

Computer Engineering

2023-2024 Bachelor of Science Requirements – 133 Credit Hours

Freshman Year

Fall Semester		Credits	Spring Semester		Credits
XXXX 193	First Year Seminar ¹	3	CPSC 121	Computer Science I	3
CHEM 101	General Chemistry I	3	MATH 258	Calculus & Analytical Geometry II	4
CHEM 101L	General Chemistry I Lab	1	PHYS 121	Physics I	4
MATH 157	Calculus & Analytical Geometry I	4	PHYS 121L	Physics I Lab	1
PHIL 101	Reasoning	3	PHIL 201	Human Nature	3
COMM 100	Communication & Speech	3	ENGL 101	Writing (WE)	3
Total Credits		17	Total Credits		18

Sophomore Year

Fall Semester		Credits	Spring Semester		Credits
CPEN 230	Introduction to Digital Logic	3	CPEN 231	Embedded Computer Systems	3
CPEN 230L	Introduction to Digital Logic Lab	1	CPEN 231L	Embedded Computer Systems Lab	1
CPSC 122	Computer Science II	3	CPEN 247	Network Interfacing & Sockets	3
EENG 201	Circuit Analysis I	3	EENG 202	Circuit Analysis II	3
EENG 201L	Circuit Analysis I Lab	1	MATH 259	Calculus & Analytical Geometry III	4
MATH 231	Discrete Structures	3	XXXX 1 st	Broadening CORE Requirement ²	3
RELI XXX	Christianity & Catholic Traditions ¹	3	Total Credits		17
Total Credits		17			

Junior Year

Fall Semester		Credits	Spring Semester		Credits
CPSC 223	Abstract Data Structures	3	CPEN 342	Cyber-Physical Systems	3
EENG 303	Electronics Design I	3	CPEN 342L	Cyber-Physical Systems Lab	1
EENG 303L	Electronics Design I Lab	1	EENG 304	Electronics Design II	3
EENG 311	Signals & Systems I	4	EENG 304L	Electronics Design II Lab	1
MATH 260	Ordinary Differential Equations	3	EENG 322	Signals & Systems II	3
PHIL 301	Ethics or RELI Ethics ¹	3	RELI XXX	World/Comparative Religion (GS) ¹	3
Total Credits		17	XXXX 432	CORE Integration Seminar ¹	3
			Total Credits		17

Senior Year

Fall Semester		Credits	Spring Semester		Credits
ENSC 491	Senior Design Project I	2	ENSC 492	Senior Design Project II (WE, FA)	3
CPEN 430	Digital System Design	3	CPEN 431	Comp Hardware Design & Arch	3
CPEN 430L	Digital System Design Lab	1	XXXX 3 rd	Technical Elective ³	3
CPEN 442	Introduction to Robotics	3	XXXX 4 th	Technical Elective ³	3
XXXX 1 st	Technical Elective ³	3	ENSC 400	Fundamentals of Eng Exam	0
XXXX 2 nd	Technical Elective ³	3	XXXX 2 nd	Broadening CORE Requirement ²	3
Total Credits		15	Total Credits		15

¹ Refer to Gonzaga CORE requirements for options.

² Select two broadening courses from History, Literature, or Social & Behavioral Science, with no more than one course per topic.

³ See back for approved technical electives.

Approved Technical Elective Courses for Computer Engineering

Additional Courses may be offered; please see your advisor.

Only 300- and 400-level courses that are not required in the degree plan can be used to satisfy the technical elective requirements. The student's advisor must approve the selections.

Course	Title	Credits	Prerequisite (Co-requisite)
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Computer Engineering

CPEN 435	Parallel and Cloud Computing	3	CPEN 231 <i>or</i> CPSC 260
CPEN 436	Machine Learning in Biomedicine	3	CPSC 121
CPEN 443	Autonomous Mobile Robots	3	CPEN 231 <i>or</i> CPSC 260

Computer Science (maximum of two)

CPSC 321	Database Management Systems	3	CPSC 122
CPSC 348	Computer Security	3	CPSC 223 <i>or</i> CPEN 231
CPSC 346	Operating Systems	3	CPSC 223 <i>or</i> CPEN 231
CPSC 450	Design & Analysis Com Algorithms	3	CPSC 223 and MATH 231

Electrical Engineering (consult advisor)

EENG 340/L	Intro to Electric Power Engineering	4	EENG 202
EENG 401	Low Power Bioelectronics	3	EENG 304
EENG 403	Passive and Active Filter Design	3	EENG 311
EENG 406	VLSI Circuits and Systems	3	CPEN 231 and EENG 304
EENG 410	Information Theory and Coding	3	CPSC 121
EENG 411	Introduction to Control Systems	3	EENG 201
EENG 412	Digital Control Systems	3	EENG 411
EENG 421	Intro to Communication Systems	3	EENG 311
EENG 424	Digital Signal Processing	3	EENG 311