives which will permit some degree of specialization in one or more of the major fields of Electrical and Computer Engineering (see table below). Technical electives may be taken in other disciplines, subject to pre-approval by the Department. For instance, a number of courses in Math, Science, Computer Science and other Engineering disciplines are eligible; of the non-ECE electives, at least one must have second year pre-requisite. NOTE: Not all technical electives are offered every year.

Technical Elective Combinations

Students are encouraged to take combinations of technical electives which will permit them some degree of specialization in one of the major fields of Electrical and Computer Engineering; the course combinations can be found at:

["http://www.unb.ca/academics/calendar/undergraduate//current/frederictonprograms/bachelorofscienceinengineering/electricalengineering.html"](http://www.unb.ca/academics/calendar/undergraduate//current/frederictonprograms/bachelorofscienceinengineering/electricalengineering.html)

Technical electives may be taken in other disciplines subject to pre-approval by the Department. For instance, a number of courses in Math, Science, Computer Science and other Engineering disciplines are eligible; of the non-ECE electives, at least one must have a second year pre-requisite.

Recommended Program

The program allows completion of degree requirements in eight terms. However, a significant number of students plan to take nine or ten terms to reach graduation, using the extra time to master the material more thoroughly or to take extra courses. Students planning to take longer than eight terms are advised to plan well ahead and to consult with faculty in order to minimize problems arising from timetabling restrictions and prerequisite requirements. The General Regulations of the Faculty of Engineering, including minimum credit hour requirements that are listed under Bachelor of Science in Engineering, apply to the Electrical Engineering program.