ADVANCE
A NOVA | GEORGE MASON PARTNERSHIP

NOVA Northern Virginia Community College | GEORGE MASON UNIVERSITY

A.S. Engineering /
B.S. Cyber Security Engineering Pathway
2026-2027

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 George Mason University and/or result in termination from ADVANCE. For Milestones #4-#7, failure to meet these milestones may delay matriculation to George Mason.

1. Students must graduate with the NOVA degree aligned with their ADVANCE academic pathway within 4 years of being admitted into ADVANCE. Students must ensure they are enrolled in the matching degree.

2. Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to George Mason.

3. Students who wish to enroll at George 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 George 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 Geoge Mason or progressing in coursework at George 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	GEORGE MASON TRANSFER EQUIVALENT	GEORGE 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	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	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	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**	3	CYSE 101 Intro to Cyber Security Engineering	CYSE 101	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	CSC 222 Object-Oriented Programming	CS 112	Major & Info Tech
14	**MTH 265**	4	MTH 265 Calculus III	MATH 213	Major

15	**Technical Elective #4**	3	MTH 266 Linear Algebra	MATH 203	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 ***(recommended)***	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[1]	ENGH 202 or FRLN L330 (ENG 255 only	Literature
18	**MTH 267**	3	MTH 267 Differential Equations	MATH 214	Major
19	**Technical Elective #5**	3	SYST 205 Systems Engineering Principles	SYST 205	Major
20	**Technical Elective #6**	3	MTH 288 Discrete Mathematics	MATH 125	Major
21	**Technical Elective #7**	4	EGR 270 Fundamentals of Computer Engineering[2]	ECE 231-232	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. Cyber Security Engineering

	GEORGE MASON DEGREE REQUIREMENT	Credits	Course	GEORGE MASON CORE/DEGREE EQUIVALENT
22	**Mathematics and Statistics**	3	STAT 344 Probability and Statistics for Engineers	Major
23	**Gen Ed: Oral Communication and Major Requirement**	3	COMM 100 Public Speaking **OR** COMM 101 Fundamentals of Communication	Major & Oral Comm
24	**Computing**	3	CS 222 Computer Programming for Engineers	Major
25	**Cyber Security Engineering Core**	3	CYSE 211 Operating Systems & Lab	Major
26	**Computing**	4	SYST 230 Object-Oriented Modeling and Design	Major
27	**Cyber Security Engineering Core**	3	CYSE 230 Computer Networking	Major
28	**Cyber Security Engineering Core**	3	CYSE 341 Machine Learning Applied to Cyber Security Engineering	Major
29	**Gen Ed: Written Communication (Upper-level)**	3	ENGH 302 Advanced Composition (Natural Science Section)	Written Comm
30	**Cyber Security Engineering Core**	3	CYSE 425 Secure RF Communications[3]	Major
31	**Cyber Security Engineering Core**	3	CYSE 411 Secure Software Engineering	Major
32	**Cyber Security Engineering Core**	3	CYSE 421 Industrial Control Systems (ICS) Security[3]	Major
33	**Cyber Security Engineering Core**	3	CYSE 430 Critical Infrastructure Protection	Major
34	**Cyber Security Engineering Core**	3	CYSE 304 Cyber Security in Logic Design and Digital Systems	Major
35	**Cyber Security Engineering Core**	4	CYSE 451 System Security and Resilience	Major
36	**Cyber Security Engineering Core**	3	CYSE 476 Cryptography Fundamentals	Major
37	**Cyber Security Engineering Core - Technical Electives**	3	Technical Elective[4]	Major
38	**Cyber Security Engineering Core**	3	CYSE 492 Senior Advance Design Project I[3]	Major
39	**Cyber Security Engineering Core**	3	CYSE 491 Engineering Senior Seminar[3]	Writing Intensive
40	**Gen Ed: Apex/Cyber Security Engineering Core**	3	CYSE 493 Senior Advanced Design Project II[3]	Apex

41	**Cyber Security Engineering Core - Technical Electives**	3	Technical Elective[4]	Major
42	**Cyber Security Engineering Core - Technical Electives**	3	Technical Elective[4]	Major
B.S. CYBER SECURITY ENGINEERING DEGREE TOTAL	**132**			

Denotes a course that must be taken at George Mason University while attending NOVA. Failure to complete your co-enrollment course(s) while attending NOVA can significantly affect your timeline for George Mason graduation. Please see your ADVANCE Coach for more information and to enroll.

Important Academic Information:

[1]200-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.

[2]ECE 231 + ECE 232 will fulfill the ECE 301 requirement in Cybersecurity Engineering, BS for transfer students only.

[3]Some CYSE courses are only offered once a year, see George Mason academic advisor to create an academic plan.

[4]For approved Technical Elective courses, please visit - https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/cyber-security-engineering/cyber-security-engineering-bs/#requirementstext

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 George 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 academic policies and procedures, please see George 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.