

A.S. Engineering

ADVANCE Program Milestones

ADVANCE Milestone Requirements: All ADVANCE students must adhere to the following requirements. For Milestones #1-#3, failure to meet these milestones will prevent a student from matriculating to Mason and/or result in termination from ADVANCE. For Milestones #4-#7, failure to meet these milestones may delay matriculation to Mason.

1. Students must graduate with the NOVA degree aligned with their ADVANCE academic pathway within 4 years of being admitted into ADVANCE. Students are highly encouraged to be continuously enrolled at NOVA/Mason to support progress towards degree completion.
2. Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to Mason.
3. Students who wish to enroll at Mason for the fall semester must apply for NOVA spring graduation by March 1 or summer graduation by June 1. Students who wish to enroll at Mason for the spring semester must apply for NOVA fall graduation by October 1.
4. Students must begin developmental coursework no later than the first semester in ADVANCE at NOVA.
5. Students must take first college-level MTH course and ENG 111 in the semester immediately following the completion of any MDE or EDE courses (excluding summer).
6. In the first 30 credits, students must complete ENG 111 and ENG 112 with a C or better.
7. Students must complete a college level math course with a C or better no later than one semester before NOVA graduation. Refer to your pathway to select the appropriate MTH course(s).

ADVANCE Program-Specific Requirements: All ADVANCE students in this degree program must adhere to the following requirements prior to matriculation. Failure to do so may prevent a student from matriculating into this program at Mason or progressing in coursework at Mason.

1. Engineering students must begin the calculus sequence within the first 30 credits and complete Calculus I and II with a B or better.

	NOVA DEGREE REQUIREMENT	Credits	Courses	MASON TRANSFER EQUIVALENT	MASON CORE/DEGREE EQUIVALENT
1	SDV Course	1	SDV 100 College Success Skills OR SDV 101 Orientation to Engineering	UNIV 100	General Elective
2	ENG 111	3	ENG 111 College Composition I ¹	ENGH XXX	General Elective
3	MTH 263	4	MTH 263 Calculus I	MATH 113	Major & Quantitative
4	Technical Elective #1	3	CSC 221 Introduction to Problem Solving and Programming ²	CS 108	Prerequisite & Info Tech
5	ECO 202	3	ECO 202 Principles of Microeconomics	ECON 103	Major & Soc/Behav
6	EGR 121	2	EGR 121 Foundations of Engineering	ENGR 107	Major
7	ENG 112	3	ENG 112 College Composition II ¹	ENGH 101	Written Comm
8	MTH 264	4	MTH 264 Calculus II	MATH 114	Major
9	PHY 241 Required (NOVA Catalog: Lab Science #1)	4	PHY 241 University Physics I	PHYS 160-161	Major & Nat Science
10	Technical Elective #2	4	CSC 222 Object-Oriented Programming	CS 112	Major
11	Humanities/Fine Arts #1	3	ART 100 Art Appreciation OR ART 101 History of Art: Prehistoric to Gothic OR ART 102 History of Art: Renaissance to Modern OR CST 130 Introduction to Theatre OR CST 151 Film Appreciation I OR MUS 121 Music in Society	ARTH 101 ARTH 200 ARTH 201 THR 101 ENGH L372 MUSI 101	Arts
12	PHY 242 Required (NOVA Catalog: Lab Science #2)	4	PHY 242 University Physics II	PHYS 260-261	Major & Nat Science
13	Technical Elective #3	4	EGR 271 Electric Circuits I ^{2,3}	ECE 285	Major
14	Technical Elective #4	4	CSC 223 Data Structures and Analysis of Algorithms	CS 211	Major
15	MTH 267	3	MTH 267 Differential Equations	MATH 214	Major

16	HIS Course	3	HIS 101 Western Civilizations Pre-1600 CE OR HIS 102 Western Civilizations Post-1600 CE OR HIS 112 World Civilizations Post-1500 CE (<i>recommended</i>)	HIST 101T HIST 102T HIST 125	Global History
17	Humanities/Fine Arts #2	3	ENG 225 Reading Literature: Culture and Ideas OR ENG 245 British Literature OR ENG 246 American Literature OR ENG 255 World Literature OR ENG 258 African American Literature OR ENG 275 Women in Literature OR Any 200-Level ENG Literature course ⁴	ENGH 202 or FRLN L330 (ENG 255 only)	Literature
18	MTH 265	4	MTH 265 Calculus III	MATH 213	Major
19	Technical Elective #5	4	EGR 272 Electric Circuits II ³	ECE 286	Major
20	Technical Elective #6	4	EGR 270 Fundamentals of Computer Engineering ^{3,5}	ECE 232/231	Major

A. S. ENGINEERING DEGREE

TOTAL 67

For academic policies and procedures, please see NOVA catalog - <http://www.nvcc.edu/catalog/index.html>

B.S. Computer Engineering

Optional Concentrations: Controls and Robotics, Embedded Systems, Computer Networks, Internet of Things, Hardware and System Security, Power and Energy Systems, Space-based Systems; Semiconductor Engineering
Concentration requirements may also meet some or all of the Technical Elective requirements.

	MASON DEGREE REQUIREMENT	Credits	Course	MASON CORE/DEGREE EQUIVALENT
21	Computer Science	3	ECE 240 C Programming for Engineers	Major
22	Gen Ed: Oral Communication and Major Requirement	3	COMM 100 Public Speaking OR COMM 101 Fundamentals of Communication	Major & Oral Com
23	Electrical Engineering	0-3	ECE 101 Intro to Electrical and Computer Engineering ² (<i>This course can be waived if students have completed EGR 271 prior to transferring. See: Advisor</i>)	Major
24	Mathematics and Statistics	3	MATH 203 Linear Algebra	Major
25	Computer Engineering	3	ECE 201 Intro to Signals and Systems	Major
26	Gen Ed: Written Communication (Upper Level)	3	ENGH 302 Advanced Composition (Natural Science or Multidisciplinary Section)	Written Comm
27	Mathematics and Statistics	3	MATH 125 Discrete Mathematics I	Major
28	Computer Engineering	3	ECE 350 Embedded Systems and Hardware Interfaces	Major
29	Computer Engineering	3	ECE 445 Computer Organization	Major
30	Computer Engineering	3	ECE 321 Continuous Time-Signal and Systems	Major
31	Computer Science	3	ECE 340 Data Structures and Systems Programming in C	Major
32	Mathematics and Statistics	3	STAT 346 Probability for Engineers	Major
33	Computer Science	3	CS 471 Operating Systems	Major
34	Computer Engineering	4	ECE 333 Linear Electronics I AND ECE 334 Linear Electronics Lab I	Major
35	Computer Engineering	4	ECE 448 FPGA Design with VHDL	Major
36	Technical Electives	3	Technical Elective ⁶	Major
37	Computer Engineering	4	ECE 447 Microcontrollers	Major
38	Computer Engineering	1	ECE 391 Professional Development for Engineers	Major
39	Gen Ed: Apex/Computer Engineering	1	ECE 492 Senior Advanced Design Project I	Apex
40	Technical Electives	3	Technical Elective ⁶	Major

41	Technical Electives	3	Technical Elective ⁶	Major
42	Gen Ed: Apex/Computer Engineering	2	ECE 493 Senior Design Project II	Apex
43	Computer Engineering	3	ECE 465 Computer Networking Protocols	Major

B.S. COMPUTER ENGINEERING

131-134

DEGREE TOTAL

Important Academic Information:

¹Students who complete ENG 111 after Spring 2024 will earn ENGH elective for ENG 111 and ENGH 101 for ENG 112.

²Students must complete EGR 271 and CSC 221 prior to transfer to receive of a waiver of ECE 101. See Mason advisor post-transfer for more information.

³Labs must be in person. See ECE advisor for more information.

⁴200-level ENG literature classes include: ENG 225, ENG 230, ENG 236, ENG 237, ENG 245, ENG 246, ENG 250, ENG 255, ENG 256, ENG 257, ENG 258, ENG 271, ENG 275, and ENG 279.

⁵Lab must include the use of VHDL. See ECE advisor for more information.

⁶For approved Technical Electives, please visit - <https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/computer-engineering-bs/#requirementstext> . Students pursuing an Accelerated Master's program should consult with their Mason academic advisor when selecting technical electives.

General Education Waiver Policy and Guidance:

- Students who complete a VCCS transfer associate degree (AS, AA, or AFA) will receive a waiver of the Foundation and Exploration (lower division) Mason Core general education categories, which can be found here: <https://catalog.gmu.edu/mason-core/> . To be eligible for the waiver, the students must provide the Mason Office of Admissions with a final, official transcript reflecting the degree conferral date. As a prerequisite for ENGH 302, ENGH 101 is not waived. Students must complete ENGH 100 or ENGH 101, or an equivalent, with a C or higher.

- When a course fulfills a Mason Core requirement **and** a major or college requirement (e.g. Major & Quant), students must complete the course listed on the pathway to fulfill the major/college requirement. Courses that fulfill only Mason Core Foundation and Exploration categories are recommendations. In most pathways, ADVANCE students must complete a Quantitative Reasoning course to matriculate through ADVANCE.

- ADVANCE students must complete the associate degree indicated on their pathway (see the ADVANCE Program Milestones listed above). Students who withdraw from ADVANCE and transfer without the associate degree or UCGS are required to complete each Mason Core general education category.

Additional General Notes & Resources:

- For more information about Accelerated Master's program options, visit: <https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/computer-engineering-bs/#acceleratedmasterstext> . Students interested in an Accelerated Master's should consult their Mason academic advisor in their first term after matriculation regarding program benefits, admission criteria, and application process. For more information, contact: eeugrad@gmu.edu

- For academic policies and procedures, please see Mason catalog - <https://catalog.gmu.edu/policies/>

- Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.