ADVANCE
A NOVA | MASON PARTNERSHIP

A.S. Engineering /
B.S. Computer 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.

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 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.

4. Students must begin developmental coursework in 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:

- **a. Complete ENG 111 and ENG 112 with a C or better.**
- **b. 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.

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	**CST Course**	3	CST 100 Principles of Public Speaking **OR** CST 110 Introduction to Communication	COMM 100 COMM 101	Oral Comm
4	**Humanities/Fine Arts #1**	3	ART 100 Art Appreciation **OR** ART 101 History and Appreciation of Art I **OR** ART 102 History and Appreciation of Art II **OR** CST 130 Introduction to Theatre **OR** CST 151 Film Appreciation I **OR** 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 **OR** HIS 102 History of Western Civilization II **OR** 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	ECE 101 Intro to Electrical and Computer Engineering	ECE 101	Major
12	**Technical Elective #2**	4	CSC 201 Computer Science I	CS 112	Info Tech
13	**Technical Elective #3**	4	CSC 202 Computer Science II	CS 211	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 **OR** ENG 241 Survey of American Literature I **OR** ENG 242 Survey of American Literature II **OR** ENG 251 Survey of World Literature I **OR** ENG 252 Survey of World Literature II **OR** 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	EGR 251 Basic Electric Circuits	See #21	Major
20	**Technical Elective #5**	3	EGR 252 Basic Electric Circuits II	See #21	Major
21	**Technical Elective #6**	1	EGR 255 Electric Circuits Laboratory[1]	ECE 285 & ECE 286 & & ECE XXX[2]	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: Robotics, Embedded Systems, Computer Networks, Internet of Things, Hardware and System Security, Power and Energy Systems. Concentration requirements may also meet some or all of the Technical Elective requirements.

	MASON DEGREE REQUIREMENT	Credits	Course		MASON CORE/DEGREE EQUIVALENT
22	**Computer Science**	3	CS 222 Computer Programming for Engineers		Major
23	**Gen Ed: Global Understanding**	3	Approved Global Understanding course[3]		Global
24	**Mathematics and Statistics**	3	MATH 125 Discrete Math		Major
25	**Mathematics and Statistics**	3	MATH 203 Linear Algebra		Major
26	**Computer Engineering**	3	ECE 201 Intro to Signal Analysis		Major
27	**Computer Engineering**	4	ECE 231 Digital System Design **AND** ECE 232 Digital Electrical and Logic Design Lab		Major
28	**Gen Ed: Written Communication (Upper Level)**	3	ENGH 302 Advanced Composition (Natural Science or Multidisciplinary Section)		Written Comm
29	**Computer Engineering**	3	ECE 350 Embedded Systems and Hardware Interfaces		Major
30	**Computer Engineering**	3	ECE 445 Computer Organization		Major
31	**Computer Engineering**	3	ECE 321 Continuous Time-Signal and Systems I		Major
32	**Computer Science**	3	CS 310 Data Structures		Major
33	**Mathematics and Statistics**	3	STAT 346 Probability for Engineers		Major
34	**Computer Science**	3	CS 471 Operating Systems		Major
35	**Computer Engineering**	4	ECE 333 Linear Electronics I **AND** ECE 334 Linear Electronics Lab I		Major
36	**Computer Engineering**	4	ECE 448 FPGA and ASIC Design w/ VHDL	**Spring Only**	Major
37	**Technical Electives**	3	Technical Elective[4]		Major
38	**Computer Engineering**	4	ECE 447 Single-Chip Microcomputers		Major
39	**Computer Engineering**	1	ECE 491 Engineering Seminar		Major
40	**Gen Ed: Synthesis/Computer Engineering**	1	ECE 492 Senior Advanced Design Project I		Synthesis
41	**Technical Electives**	3	Technical Elective[4]		Major
42	**Technical Electives**	3	Technical Elective[4]		Major
43	**Gen Ed: Synthesis/Computer Engineering**	2	ECE 493 Senior Design Project II		Synthesis
44	**Computer Engineering**	3	ECE 465 Computer Networking Protocols		Major

B.S. COMPUTER ENGINEERING DEGREE TOTAL	135

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

Important Academic Information:

[1]All associated labs are encouraged to have "hands-on" experience even in online/hybrid format (COVID exception).

[2]Students must take EGR 251, EGR 252, and EGR 255 in order to receive credit for ECE 285 and ECE 286.

[3]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 will receive a lower-level General Education waiver and do not need to take this course. Please see your Success Coach for more information.

[4]For approved Technical Electives, please visit - https://catalog.gmu.edu/colleges-schools/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.

Additional General Notes & Resources:

• For more information about Accelerated Master's program options, visit: https://catalog.gmu.edu/colleges-schools/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.

• ADVANCE students who earn at least a 2.85 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 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.