

BSE.EE Degree		Student Number		Student Name:		Email	
New Students		2017-2018		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
<b>MATH 1003</b> Intro to Calculus I (4-0-0) Prereq: Math placement test  MWF 11:30-12:20 Th 8:30-9:20 or MWF 11:30-12:20 Tu 8:30-9:20	<b>MATH 1013</b> Intro to Calculus II (4-0-0) Prereq: MATH 1003 <b>MMWF 11:30-12:20 +</b>  1b 2b,5b,6b,9b,10b,13b,14b Tu 8:30 3b,4b,7b,8b,11b,12b,15b,16b Th 8:30	<b>MATH 2513</b> Multivariable Calculus (4-0-0) Prereq: MATH1013 and MATH 1503  1a MWF 9:30-10:20 T 11:30-12:20 2a MWF 11:10-12:20 T 11:30-12:20	<b>MATH 3503</b> Differential Equations (3-1-0) Prereq: MATH 1503 Coreq: MATH 2513  1b MWF 8:30-9:20 Tu Th 8:30-9:20 2b MWF 8:30-9:20 Tu Th 8:30-9:20	<b>ECE 3111</b> Electronics I (3-1-3*) Prereq: ECE 2711  MWF 1:30-2:20 Tu Th 11:30-12:20 1a Lab W 2:30-5:20 2a Lab Th 2:30-5:20	<b>ECE 3122</b> Electronics II (3-1-3*) Prereq: ECE2722, ECE3111  MWF 1:30-2:20 Tu Th 11:30-12:20 1b Lab M 2:30-5:20 2b Lab Tu 2:30-5:20	<b>ECE 4040</b> Design Project (1*-0-6)  CS 1023 or CS 1083, and 52 credit hours of ECE core courses	
<b>MATH 1503</b> Linear Algebra (4-0-0) Prereq: Math placement test  MWF 9:30-10:20	<b>ECE 1813</b> Electricity & Magnetism (3-1-2) Co-Requisite: MATH 1003  MWF 10:30-11:20 Tu Tu 8:30-9:20 1b Lab Tu 2:30-5:20 2b Lab Th 2:30-5:20 MWF 10:30-11:20 Tu Th 11:30-12:20 3b Lab W 2:30-5:20 4b Lab F 2:30-5:20	<b>ECE 2711</b> Electric Circuits (3-1-3*) Prereq: MATH 1013, ECE 1813  MWF 10:30-2:20 Tu Th 1:30-2:20 1a Lab Th 2:30-5:20 2a Lab W 2:30-5:20	<b>ECE 2722</b> Circuits & Sys (3-1-3*) Prereq: ECE2711 & MATH 1503 Coreq: MATH 3503 MWF 10:30-1:20 Tu Tu 11:30-12:20 1a Lab Tu 2:30-5:20 2a Lab Th 2:30-5:20	<b>ECE 3511</b> Signals (3-1-3*) Prereq: ECE2722, MATH 3503 CoRequisite: STAT 2593 MWF 9:30-10:20 Tu Tu 9:30-10:20 1a Lab Tu 2:30-5:20 2a Lab W 2:30-5:20	<b>ECE 3312</b> Systems & Control (3-1-3*) Prereq: ECE2722, MATH 3503, ENGG1082  MWF 11:30-12:20 Tu Tu 10:30-11:20 1b Lab Tu 2:30-5:20 2b Lab W 2:30-5:20 3b Lab M 2:30-5:20	<b>ENGG 4013</b> Law & Ethics (3-0-0) Required: 100 ch, Final Year 1a Tu & Th 6:30-7:50 2a Tu & Th 6:30-7:50	<b>Engineering Econ</b> ME3232 (3-0-0) Required 60 ch. CE3963 Prereq 60 ch, CS1003 WI 18 CE3963 1b MWF 8:30-9:20 WI 18 ME3232 1b MWF 12:30-1:20
<b>CS 1003</b> Problem Solving and Programming (3-0-3*) Coreq: Phys 1081  (1a) MWF 8:30-9:20 Lab T 9:30-10:50 or (2a) MWF 8:30-9:20 Lab T 1:00-2:20	<b>Basic Science</b> BIOL, CHEM, ESCI, GEOL, PHYS <b>OR</b> <b>HSS (CSE B)</b> Anth, Classics, Literature, History, Philosophy, Political Science, Sociology	<b>CS 1023</b> Data Structures (3-0-3) Prereq: CS1003  MWF 12:30-1:20 Lab F 2:30-4:20	<b>APSC 2023</b> Survey of 19th & 20th Cent Physics (3-0-0) Prereq: PHYS 1081, MATH 1013  MWF 11:30-12:20	<b>ECE 3612</b> Machines (3-1-2) Prereq: ENGG1082, MATH2513, ECE2711  MWF 8:30-9:20 Tu Th 9:30-10:20 1a Lab F 2:30-5:20 2a Lab Tu 2:30-5:20 3a Lab M 2:30-5:20 4a Lab W 2:30-5:20	<b>ECE 3031</b> Elect Design (3-1-1.5) Prereq: ECE2722, ECE2214, ECE2215, ECE2412, ENGG1003, ENGG1001, ENGG1015 CoReq: ECE3111  MWF 8:30-9:20 Tu Th 8:30-9:20 1b Lab F 2:30-5:20	<b>TE (2)</b>	<b>TE (5)</b>
<b>PHYS 1081</b> Foundations of Phys for Engg (3-0-3) Co-Req: MATH 1003, MATH 1503  (1a) MWF 10:30-11:20 Lab M 2:30-5:20 (2a) MWF 10:30-11:20 Lab T 2:30-5:20 (3a) MWF 10:30-11:20 Lab W 2:30-5:20	<b>ENGG 1082</b> Mechanics for Engineers (3-1-2) Prereq: PHYS 1081, MATH 1003, MATH 1503  1b MWF 1:30-2:20 Lab M 2:30-5:20 2b MWF 1:30-2:20 Lab Tu 2:30-5:20 3b MWF 1:30-2:20 Lab W 2:30-5:20	<b>HSS (CSE A)</b> Tech & Society FA17 HIST3925 W - 5:30-8:20  HIST 3925, HIST 3975 SOCI 2374, 2533, SOCI 2534 RCLP 2042, ICS2001, STS 1003 (STU) Others subject to Dept Approval	<b>APSC 2028</b> Lab for Survey 19th & 20th Cent (0-0-3) Co-requisite: APSC 2023  1b Lab Tu 2:30-5:20 2b Lab W 2:30-5:20	<b>ECE 3821</b> Electromagnetics I (3-1-1.5) Prereq: MATH 3503, MATH 2513, ECE2711  MWF 10:30-11:20 Tu Tu 10:30-11:20 1a Lab Tu 12:30-1:50	<b>TE (1)</b>	<b>TE (3)</b>	<b>TE (6)</b>
<b>ENGG1003</b> Technical Communications (2-0-3)  MW 1:30-2:20 1a,7a Lab M 2:30-5:20 2a,10a Lab T 2:30-5:20 3a,6a Lab W 2:30-5:20 4a,9a Lab Th 2:30-5:20 5a,8a Lab F 2:30-5:20	<b>CHEM1982</b> Gen Chemistry Physical & Inorganic (3-1-0)  MWF 8:30-9:20 Tu Tu W 7:00-8:50 pm	<b>ECE 2214</b> Digital Logic Design (3-1-0) Prereq: CS1003 Coreq: ECE2215 Recommended: ECE1813 MWF 11:30-12:20 Tu Th 12:30  <b>ECE2215</b> Digital Logic Labs (3-0-1.5) Prereq: CS1003 Coreq: ECE2214 Recommended: ECE1813 1a Lab M 2:30-4:20 2a Lab Tu 2:30-4:20	<b>ECE 2412</b> Simulation & Analysis (3-0-1.5) Prereq: CS1003, ECE1813, MATH 1013, MATH 1503  MWF 10:30-11:20 Lab Th 11:30-12:50	<b>ECE 3221</b> Computer Organization (3-1-3*) Prereq: ECE2214 and ECE2215 or equivalent, Co-requisite: CS1023  MWF 11:30-12:20 Tu Th 10:30-11:20 1a Lab W 2:30-5:20 2a Lab F 2:30-5:20	<b>ECE 3232</b> Embedded System Design (3-0-2) Prereq: CS1023, ECE3221  Lectures Tu Th 1:00-2:20 1b Lab W 2:30-4:20 2b Lab Th 2:30-4:20	<b>TE (4)</b>	<b>TME 3313</b> Managing Engg & Inform. Tech Projects (3-0-0) 80 ch of approved courses FA17 - 1a M 6:30-9:20 WI 18 - 1b W 6:30-9:20
<b>ENGG1015</b> Intro to Eng Design & Problem Solving (1-0-2) CoRequisite: ENGG1003, PHYS 1081, MATH 1003, MATH 1503  T 11:30-12:20 1a,2a,3a,6a,8a, Lab Th 2:30-4:20 4a,5a,7a,9a,10a Lab F 2:30-4:20	<b>CHEM1987</b> Gen Chemistry Labs (0-0-3) CoRequisite: CHEM 1982  1b Lab M 2:30-5:20 2b Lab Tu 2:30-5:20 3b Lab W 2:30-5:20 4b Lab F 2:30-5:20	<b>Basic Science</b> BIOL, CHEM, ESCI, GEOL, PHYS <b>OR</b> <b>HSS (CSE B)</b> Anth, Classics, Literature, History, Philosophy, Political Science, Sociology	<b>STAT 2593</b> Probability & Statistics (3-0-0) Prereq: MATH 1013  1b MWF 9:30-10:20 2b T 10:00-11:20			<b>(CSE C)</b>	
<b>ENGG1001</b> Eng Practice Lecturing Series (1-0-0)  F 1:30-2:20		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

## 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 2374/SOCI 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.