## **B.A.** in Electrical Engineering 2017-2018: Option 1 - CWILT

Fell         Ceeds         Interior         Ceeds         Physical Ruphysics Land General Physics I and General Physi	P'-1 V	<u></u>	6	
PRIVED REPORT   PRIVEST   A PRIVEST	First Year			
MAT   25 Calculus 2			, ,	Credits
SESSED Introduction to twelbeing		4 GES160 Inquiry Semina	•	4
SESIS Introduction to the Creative Arts		4		4
Second Year   1972	GES140 Introduction to Wellbeing	3		4
Second Yer Fail Cores in Engineering and Physics Seminar Cores in Engineering And Physics In Engineering And Engineering Cores (1 a Science, Technology, and Society, (I) course (3 a Science, Technology, and Society, (I) co	GES125 Introduction to the Creative Arts	4	BIB101 Introduction to the Bible	-
Second Yer   Fail			Artistic Experience (A) course	0-3
Feb   1		15	3	16
EMBZGG Careers in Engineering and Physics Seminar  1 ENGEGO Careers in Engineering and Physics Seminar  1 ENGEGO Careers in Engineering and Physics Seminar  2 PHY312 & PHY313 Modern Physics and Modern Physics Lab  2 Science, Fethenology, and Society (K) course  3 PHY312 & PHY313 Modern Physics and Modern Physics Lab  3 Everond Language (S) course  4 Contemporary Western Life and Thought (L) course  3 PHY312 & PHY313 Modern Physics and Modern Physics Lab  4 Contemporary Western Life and Thought (L) course  3 Everond Language (S) course  4 Contemporary Western Life and Thought (L) course  5 Print Physics and Engineering (L) Course  5 Print Physics and Engineering (L) Course  6 Phy312 & Phy313 Deptication (L) Course  7 Phy313 & Phy313 Deptication (L) Course  8 Phy313 Deptication (L) Course  9 Phy313 Deptication (L) C	Second Year			
MAT 223 Multivariable Calculus   3   Science, Technology, and Society (K) course   3   Science, Technology, and Socient, and society (K) course   3   Science, Technology, and Society (K) course   3   Science, Technology, and Socience, Technology, and S	Fall	Credits Interim	Credits Spring	Credits
Science, Technology, and Society (K) course   3   Science, Technology, and Society (K) course   3   Science, Technology, and Society (K) course   3   Science, Technology, and Society (K) course   4   Scond Language (S) course   5   Scond Language (S) c	ENR260 Careers in Engineering and Physics Seminar	1 ENR160 Introduction t	o Engineering 3 MAT222 Differential Equations	3
Phy 303   Electronics and   Electronics   1	MAT223 Multivariable Calculus	3	PHY312 & PHY313 Modern Physics and Modern Physics Lab	4
Contemporary Western Life and Thought (L) course 13   Cross-cultural Experience (Z) Course 013   15   15   15   15   15   15   15	COS205 Scientific Computing	3		3
Third Year  Fall Credits Ordelts Ordel	PHY302 & PHY303 Electronics and Electronics Lab	4	Second Language (S) course <sup>4</sup>	4
Third Year  Fall Credits FAIR RNR310 Methematical Methods in Physics and Engineering FAIR FAIR FAIR FAIR FAIR FAIR FAIR FAIR	Contemporary Western Life and Thought (L) course	3	Cross-cultural Experience (Z) Course	0-3
Fall (Credits Physics and Engineering Physics and Engineering and Computer Physics Phy		14	3	15
ENR320 Mathematical Methods in Physics and Engineering Enginee	Third Year			
RNR316 & ENR317 Analog Circuitry and Design and Analog Circuitry Design   4   ENR315 & ENR353 Computer Methods in Physics and Engineering and Computer   4   Methods in Physics and Engineering Lab	Fall	Credits Interim	Credits Spring	Credits
ENR316 & ENR317 Analog Circuitry and Design and Analog Circuitry Design 4 BR316 & ENR317 Analog Circuitry and Magnetism 4 ENR316 & ENR307 Digital Logic and Design and Digital Logic and Design Lab 5 ENR306 & ENR307 Digital Logic and Design Lab 6 ENR306 & ENR307 Digital Cogle and Design Lab 6 ENR306 & ENR307 Digital Logic and Design Lab 6 ENR306 & ENR307 Digital Logic and Design Lab 6 ENR306 & ENR307 Digital Logic and Design Lab 6 ENR306 & ENR307 Digital Logic and Design Lab 6 ENR306 & ENR307 Digital Cogle and Design Lab 6 ENR306 & ENR307 Digital Logic and Design Lab 6 ENR306 & ENR307	ENR320 Mathematical Methods in Physics and Engineering	4 World Cultures (U) cou	rrse 3 PHY332 & PHY333 Optics and Optics Lab	4
Lab Methods in Physics and Engineering Lab   PHY400 Electricity and Magnetism 4 ENR306 & ENR307 Digital Logic and Design and Digital Logic and Design Lab 4   THE201 Christian Theology 3 Interpreting Biblical Themes (J) Course 3   Town Hyear   Fourth Year Tenth Year Yerelits Nerins Credits Spring Credits   ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis 4 Interim Off ENR46 & ENR447 Control Systems and Control Systems Lab 4   Simulations Lab ENR336 Signals and Systems 4 Interim Off ENR436 & ENR437 Microprocessors and Microprocessors Lab 4   ENR336 Signals and Systems 4 Interim Off ENR436 & ENR437 Microprocessors and Microprocessors Lab 4   ENR424 & ENR425 Materials and Devices and Materials and Devices Lab 4 Interim Off ENR490 Engineering Design Project 3   ENR465 Engineering Design Seminar 1 Contemporary Christian Issues (P) Course 3   Comparative Systems (G) Course 3 Leisure and Lifetime Sport (Q) Course 1   Comparative Systems (G) Course 1 Leisure and Lifetime Sport (Q) Course 1			& PHY333 Optics and Optics Lab	
PHY400 Electricity and Magnetism ATHE201 Christian Theology Britable Christian Devices and Devices and Devices Lab Britable Christian Theology	ENR316 & ENR317 Analog Circuitry and Design and Analog Circuitry Design	4	ENR352 & ENR353 Computer Methods in Physics and Engineering and Computer	4
Interpreting Biblical Themes (J) Course 3  15  Fourth Year  Fall Credits Intering Spring Seminar Course Address and Devices Lab Comparative Systems (G) Course 3  ENR465 Engineering Design Seminar Course Address Systems (G) Course 15  Engage Seminar Course Address Systems (G) Course 16  Engage Seminar Course Address Systems (G) Course 17  Engage Seminar Course Address Systems (G) Course 18  Engage Seminar Course Address Systems (G) Course 18  Engage Seminar Course Address Systems (G) Course 18  Engage Seminar Course Address Systems (G) Course 19  Engage Seminar Course Address Systems (G) Course 19  Engage Seminar Course Address Systems (G) Course 19  Engage Sem	<u>Lab</u>		Methods in Physics and Engineering Lab	
Fourth Year Fall Credits Interim Off  ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis  ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis  ENR326 Signals and Systems  ENR326 Signals and Systems  ENR326 Signals and Systems  ENR326 Signals and Devices and Materials and Devices Lab  ENR326 Signals and Devices and Materials and Devices Lab  ENR326 Signals and Systems  ENR326 ENR327 Microprocessors and Microprocessors Lab  ENR326 ENR327 Microprocessors and Microprocessors a	PHY400 Electricity and Magnetism	4	ENR306 & ENR307 Digital Logic and Design and Digital Logic and Design Lab	4
Fourth Year Fall Credits Interim Off  ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis  ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis  ENR326 Signals and Systems  ENR326 Signals and Systems  ENR326 Signals and Systems  ENR326 Signals and Devices and Materials and Devices Lab  ENR326 Signals and Devices and Materials and Devices Lab  ENR326 Signals and Systems  ENR326 ENR327 Microprocessors and Microprocessors Lab  ENR326 ENR327 Microprocessors and Microprocessors a	THE201 Christian Theology	3	Interpreting Biblical Themes (J) Course	3
Fall Credits   Interim Off   Credits   Interim Off   Credits   ENR327 Circuit Analysis Simulations and Circuit Analysis   Interim Off   ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis   Interim Off   ENR466 & ENR447 Control Systems and Control Systems Lab   Simulations Lab   ENR336 Signals and Systems   I   ENR436 & ENR437 Microprocessors and Microprocessors Lab   Interim Off   ENR424 & ENR425 Materials and Devices and Materials and Devices Lab   Interim Off   ENR490 Engineering Design Project   Interim Off   I		15		15
Fall Credits   Interim Off   Credits   Interim Off   Credits   ENR327 Circuit Analysis Simulations and Circuit Analysis   Interim Off   ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis   Interim Off   ENR466 & ENR447 Control Systems and Control Systems Lab   Simulations Lab   ENR336 Signals and Systems   I   ENR436 & ENR437 Microprocessors and Microprocessors Lab   Interim Off   ENR424 & ENR425 Materials and Devices and Materials and Devices Lab   Interim Off   ENR490 Engineering Design Project   Interim Off   I	Fourth Year			
ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis Simulations Lab ENR326 Signals and Systems ENR336 Signals and Systems ENR327 Materials and Devices and Materials and Devices Lab ENR424 & ENR425 Materials and Devices and Materials and Devices Lab ENR465 Engineering Design Project  1 Contemporary Christian Issues (P) Course 3 Comparative Systems (G) Course 3 Leisure and Lifetime Sport (Q) Course 15		Credits Interim	Credits Spring	Credits
Simulations Lab  ENR336 Signals and Systems  ENR436 & ENR437 Microprocessors and Microprocessors Lab  ENR424 & ENR425 Materials and Devices and Materials and Devices Lab  ENR465 Engineering Design Project  Contemporary Christian Issues (P) Course  Comparative Systems (G) Course  1 Leisure and Lifetime Sport (Q) Course  15	ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis	4 Interim Off	· •	4
ENR336 Signals and Systems 4 ENR424 & ENR425 Materials and Devices and Materials and Devices Lab 4 ENR424 & ENR425 Materials and Devices and Materials and Devices Lab 4 Contemporary Christian Issues (P) Course 3 Comparative Systems (G) Course 3 Leisure and Lifetime Sport (Q) Course 15				
ENR424 & ENR425 Materials and Devices and Materials and Devices Lab 4 ENR425 Materials and Devices and Materials and Devices Lab 5 ENR490 Engineering Design Project 3 Contemporary Christian Issues (P) Course 3 Comparative Systems (G) Course 3 Leisure and Lifetime Sport (Q) Course 15		4	FNR436 & FNR437 Microprocessors and Microprocessors Lab	4
ENR465 Engineering Design Seminar  1 Contemporary Christian Issues (P) Course 3 Leisure and Lifetime Sport (Q) Course 15 0 15				3
Comparative Systems (G) Course 3 Leisure and Lifetime Sport (Q) Course 1 16 0 15			<u>=</u>	J
Comparative Systems (G) Course 3 Leisure and Lifetime Sport (Q) Course 1 16 0 15	ENR465 Engineering Design Seminar	1	Contemporary Christian Issues (P) Course	3
16 0 15			· , , .,	1
	, , , , , , , , , , , , , , , , , , , ,			15
	Total Credits: 130			

<sup>\*1.</sup> Students must complete through the second semester of a first year language course or equivalent.

Most financial aid packages stipulate 12 credits/semester; Minnesota state grants are reduced when credit load falls below 15 credits/semester. (Interim credits may be split between fall and spring for state grant purposes only.

## **B.A.** in Electrical Engineering 2017-2018: Option 2 - Humanities

First Year					
Fall	Credits	Interim	Credits	Spring	Credits
PHY292 & 292D General Physics I and General Physics I Lab	4	GES147 Humanities II: Renaissance and Reformation	4	4 PHY296 & PHY297 General Physics II and General Physics II Lab	4
MAT124M Calculus 1	4			MAT125 Calculus 2	4
GES140 Introduction to Wellbeing	3			BIB101 Introduction to the Bible	3
GES145 Humanities I: Greco-Roman through Middle Ages	4			GES244 Humanities III: European Enlightenment and American Culture to 1877	4
Leisure and Lifetime Sport (Q) course					
	16		4	4	15
Second Year					
Fall	Credits	Interim	Credits	Spring	Credits
MAT223 Multivariable Calculus	3	ENR160 Introduction to Engineering	3	3 MAT222 Differential Equations	3
GES246 Humanities IV: Modern and Contemporary Western Culture	4			PHY312 & PHY313 Modern Physics and Modern Physics Lab	4
PHY302 & PHY303 Electronics and Electronics Lab	4			COS205 Scientific Computing	3
World Cultures (U) course	3			Second Language (S) course	4
				Cross-cultural Experience (Z) course	0-3
	14		3	3	15
Third Year					
Fall	Credits	Interim	Credits	Spring	Credits
ENR320 Mathematical Methods in Physics and Engineering	4	Comparative Systems (G) course	3	3 PHY332 & PHY333 Optics and Optics Lab	4
				ENR352 & ENR353 Computer Methods in Physics and Engineering and Computer	
				Methods in Physics and Engineering Lab	
PHY400 Electricity and Magnetism	4			ENR306 & ENR307 Digital Logic and Design and Digital Logic and Design Lab	4
ENR260 Careers in Engineering and Physics Seminar	1			Interpreting Biblical Themes (J) course	3
Science, Technology, and Society (K) course	3				
	16		3	3	15
Fourth Year					
Fall	Credits	Interim	Credits	Spring	Credits
ENR326 & ENR327 Circuit Analysis Simulations and Circuit Analysis	4	Interim Off	(	ENR446 & ENR447 Control Systems and Control Systems Lab	4
Simulations Lab					
ENR336 Signals and Systems	4			ENR436 & ENR437 Microprocessors and Microprocessors Lab	4
ENR424 & ENR425 Materials and Devices and Materials and Devices Lab	4			ENR490 Engineering Design Project	3
ENR465 Engineering Design Seminar	1			Contemporary Christian Issues (P) course	3
				Artistic Experience (A) course	0-3
	13		(		15
Total Credits: 129					

Students must complete through the second semester of a first year language course or equivalent.

Most financial aid packages stipulate 12 credits/semester; Minnesota state grants are reduced when credit load falls below 15 credits/semester. (Interim credits may be split between fall and spring for state grant purposes only.