

# B.S. Computer Engineering – Electronic Systems Track

**Academic Pathway** 

2017-2018

#### **Degree Requirements**

#### **Curriculum Notes**

Total Credits: 125 Major Credits: 97 Minimum Cumulative GPA: 2.0

Minimum Major GPA: 2.0

- $\bullet \qquad \text{This plan assumes no AP/IB/CLEP or transfer credit} \ \underline{\text{and}} \ \text{foreign language proficiency up to the 201 level}$
- This major can provide all upper-level (300 or 400) credits toward the 45-total needed to earn a UMBC degree.
- Gateway information http://advising.coeit.umbc.edu/gateway-information/cmpe-gateway/
- Unless designated, electives can be taken within or outside of the major

For complete information on degree requirements, reference the Undergraduate Course Catalog (catalog.umbc.edu). Your personal program of study may vary.

	FALL SEMESTER		SPRING SEMESTER	
	Course	Credits	Course	Credits
	CMSC 201 Computer Science I for Majors	4	CMSC 202 Computer Science II for Majors	4
Freshman	PHYS 121 Introductory Physics I	4	MATH 152 Calculus & Analytic Geometry II	4
	MATH 151 (MATH GEP) Calculus & Analytic Geometry I	4	CMPE 212 Principles of Digital Design	4
es	ENGL 100/110	3	ENES 101 Introduction to Engineering	3
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	Total:	15	Total:	15
	Course	Credits	Course	Credits
au	AH GEP	3	CMPE 306 Introductory Circuit Theory (Lab)	4
orc	AH GEP	3	MATH 225 Introduction to Differential Equations	3
Sophomore	MATH 251 Multivariable Calculus	4	CMPE 310 Systems Design & Programming	4
þ	PHYS 122 Introductory Physics II	4	CMSC 341 Data Structures	3
So	CMSC 203 Discrete Structures	3		
	Total:	17	Total:	14
	Course	Credits	Course	Credits
_	Course	Credits	Course	Credits
nior	Course AH GEP	Credits 3	Course  CMPE 320 Probability, Statistics & Random Processes	Credits 3
Junior	Course  AH GEP  Science Elective (Major)	Credits 3 4	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems	Credits 3 3
Junior	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits	3 4 4	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP	3 3 3 2 2 3
Junior	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra	Credits  3  4  4  3  3  3	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI SS GEP  Physical Education (not included in the total credits for graduation)	Credits  3  3  3  2  3  1.5
Junior	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:	Credits  3  4  4  3  3  17	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:	Credits  3  3  3  2  3  1.5  15.5
Junior	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course	Credits  3  4  4  3  3  3	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:  Course	Credits  3  3  3  2  3  1.5
Junior	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course  CMPE 315 Principles of VLSI Design	Credits  3  4  4  3  3  17	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:	Credits  3  3  3  2  3  1.5  15.5
_	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course	Credits   3   4   4   3   3   3     17     Credits	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:  Course	Credits  3  3  3  2  3  1.5  15.5  Credits
_	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course  CMPE 315 Principles of VLSI Design	Credits  3  4  4  3  3  17  Credits	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:  Course  CMPE 451 Capstone II	Credits  3  3  3  2  3  1.5  15.5  Credits  2
Senior	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course  CMPE 315 Principles of VLSI Design  CMSC 411 Computer Architecture	Credits  3  4  4  3  3  17  Credits  4  3	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI SS GEP  Physical Education (not included in the total credits for graduation)  Total:  Course  CMPE 451 Capstone II  CMPE Elective List A	Credits  3  3  3  2  3  1.5  15.5  Credits  2  3
_	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course  CMPE 315 Principles of VLSI Design  CMSC 411 Computer Architecture  CMPE 450 Capstone I  CMPE Elective List A  SS GEP	Credits  3  4  4  3  3  17  Credits  4  3  2  3  3	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:  Course  CMPE 451 Capstone II  CMPE Elective List A  CMPE Elective List A or B  Foreign Language 201  C GEP	Credits  3  3  3  2  3  1.5  15.5  Credits  2  3  4  3
_	Course  AH GEP  Science Elective (Major)  CMPE 314 Principles of Electronic Circuits  CMPE 311 C Programming & Embedded Systems  MATH 221 Linear Algebra  Total:  Course  CMPE 315 Principles of VLSI Design  CMSC 411 Computer Architecture  CMPE 450 Capstone I  CMPE Elective List A	Credits  3  4  4  3  3  17  Credits  4  3  2  3	Course  CMPE 320 Probability, Statistics & Random Processes  CMSC 421 Principles of Operating Systems  CMPE 415 FPGA Arch.&Applications  CMPE 349 Intro. to Prof. Practice, WI  SS GEP  Physical Education (not included in the total credits for graduation)  Total:  Course  CMPE 451 Capstone II  CMPE Elective List A  CMPE Elective List A or B  Foreign Language 201	Credits  3  3  3  2  3  1.5  15.5  Credits  2  3  4



### B.S. Computer Engineering -**Communications Track**

**Academic Pathway** 

2017-2018

#### **Degree Requirements**

**Total Credits: 125** Major Credits: 97

- Minimum Cumulative GPA: 2.0 Minimum Major GPA: 2.0
- This plan assumes no AP/IB/CLEP or transfer credit and foreign language proficiency up to the 201 level
- This major can provide all upper-level (300 or 400) credits toward the 45-total needed to earn a UMBC degree.
- Gateway information http://advising.coeit.umbc.edu/gateway-information/cmpe-gateway/
- Unless designated, electives can be taken within or outside of the major

For complete information on degree requirements, reference the Undergraduate Course Catalog (catalog.umbc.edu). Your personal program of study may vary.

**Curriculum Notes** 

	FALL SEMESTER		SPRING SEMESTER	
	Course	Credits	Course	Credits
Freshman	CMSC 201 Computer Science I for Majors	4	CMSC 202 Computer Science II	4
	MATH 151 Calculus & Analytic Geometry I	4	MATH 152 Calculus & Analytic Geometry II	4
	PHYS 121 Introductory Physics I	4	CMPE 212 Prin. Of Digital Design	4
esł	ENGL 100/110 Composition	3	ENES 101 Introduction to Engineering	3
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	Total:	15	Total:	15
	Course	Credits	Course	Credits
(I)	AH GEP	3	CMPE 306 Basic Circuit Theory (Lab)	4
ore	AH GEP	3	MATH 225 Introduction to Differential Equations	3
Sophomore	MATH 251 Multivariable Calculus	4	CMPE 310 Systems Design and Prog.	4
pho	PHYS 122 Introductory Physics II	4	CMSC 341 Data Structures	3
So	CMSC 203 Discrete Structures	3		
	Total:	17	Total:	14
	Course	Credits	Course	Credits
	Science Elective (Major)	4	AH GEP	3
٠	MATH 221 Linear Algebra	3	C GEP	3
lunior	CMPE 314 Electronic Circuits	4	CMPE 320 Prob. & Random Processes	3
In	CMPE 311 C Prog. & Embedded Systems	3	CMPE 330 Wave and Signal Transmission	3
	CMPE 323 Signals and Systems	4	CMPE 349 Intro. to Prof. Practice, WI	3
			Physical Education (not included in the total credits for graduation)	1.5
	Total:	18	Total:	16.5
	Course	Credits	Course	Credits
	SS GEP	3	SS GEP	3
_	SS GEP	3	Language 201 GEP	4
nior	CMSC 411 Computer Architecture	3	CMSC421 Operating Systems	3
Senior	CMSC 411 Computer Architecture CMPE 450 Capstone I	3 2	CMSC421 Operating Systems CMPE 451 Capstone II	3 2
Senior	CMSC 411 Computer Architecture CMPE 450 Capstone I CMPE Elective List A	3 2 3	CMSC421 Operating Systems CMPE 451 Capstone II CMPE Elective List A/B	3 2 3
Senior	CMSC 411 Computer Architecture CMPE 450 Capstone I	3 2	CMSC421 Operating Systems CMPE 451 Capstone II	3 2



## B.S. Computer Engineering – Cybersecurity Track

**Academic Pathway** 

2017-2018

#### **Degree Requirements**

### Curriculum Notes

Total Credits: 125 Major Credits: 97 Minimum Cumulative GPA: 2.0

Minimum Major GPA: 2.0

- This plan assumes no AP/IB/CLEP or transfer credit <u>and</u> foreign language proficiency up to the 201 level
- This major can provide all upper-level (300 or 400) credits toward the 45-total needed to earn a UMBC degree.
- Gateway information <a href="http://advising.coeit.umbc.edu/gateway-information/cmpe-gateway/">http://advising.coeit.umbc.edu/gateway-information/cmpe-gateway/</a>
- Unless designated, electives can be taken within or outside of the major

For complete information on degree requirements, reference the Undergraduate Course Catalog (catalog.umbc.edu). Your personal program of study may vary.

	FALL SEMESTER		SPRING SEMESTER	
	Course	Credits	Course	Credits
Freshman	CMSC 201 Computer Science I for Majors	4	CMSC 202 Computer Science II for Majors	4
	PHYS 121 Introductory Physics I	4	MATH 152 Calculus & Analytic Geometry II	4
	MATH 151 (MATH GEP) Calculus & Analytic Geometry I	4	CMPE 212 Principles of Digital Design	4
esk	ENGL 100/110 Composition	3	ENES 101 Introduction to Engineering	3
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	Total:	15	Total:	15
	Course	Credits	Course	Credits
a)	AH GEP	3	CMPE 306 Introductory Circuit Theory (Lab)	4
ore	AH GEP	3	MATH 225 Introduction to Differential Equations	3
Sophomore	MATH 251 Multivariable Calculus	4	CMPE 310 Systems Design & Programming	4
pho	PHYS 122 Introductory Physics II	4	CMSC 341 Data Structures	3
Sol	CMSC 203 Discrete Structures	3		
	Total:	17	Total:	14
	Course	Credits	Course	Credits
	AH GEP	3	CMPE 320 Probability, Statistics & Random Processes	3
_	Science Elective (Major)	4	CMSC 421 Principles of Operating Systems	3
Junior	CMPE 314 Principles of Electronic Circuits	4	CMPE 415 FPGA Arch & Applications	3
Jul	CMPE 311 C Programming & Embedded Systems	3	CMPE 349 Intro. to Prof. Practice, WI	2
	MATH 221 Linear Algebra	3	SS GEP	3
			Physical Education (not included in the total credits for graduation)	1.5
	Total:	17	Total:	15.5
	Course	Credits	Course	Credits
	CMPE 315 Principles of VLSI Design	4	CMPE 451 Capstone II	2
	CMSC 411 Computer Architecture	3	Cyber Elective List C –See advisor	3
Senior	CMPE 450 Capstone I	2	Foreign Language 201	4
Sel	CMSC 426 Principles of Computer Security	3	C GEP	3
	SS GEP	3	CMSC 481 Computer Networks	3
	SS GEP	3	Physical Education (not included in the total credits for graduation)	1.5
	Total:	18	Total:	16.5