ADVANCE
A NOVA | MASON PARTNERSHIP

A.S. Engineering /
B.S. Cybersecurity Engineering Pathway
2022-2023

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 complete their NOVA degree 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 Mason Core Quantitative Reasoning course equivalent 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	ENGH 101	Written Comm
3	**MTH 263**	4	MTH 263 Calculus I	MATH 113	Quantitative
4	**Technical Elective #1**	3	CSC 221 Introduction to Problem Solving and Programming	CS XXX	Prerequisite
5	**ECO 202**	3	ECO 202 Principles of Microeconomics	ECON 103	Soc/Behav
6	**EGR 121**	2	EGR 121 Foundations of Engineering	ENGR 107	Major
7	**ENG 112**	3	ENG 112 College Composition II	ENGH XXX	General Elective
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	Nat Science
10	**Technical Elective #2**	3	CYSE 101 Intro to Cyber Security Engineering[1]	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	Nat Science
13	**Technical Elective #3**	4	CSC 222 Object-Oriented Programming	CS 112	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	HIST 101 HIST 102 HIST 125	Western Civ

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's Literature **OR** Any 200-Level ENG Literature course[2]	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[3]	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

	MASON DEGREE REQUIREMENT	Credits	Course	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	Oral Comm & Major
24	**Computing**	3	CS 222 Computer Programming for Engineers	Major
25	**Cyber Security Engineering Core**	3	CYSE 211 Operating Systems & Lab[1]	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 130 Introduction to Computing for Digital Systems 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	Major
31	**Gen Ed: Global Understanding**	3	Approved Global Understanding course[4]	Global
32	**Cyber Security Engineering Core**	3	CYSE 411 Secure Software Engineering	Major
33	**Cyber Security Engineering Core**	3	CYSE 421 Industrial Control Systems (ICS) Security	Major
34	**Cyber Security Engineering Core**	3	CYSE 430 Critical Infrastructure Protection	Major
35	**Cyber Security Engineering Core**	3	CYSE 470 User Experience Engineering	Major
36	**Cyber Security Engineering Core**	4	CYSE 445 Systems Security and Resilience **AND** CYSE 450 Cyber Vulnerability Lab	Major
37	**Cyber Security Engineering Core**	3	CYSE 476 Cryptography Fundamentals	Major
38	**Cyber Security Engineering Core - Technical Electives**	3	Technical Elective[5]	Major
39	**Cyber Security Engineering Core**	3	CYSE 492 Senior Advance Design Project I	Major
40	**Cyber Security Engineering Core**	3	CYSE 491 Engineering Senior Seminar	Writing Intensive
41	**Gen Ed: Synthesis/Cyber Security Engineering Core**	3	CYSE 493 Senior Advanced Design Project II	Synthesis
42	**Cyber Security Engineering Core - Technical Electives**	3	Technical Elective[5]	Major

43	**Cyber Security Engineering Core - Technical Electives**	3	Technical Elective[5]	Major
B.S. CYBER SECURITY ENGINEERING DEGREE TOTAL	**135**			

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 Mason graduation. Please see your ADVANCE Coach for more information and to enroll.

Important Academic Information:

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

[2]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.

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

[4]For approved Mason Core courses, please visit - https://catalog.gmu.edu/mason-core/. If ADVANCE students have at least a 2.85 final, cumulative NOVA GPA, they may receive a lower-level General Education waiver and do not need to take this course. Please see your ADVANCE Coach for more information.

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

Additional General Notes & Resources:

• ADVANCE students who earn at least a 2.85 final, cumulative GPA and no more than 9 credits of unrepeated D/F grades may be eligible to receive a waiver for any lower-level Mason Core courses not already completed. To be eligible for the Mason Core waiver, students must also complete the requirements of the AA or AS degree listed on their pathway, and apply to graduate from NOVA by the deadline (see milestone #3). Students must provide the Office of Admissions with a final, official transcript reflecting the degree conferral date and a cumulative NOVA GPA at or above 2.85.

• 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.