ADVANCE
A NOVA | MASON PARTNERSHIP

A.S. Engineering /
B.S. Computer 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[1]	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**	4	CSC 222 Object-Oriented Programming	CS 112	Info Tech
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	EGR 271 Electric Circuits I[1]	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	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 265**	4	MTH 265 Calculus III	MATH 213	Major
19	**Technical Elective #5**	3	MTH 288 Discrete Mathematics[3]	MATH 125	Major
20	**Technical Elective #6**	4	EGR 272 Electric Circuits II	ECE 286	Major
A. S. ENGINEERING DEGREE TOTAL		**66**			

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, Space-based Systems.
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[3] **OR** COMM 101 Fundamentals of Communication[3]		Oral Com
23	**Electrical Engineering**	0-3	ECE 101 Intro to Electrical and Computer Engineering[1] ***(This course can be waived if students have completed EGR 271 prior to transferring. See: Advisor)***		Major
24	**Mathematics and Statistics**	3	MATH 203 Linear Algebra		Major
25	**Computer Engineering**	3	ECE 201 Intro to Signal Analysis		Major
26	**Computer Engineering**	4	ECE 231 Digital System Design **AND** ECE 232 Digital Electrical and Logic Design Lab		Major
27	**Gen Ed: Written Communication (Upper Level)**	3	ENGH 302 Advanced Composition (Natural Science or Multidisciplinary Section)		Written Comm
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 I		Major
31	**Gen Ed: Global Understanding**	3	Approved Global Understanding course[4]		Global
32	**Computer Science**	3	ECE 340 Data Structures and Embedded Systems Programming in C/C++		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[5]		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[5]		Major
42	**Technical Electives**	3	Technical Elective[5]		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		**134-137**		

Important Academic Information:

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

[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]Students may opt to take CST 100 or CST 110 at NOVA in place of MTH 288 Discrete Math. Students would then subsquently complete MATH 125 Discrete Math in place of COMM 100 or COMM 101 at Mason.

[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 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 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.