## B.S. in Applied Physics (Electronics Emphasis) 2019-2020: Option 1 CWILT

FIRST YEAR					
Fall	Credits	Interim	Credits	Spring	Credits
PHY 292	4	GES 160 Inquiry Seminar	3	MAT 125 Calculus 2	4
<u>&amp; PHY 292D</u>					
General Physics I and General Physics I Lab					
MAT 124MCalculus 1	4			<u>PHY 296</u>	4
				<u>&amp; PHY 297</u>	
				General Physics II and General Physics II Lab	
GES 125Introduction to the Creative Arts	4			GES 130Christianity Western Culture	4
GES 140Introduction to Wellbeing	3			BIB 101Introduction to the Bible	З
	15		3		15
SECOND YEAR					
Fall	Credits	Interim	Credits	Spring	Credits
ENR 260 Careers in Engineering and Physics Seminar	1	World Cultures (U) course		MAT 222Differential Equations	3
MAT 223Multivariable Calculus	3			PHY 312	4
				& PHY 313	
				Modern Physics and Modern Physics Lab	
COS 205 Scientific Computing	3			Science, Technology, and Society (K) course	3
PHY 302				Second Language (S) course <sup>1</sup>	
& PHY 303				Decond Language (D) course	-
Electronics and Electronics Lab					
				Orean sulfured Europieron (7) serves	0.1
Contemporary Western Life & Thought (L) course	3			Cross-cultural Experience (Z) course	0-3
THIRD YEAR	14		3		14-17
	Crodite	Intorim	Crodite	Spring	Crodite
Fall		Comparative Systems (G) course	Credits		Credits
Fall PHY 400Electricity and Magnetism	4	Comparative Systems (G) course	3	PHY 340Mechanics	Credits
Fall PHY 400Electricity and Magnetism CHE 208		Comparative Systems (G) course	3	PHY 340Mechanics ENR 352	Credit
Fall PHY 400Electricity and Magnetism CHE 208 & CHE 208D	4	Comparative Systems (G) course	3	PHY 340Mechanics           ENR 352           & ENR 353	Credit:
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General	4	Comparative Systems (G) course	3	PHY 340Mechanics         ENR 352         & ENR 353         Computer Methods in Physics and Engineering and Computer	Credits 2 2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab	4	Comparative Systems (G) course	3	PHY 340Mechanics         ENR 352         & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab	4
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General	4	Comparative Systems (G) course	3	PHY 340Mechanics     ENR 352       & ENR 353     Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab       ENR 306     ENR 306	4
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab	4	Comparative Systems (G) course	3	PHY 340Mechanics         ENR 352         & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab         ENR 306         & ENR 307	2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab	4	Comparative Systems (G) course	3	PHY 340Mechanics     ENR 352       & ENR 353     Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab       ENR 306     ENR 306	2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology	4	Comparative Systems (G) course	3	PHY 340Mechanics         ENR 352         & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab         ENR 306         & ENR 307         Digital Logic and Design and Digital Logic and Design Lab	2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology		Comparative Systems (G) course	3	PHY 340Mechanics       ENR 352         & ENR 353       Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab         ENR 306       & ENR 307         Digital Logic and Design and Digital Logic and Design Lab       PHY 365 Physics Research Seminar	2 2 2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab	3	Comparative Systems (G) course	3	PHY 340Mechanics       ENR 352         & ENR 353       Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab         ENR 306       & ENR 307         Digital Logic and Design and Digital Logic and Design Lab       PHY 365 Physics Research Seminar	2 2 2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations	4 4 3 3 4 15	Comparative Systems (G) course	3	PHY 340Mechanics       ENR 352         & ENR 353       Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab         ENR 306       & ENR 307         Digital Logic and Design and Digital Logic and Design Lab       PHY 365 Physics Research Seminar	2 2 2 1 1 3
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall	4 4 3 3 4 15 Credits	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       ENR 352         & ENR 353       Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab         ENR 306       & ENR 307         Digital Logic and Design and Digital Logic and Design Lab       PHY 365 Physics Research Seminar         Spring       Image: Spring Semigration Semigratin Semigration Semigration Semigratin Semigrati	Credits 4 4 4 4 4 1 1 3 13 6 Credits 4
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424	4 4 3 3 4 15 Credits	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       ENR 352         & ENR 353       Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab       ENR 306         & ENR 307       Digital Logic and Design and Digital Logic and Design Lab         PHY 365 Physics Research Seminar       Image: Computer Spring         PHY 332       Image: Computer Seminar	2 2 2 1 1 3
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424         & ENR 425	4 4 3 3 4 15 Credits	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       ENR 352         & ENR 353       Computer Methods in Physics and Engineering and Computer Methods in Physics and Engineering Lab         ENR 306       & ENR 307         Digital Logic and Design and Digital Logic and Design Lab         PHY 365 Physics Research Seminar         Spring         PHY 332         & PHY 333	2 2 2 1 1 3
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424         & ENR 425         Materials and Devices and Materials and Devices Lab	4 4 3 3 4 15 Credits 4	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       E         ENR 352       & ENR 353         Computer Methods in Physics and Engineering and Computer       Methods in Physics and Engineering Lab         ENR 306       & ENR 307         Digital Logic and Design and Digital Logic and Design Lab       PHY 365 Physics Research Seminar         Spring       PHY 332         & PHY 333       Optics and Optics Lab	2 2 1 13 Credits 2
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424         & ENR 425         Materials and Devices and Materials and Devices Lab         PHY 490 Research	4 4 3 3 4 4 15 Credits 4 4 3	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       E         ENR 352       & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab         ENR 306         & ENR 307         Digital Logic and Design and Digital Logic and Design Lab         PHY 365 Physics Research Seminar         Spring         PHY 332         & PHY 333         Optics and Optics Lab         Artistic Experience (A) course	2 2 2 13 Credits 2 0-3
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424         & ENR 425         Materials and Devices and Materials and Devices Lab         PHY 490 Research         PHY 320Mathematical Methods in Physics and Engineering	4 4 3 3 4 4 5 5 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       E         ENR 352       & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab         ENR 306         & ENR 307         Digital Logic and Design and Digital Logic and Design Lab         PHY 365 Physics Research Seminar         Spring         PHY 332         & PHY 333         Optics and Optics Lab         Artistic Experience (A) course         Contemporary Christian Issues (P) course	2 2 1 13 Credits 2 0-3 3
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424         & ENR 425         Materials and Devices and Materials and Devices Lab         PHY 490 Research	4 4 3 3 4 4 15 Credits 4 4 3	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       E         ENR 352       & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab         ENR 306         & ENR 307         Digital Logic and Design and Digital Logic and Design Lab         PHY 365 Physics Research Seminar         Spring         PHY 332         & PHY 333         Optics and Optics Lab         Artistic Experience (A) course         Contemporary Christian Issues (P) course         Leisure and Lifetime Sport (Q) course	2 2 1 13 Credits 2 0-3 3
Fall         PHY 400Electricity and Magnetism         CHE 208         & CHE 208D         Accelerated General Chemistry and Accelerated General         Chemistry Lab         THE 201 Christian Theology         ENR 326 Circuit Analysis Simulations         FOURTH YEAR         Fall         ENR 424         & ENR 425         Materials and Devices and Materials and Devices Lab         PHY 490 Research         PHY 320Mathematical Methods in Physics and Engineering	4 4 3 3 4 4 5 5 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7	Comparative Systems (G) course	3 3 Credits	PHY 340Mechanics       E         ENR 352       & ENR 353         Computer Methods in Physics and Engineering and Computer         Methods in Physics and Engineering Lab         ENR 306         & ENR 307         Digital Logic and Design and Digital Logic and Design Lab         PHY 365 Physics Research Seminar         Spring         PHY 332         & PHY 333         Optics and Optics Lab         Artistic Experience (A) course         Contemporary Christian Issues (P) course         Leisure and Lifetime Sport (Q) course         Elective	2 2 13 Credits 2 0-3

1. 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 falls below 15 credits/semester. (Interim may be split between fall and spring for the state grant purposes only.)

## B.S. in Applied Physics (Electronics Emphasis) 2019-2020: Option 2 Humanities

FIRST YEAR					
Fall	Credits Interim		Credits Spring		Credits
PHY 292	4	GES 147Humanities II: Renaissance and Reformation	4	PHY 296	4
<u>&amp; PHY 292D</u>				<u>&amp; PHY 297</u>	
General Physics I and General Physics I Lab				General Physics II and General Physics II Lab	
MAT 124MCalculus 1	4			MAT 125 Calculus 2	4
GES 145Humanities I: Greco-Roman through Middle Ages	4			GES 244Humanities III: European Enlightenment and American	4
0 0				Culture to 1877	
GES 140Introduction to Wellbeing	3			BIB 101Introduction to the Bible	3
	15		4		15
SECOND YEAR					
Fall	Credits	Interim	Credits	Spring	Credits
ENR 260 Careers in Engineering and Physics Seminar		World Cultures (U) course		MAT 222Differential Equations	3
MAT 223Multivariable Calculus	3		0	PHY 312	4
MAT 223Multivariable Calculus				& PHY 313	-
				Modern Physics and Modern Physics Lab	
CEC 24CU une article IV/. Mandaux and Contemporary Mantaux Culture	4				3
GES 246Humanities IV: Modern and Contemporary Western Culture	4			COS 205 Scientific Computing	3
DUW 202	Δ			Casend Language (C) assure 1	4
PHY 302	4			Second Language (S) course <sup>1</sup>	4
& PHY 303					
Electronics and Electronics Lab					0.0
				Cross-cultural Experience (Z) course	0-3
	12		3		14-17
THIRD YEAR			1		
Fall		Interim		Spring	Credits
PHY 400Electricity and Magnetism	4	Comparative Systems (G) course	3	PHY 340Mechanics	4
<u>CHE 208</u>	4			ENR 352	4
<u>&amp; CHE 208D</u>				<u>&amp; ENR 353</u>	
Accelerated General Chemistry and Accelerated General				Computer Methods in Physics and Engineering and Computer	
Chemistry Lab				Methods in Physics and Engineering Lab	
ENR 326 Circuit Analysis Simulations	4			ENR 306	4
				<u>&amp; ENR 307</u>	
				Digital Logic and Design and Digital Logic and Design Lab	
Science, Technology, and Society (K) course	3			PHY 365 Physics Research Seminar	1
	15		3		13
FOURTH YEAR					
Fall	Credits	Interim	Credits	Spring	Credits
ENR 424	4	Interim Off		PHY 332	4
& ENR 425				& PHY 333	
Materials and Devices and Materials and Devices Lab				Optics and Optics Lab	
PHY 490 Research	3			Artistic Experience (A) course	0-3
PHY 320Mathematical Methods in Physics and Engineering	4			Contemporary Christian Issues (P) course	3
Interpreting Biblical Themes (J) course	3			Leisure and Lifetime Sport (Q) course	1
				Electives	6
	14		0		14-17
	17		· · · · ·		1.4 11

1. 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 falls below 15 credits/semester. (Interim may be split between fall and spring for the state grant purposes only.)