

# ADVANCE

A NOVA | MASON PARTNERSHIP

A.S. Engineering /  
B.S. Cybersecurity Engineering Pathway  
2021-2022

## 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-#6, failure to meet these milestones may delay matriculation to Mason.

- 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.
- Students must maintain a minimum 2.5 cumulative GPA at NOVA and must have a minimum 2.5 GPA upon matriculation to Mason.
- Students who wish to enroll at Mason for the fall semester must apply for NOVA graduation by March 1 for spring graduation or June 1 for summer graduation. Students who wish to enroll at Mason for the spring semester must apply for NOVA graduation by October 1 for winter graduation.
- Students must begin developmental coursework in no later than the first semester in ADVANCE at NOVA.
- 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).
- In the first 30 credits, students must:
  - Complete ENG 111 and ENG 112 with a C or better.
  - Complete the first college-level MTH course with a C or better.

**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.

- 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 <b>OR</b> SDV 101 Orientation to Engineering	UNIV 100	General Elective
2	ENG 111	3	ENG 111 College Composition I	ENGH 101	Written Comm
3	CST Course	3	CST 100 Principles of Public Speaking <b>OR</b> CST 110 Introduction to Communication	COMM 100 COMM 101	Oral Comm
4	Humanities/Fine Arts #1	3	ART 100 Art Appreciation <b>OR</b> ART 101 History and Appreciation of Art I <b>OR</b> ART 102 History and Appreciation of Art II <b>OR</b> CST 130 Introduction to Theatre <b>OR</b> CST 151 Film Appreciation I <b>OR</b> MUS 121 Music Appreciation I	ARTH 101 ARTH 200 ARTH 201 THR 101 ENGH L372 MUSI 101	Arts
5	MTH 263	4	MTH 263 Calculus I	MATH 113	Quantitative
6	Social/Behavioral Sciences #1	3	HIS 101 History of Western Civilization I <b>OR</b> HIS 102 History of Western Civilization II <b>OR</b> HIS 112 History of World Civilization II	HIST 101 HIST 102 HIST 125	Western Civ
7	EGR 121	2	EGR 121 Foundations of Engineering	ENGR 107	Major
8	ENG 112	3	ENG 112 College Composition II	ENGH XXX	General Elective
9	MTH 264	4	MTH 264 Calculus II	MATH 114	Major
10	PHY 231	5	PHY 231 General University Physics I	PHYS 160-161-266	Nat Science
11	Technical Elective #1	3	CYSE 101 Intro to Cyber Security Engineering <sup>1</sup>	CYSE 101	Major
12	Technical Elective #2	4	CSC 201 Computer Science I	CS 112	Info Tech
13	Technical Elective #3	3	MTH 266 Linear Algebra	MATH 203	Major
14	MTH 265	4	MTH 265 Calculus III	MATH 213	Major
15	PHY 232	5	PHY 232 General University Physics II	PHYS 260-261-XXX	Nat Science
16	Social/Behavioral Sciences #2	3	ECO 202 Principles of Microeconomics	ECON 103	Soc/Behav

17	Humanities/Fine Arts #2	3	ENG 236 Introduction to the Short Story <b>OR</b> ENG 241 Survey of American Literature I <b>OR</b> ENG 242 Survey of American Literature II <b>OR</b> ENG 251 Survey of World Literature I <b>OR</b> ENG 252 Survey of World Literature II <b>OR</b> ENG 253 Survey of African-American Literature I	ENGH 202	Literature
18	MTH 267	3	MTH 267 Differential Equations	MATH 214	Major
19	Technical Elective #4	3	SYST 205 Systems Engineering Principles	SYST 205	Major
20	Technical Elective #5	4	EGR 265 Digital Electronics and Logic Design	ECE L301	Major
21	Technical Elective #6	3	CS 222 Computer Programming for Engineers	CS 222	Major

**A. S. ENGINEERING DEGREE TOTAL** 69

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: Global Understanding	3	Approved Global Understanding course <sup>2</sup>		Global
24	Cyber Security Engineering Core	3	CYSE 211 Operating Systems & Lab <sup>1</sup>		Major
25	Computing	4	SYST 230 Object-Oriented Modeling and Design		Major
26	Cyber Security Engineering Core	3	CYSE 230 Computer Networking		Major
27	Cyber Security Engineering Core	3	CYSE 130 Introduction to Computing for Digital Systems Engineering		Major
28	Gen Ed: Written Communication (Upper-level)	3	ENGH 302 Advanced Composition (Natural Science Section)		Written Comm
29	Mathematics and Statistics	3	MATH 125 Discrete Math		Major
30	Cyber Security Engineering Core	3	CYSE 425 Secure RF Communications		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		Major
33	Cyber Security Engineering Core	3	CYSE 430 Critical Infrastructure Protection		Major
34	Cyber Security Engineering Core	3	CYSE 470 User Experience Engineering		Major
35	Cyber Security Engineering Core	4	CYSE 445 Systems Security and Resilience <b>AND</b> CYSE 450 Cyber Vulnerability Lab		Major
36	Cyber Security Engineering Core	3	CYSE 476 Cryptography Fundamentals		Major
37	Cyber Security Engineering Core - Technical Electives	3	Technical Elective <sup>3</sup>		Major
38	Cyber Security Engineering Core	3	CYSE 492 Senior Advance Design Project I		Major
39	Cyber Security Engineering Core	3	CYSE 491 Engineering Senior Seminar		Writing Intensive
40	Gen Ed: Synthesis/Cyber Security Engineering Core	3	CYSE 493 Senior Advanced Design Project II		Synthesis
41	Cyber Security Engineering Core - Technical Electives	3	Technical Elective <sup>3</sup>		Major
42	Cyber Security Engineering Core - Technical Electives	3	Technical Elective <sup>3</sup>		Major

**B.S. CYBER SECURITY ENGINEERING DEGREE TOTAL** 134

Denotes a course that must be taken at George Mason University. Please see your Success Coach to enroll.

**Important Academic Information:**

<sup>1</sup>CYSE courses are only offered once a year, see Mason academic advisor to create an academic plan.

<sup>2</sup>For approved Mason Core courses, please visit - <https://catalog.gmu.edu/mason-core/>. If ADVANCE students have at least a 2.85 GPA at the time of matriculation to Mason, students may receive a General Education waiver and do not need to take this course. Please see your Success Coach for more information.

<sup>3</sup>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 cumulative GPA and no more than 9 credits of unrepeatable 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 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 meet these criteria by the time of matriculation to Mason and provide the Office of Admissions a final, official transcript reflecting the degree conferral date.
- 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.