

BSE.EE Degree

New Students **2014-2015**

Student Number _____

Student Name: _____

Email _____

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) 3	MATH 1013 Intro to Calculus II (4-0-0) Prereq: MATH 1003 3	MATH 2513 Multivariable Calculus (4-0-0) Prereq: MATH1013 and MATH 1503 3	MATH 3503 Differential Equations (3-1-0) Prereq: MATH 1503 Coreq: MATH 2513 4	ECE 3111 Electronics I (3-1-3*) Prereq: ECE 2711 3	ECE 3122 Electronics II (3-1-3*) Prereq: ECE2722, ECE3111 4	ECE 4040 Design Project (1*-0-6) CS 1023 or CS 1083, and 52 credit hours of ECE core courses 7	
MATH 1503 Linear Algebra (4-0-0) 3	ECE 1813 Electricity & Magnetism (3-1-2) CoRequisite: MATH 1003 4	ECE 2711 Electric Circuits (3-1-3*) Prereq: MATH 1013, ECE 1813 4	ECE 2722 Circuits & Sys (3-1-3*) Prereq: ECE2711 & MATH 1503 Coreq: MATH 3503 4	ECE 3511 Signals (3-1-3*) Prereq: ECE2722, MATH 3503 CoRequisite: STAT 2593 4	ECE 3312 Systems & Control (3-1-3*) Prereq: ECE2722, MATH 3503, ENGG1082 4	ENGG 4013 Law & Ethics (3-0-0) Required: 100 ch, Final Year 3	Engineering Econ ME3232 (3-0-0) CE3963 Required 60 ch. 3
CS 1003 Problem Solving and Programming (3-1-2) 4	CS 1023 Data Structures and Algorithms (3-1-2) Prereq: CS1003 4	HSS (CSE A) Tech & Society (3-0-3*) Prereq: PHYS 1081, MATH 1013 3	APSC 2023 Survey of 19th& 20th Cent Physics (3-0-3*) Prereq: PHYS 1081, MATH 1013 3	ECE 3612 Machines (3-1-2) Prereq: ENGG1082, MATH 2513, ECE2711 3	ECE 3031 Elect Design (3-1-3*) Prereq: ECE2722, ECE2213, ECE2412, ENGG1001, ENGG1003, ENGG1015. CoRequisite: ECE3111 4	TE (2) 4	TE (5) 4
PHYS 1081 Foundations of Phys for Engg (3-0-3) Co-Requisite: MATH 1003, MATH 1503 5	ENGG 1082 Mechanics for Engineers (3-0-3) PreRequisite: PHYS 1081, MATH 1003, MATH 1503 4	Basic Science Life or Earth Sciences BIOL, CHEM, ESCI, GEOL, PHYS When in doubt check it out with your advisor (3-0-3) 3	APSC 2028 Lab for Survey 19th&20th Cent (0-0-3) Co-requisite: APSC 2023 2	ECE 3821 Electromagnetics I (3-1-1.5) Prereq: MATH 3503, MATH 2513, ECE2711 4	TE (1) 4	TE (3) 4	TE (6) 4
ENGG1003 Technical Communications (2-0-3) 4	CHEM1982 Gen Chemistry Physical & Inorganic (3-0-2) 3	ECE 2213 Digital Systems I (3-0-2) Prereq: CS1003 Recommended: ECE1813 4	ECE 2412 Simulation & Analysis (3-0-1.5) Prereq: CS1003, ECE1813, MATH 1013, MATH 1503 4	ECE 3221 Computer Organization (3-1-3*) Prereq: ECE2213, CS1023 4	ECE 3232 Embedded System Design (3-0-2) Prereq: CS1023; ECE3221 4	TE (4) 4	TME 3313 Managing Engg & Inform. Tech Projects 80 ch of approved courses 3
ENGG1015 Intro to Eng Design & Problem Solving (1-0-2) MATH 1003, MATH 1503 2	CHEM1987 Gen Chemistry Labs (0-0-2) CoRequisite: CHEM 1982 2	HSS (CSE B) Anth, Classics, Literature, History, Philosophy, Political Science, Sociology (3-0-0) 3	STAT 2593 Probability & Statistics (3-0-0) Prereq: MATH 1013 3			(CSE C) ADM, ANTH, BA, CHNS, CLAS, ECON, ENGL, ENVS, FVI, FILM, FNAT, FR, FR/LING, GEND, GEOG, GER, GRK, HIST, HUM, HTM, ICS, IDS, IS, JPNS, LAT, LING, LING/FR, MM, MUS, PHIL, POLS, PSYC, RCLP, RUSS, SOCI, SPAN, TME, WMS, WLCS 3	
ENGG1001 Eng Practice Lecturing Series (1-0-0) 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.						
21	20	21	19	20	20	18	21

Electives

In addition to the core courses there is also a requirement to complete:
 six technical elective courses - TE's (minimum of 24 ch); three complementary studies electives - CSE's (minimum of 9ch);
 and one Science Elective - basic science (minimum 3ch).

Basic Science Elective

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.
 Examples: BIOL1001, BIOL1006, BIOL1621, CHEM2401, CHEM2421, CHEM2601, ESCI1001, ESCI1012, ESCI1063, GEOL1001
 other courses may qualify, please seek department approval prior to registration.

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 - An additional 3ch must be an HSS related to technology and society. Preapproved courses: HIST 3925 Technology and Society, HIST 3975 History of Life Sciences, SOCI 2533 Information Society, SOCI 2534 Technology & Social Change, STS1003 -St. Thomas University, Others subject to Department approval	CSE B - At least 3 ch must come from the following: Anthropology (ANTH), Classics (CLAS), History (HIST), Literature (LIT), Philosophy (PHIL), Political Science (POLS) Sociology (SOC)	CSE C - The remaining 3 ch may be taken from: Administration, Technology Management and Entrepreneurship (TME) or Humanities and Social Sciences. No more than 3 ch of language courses may be used for credit towards the B.Sc.E Degree ADM, ANTH, BA, CHNS, CLAS, ECON, ENGL, ENVS, FVI, FILM, FNAT, FR, FR/LING, 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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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 not offered every year.

ECE 3242	Computer Architecture	ECE 4323	Industrial Control Systems	ECE 4823	Communications & Network Eng
ECE 3812	Data Communications	ECE 4333	Robotics	ECE 4833	Microwave Engineering
ECE 3832	Electromagnetics II	ECE 4343	Haptics	ECE 4843	Optical Fiber Communications
ECE 4133	Instrumentation Design	ECE 4433	Safety-Critical System Design	ECE 4913	Independent Project
ECE 4143	Electronic Circuit Design	ECE 4523	Communication Systems	ECE 4923	Introduction to Biomedical Engineering
ECE 4173	Devices and Circuits for VLSI	ECE 4531	Digital Signal Processing I	ECE 4943	Topics in Computer Engineering
ECE 4251	Real Time Systems	ECE 4542	Digital Signal Processing	SWE 4103	Software Quality and Project Management
ECE 4253	Digital Communications	ECE 4623	Advanced Electrical Machines	SWE4203	Software Evolution and Maintenance
ECE 4261	Digital System Design	ECE 4633	Power System Analysis	SWE 4403	Software Architecture and Design Patterns
ECE 4273	VLSI System Design	ECE 4643	Power Electronics	ENGG 4025	Multidisciplinary Design Project
				TME 5025	Product Design and Development
					Department Approval needed
					Department Approval needed

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.