

B. Computer Science Courses

Number	Title	Credits	Completed
600.107	Introduction to Programming in Java OR	3	
600.109	Introduction to Programming in C/C++		
600.118 600.121	Intermediate Programming in C++ OR Intermediate Java Programming	3	
600.221	Unix System Programming	3	
600.226	Data Structures	3	
600.271	Automata and Computation Theory	3	
600.303	High Performance Computing	3	
600.315	Data Base Systems	3	
600.318	Operating Systems	3	
600.321	Object-Oriented Systems	3	
600.333	Computer Systems Fundamentals	3	
600.334	Computer System Architecture	3	
600.337	Distributed Systems	3	
600.344	Computer Network Fundamentals	3	
600.363	Introduction to Algorithms	3	
600.410	Sensory Engineering	3	
600.415	Database Systems	3	
600.434	Computer System Architecture	3	
600.447	Distributed Computing	3	
600.448	Distributed Systems Programming	3	
600.465	Introduction to Natural Language Processing	3	
600.467	Fault-Tolerance and Reliable Systems	3	
I.B. Total Credits (at least 15)			

C. Advanced Laboratory and Design Intensive Courses in EE and CS

Complete at least six (6) credits from the following advanced laboratory, design intensive or senior design project courses.

Number	Title	Credits	Completed
520.424	FPGA Synthesis Laboratory	3	
520.425	FPGA Projects Laboratory	3	
520.448	Electronics Design Laboratory	3	
520.450	Advanced Microprocessor Laboratory	3	
520.454	Control Systems Design	3	
520.483	Bio-Photonics Laboratory	3	
520.484	Optoelectronics Laboratory	3	
520.487	Introduction to Microelectromechanical Systems (MEMS)	3	
520.490	Analog and Digital VLSI Systems and Architecture	3	
520.491	CAD of Digital VLSI Systems	3	
520.492	Mixed Signal VLSI	3	
520.496/497	VLSI Design and Prototyping Workshop	3	
520.495	Microfabrication Laboratory	3	
520.498	Senior Design Project I	3	
520.499	Senior Design Project II	3	
600.437	Distributed Systems	3	
600.445	Computer Integrated Surgery I Distributed Systems	3	
600.446	Computer Integrated Surgery II	3	
600.449	Internet Protocols	3	
600.457	Computer Graphics	3	
600.461	Computer Vision	3	
I.C. Total Credits (at least 6)			
I. Total Credits I.A + I.B + I.C (at least 42)			

II. ENGINEERING COURSES FROM OTHER DEPARTMENTS

Complete at least six (6) credits of engineering courses from School of Engineering departments other than CS, ECE, Applied Mathematics and Statistics, or General Engineering. Examples include Environmental Engineering, robotics courses in Mechanical Engineering, and Biomedical Engineering courses. Also complete enough of the listed non-ECE/CS advanced design labs so that the total of I.C and II.B is at least 12 credits. Courses in category II may **not** be taken Pass/Fail.

Number	Title	Credits	Completed
II.A. Credit subtotal			

B. Other Advanced Laboratory and Design Intensive Courses (non-EE and non-CS)

Number	Title	Credits	Completed
530.420	Robot Sensors and Actuators	3	
530.421	Mechatronics	3	
530.487	Introduction to MEMS	3	
580.471	Biomedical Instrumentation	4	
II.B. Credit subtotal			

II. Total Credits II.A + II.B (at least 6)			
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Adv. Lab Credits I.C + II.B (at least 12)			
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III. MATHEMATICS REQUIREMENTS

Complete at least twenty-four (24) credits of mathematics courses taken from the Mathematics Department or the Applied Mathematics and Statistics Department. **Courses in BOLD are required.** Courses in category III may **not** be taken Pass/Fail.

Number	Title	Credits	Completed
110.108	Calculus I	4	
110.109	Calculus II	4	
110.202	Calculus III	4	
110.201 550.291	Linear Algebra OR Linear Algebra and Differential Equations	4	
550.171	Discrete Mathematics	4	
550.310/311 550.420	Probability and Statistics OR Introduction to Probability	4	
110.302	Differential Equations	4	
III. Total Credits (at least 24)			

IV. BASIC SCIENCE REQUIREMENTS

Complete at least sixteen (16) credits of basic science courses (physics, chemistry, biology, earth and planetary sciences). The recommended sequence is listed here. **Courses in Bold are required.** Courses in category IV may **not** be taken Pass/Fail.

Number	Title	Credits	Completed
171.101	General Physics I	4	
173.111	General Physics Laboratory I	1	
171.102	General Physics II	4	
173.112	General Physics Laboratory II	1	
030.101	Introductory Chemistry	3	
IV. Total Credits (at least 16)			

V. HUMANITIES AND SOCIAL SCIENCES REQUIREMENTS

Complete at least six (6), 3-credit courses in humanities and social sciences (courses coded H or S). Courses must reflect both depth and breadth, with at least three (3) courses in a concentration, one of which is an advanced course (300 level or above). Both semesters of the fundamentals of a language may be counted here.

Number	Title	Credits	Completed
V. Total Credits (at least 6, 3-credit courses)			

VI. ELECTIVES

Complete additional courses to make a total of at least one hundred and twenty-six (126) credits.

Number	Title	Credits	Completed
VI. Total Credits			

Total JHU Credits I+II+III+IV+V+VI (at least 126)		
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ADDITIONAL REQUIREMENTS

WRITING INTENSIVE COURSES: Two (2) writing intensive courses (courses designated "W") must appear in categories I-VI above. The writing intensive courses may **not** be taken Pass/Fail and require a C- or better grade. Enter them again here.

Number	Title

Note: Students are strongly discouraged from taking technical courses on a Pass/Fail basis. Technical courses taken on a Pass/Fail basis may only be counted in the elective category (VI) towards graduation requirements.