

BSE.EE Degree		Student Number _____		Student Name: _____		Email _____	
New Students		2016-2017		updated: May 31, 2017		Academic Adviser: _____	
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 (4-0-0) Prereq: Math placement test	MATH 1013 Intro to Calculus II (4-0-0) Prereq: MATH 1003 MWF 11:30-12:20 +	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) Prereq: Math placement test	ECE 1813 Electricity & Magnetism (3-1-2) Co-Requisite: 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) Required 60 ch. 3 CE3963 Prereq 60 ch, CS1003
CS 1003 Problem Solving and Programming (3-0-3*) Coreq: Phys 1081	Basic Science BIOL, CHEM, ESCI, GEOL, PHYS OR HSS (CSE B) Anth, Classics, Literature, History, Philosophy, Political Science, Sociology	CS 1023 Data Structures (3-0-3) Prereq: CS1003	APSC 2023 Survey of 19th& 20th Cent Physics (3-0-0) Prereq: PHYS 1081, MATH 1013	ECE 3612 Machines (3-1-2) Prereq: ENGG1082, MATH2513, ECE2711	ECE 3031 Elect Design (3-1-1.5) Prereq: ECE2722, ECE2214, ECE2215, ECE2412, ENGG1003, ENGG1001, ENGG1015 CoReq: 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 (3-1-2) PreRequisite: PHYS 1081, MATH 1003, MATH 1503	HSS (CSE A) Tech & Society  HIST 3925, HIST 3975 SOCI 2374, 2533, SOCI 2534 RCLP 2042, ICS2001, STS 1003 (STU) Others subject to Dept Approval	APSC 2028 Lab for Survey 19th&20th Cent (0-0-3) 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) MW 1:30-2:20 1a,7a Lab M 2:30-5:20	CHEM1982 Gen Chemistry Physical & Inorganic (3-1-0)	ECE 2214 Digital Logic Design Prereq: CS1003 Coreq: ECE2215 Recommended: ECE1813  MWF 11:30-12:20 Tut Th 12:30 ECE2215 Digital Logic Labs Prereq: CS1003 Coreq: ECE2214 Recommended: ECE1813	ECE 2412 Simulaton & 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, Co- requisite: CS1023	ECE 3232 Embedded System Design (3-0-2) Prereq: CS1023, ECE3221	TE (4)	TME 3313 Managing Engg & Inform. Tech Projects (3-0-0) 80 ch of approved courses
ENGG1015 Intro to Eng Design & Problem Solving (1-0-2) CoRequisite: ENGG1003, PHYS 1081, MATH 1003, MATH 1503	CHEM1987 Gen Chemistry Labs (0-0-3) CoRequisite: CHEM 1982	Basic Science BIOL, CHEM, ESCI, GEOL, PHYS OR HSS (CSE B) 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.						
21	19	22	19	20	20	18	21

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 - 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

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 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:

CSE A -	CSE B -	CSE C -
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).	An additional 3 ch must come from Humanities and Social Sciences.	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.
Preapproved courses:  HIST 3925 Technology and Society, HIST 3975 History of Life Sciences, SOCI 2374SOCI 2533 Information Society, SOCI 2534 Technology & Social Change, ICS2001 Transformations in Media, STS1003 -St. Thomas University, Others subject to Department approval	Anthrology (ANTH), Classics (CLAS), History (HIST), Literature (LIT), Philosophy (PHIL), Political Science (POLS) Sociology (SOCI)	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

## Technical Elective Courses

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 16 ch).

ECE3213	Software Engineering 1	ECE 4323	Industrial Control Systems	ECE 4833	Microwave Engineering
ECE 3242	Computer Architecture	ECE 4333	Robotics	ECE 4843	Optical Fiber Communications
ECE 3812	Data Communications	ECE 4343	Haptics	ECE 4913	Independent Project
ECE 3832	Electromagnetics II	ECE 4433	Safety-Critical System Design	ECE 4923	Introduction to Biomedical Engineering
ECE 4133	Instrumentation Design	ECE 4523	Communication Systems	ECE 4943	Topics in Computer Engineering
ECE 4143	Electronic Circuit Design	ECE 4531	Digital Signal Processing I		
ECE 4173	Devices and Circuits for VLSI	ECE 4542	Digital Signal Processing		
ECE 4251	Real Time Systems	ECE 4623	Advanced Electrical Machines		
ECE 4253	Digital Communications	ECE 4633	Power System Analysis		
ECE 4261	Digital System Design	ECE 4643	Power Electronics		
ECE 4273	VLSI System Design	ECE 4823	Communications & Network Eng		

- 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 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.

## 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.