

ADVANCE

A NOVA | GEORGE MASON PARTNERSHIP

NOVA Northern Virginia
Community College

GM GEORGE MASON
UNIVERSITY.

A.S. Engineering /
B.S. Mechanical 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 George 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 CHM 111 Required (NOVA Catalog: Lab Science #1)	4	CHM 111 General Chemistry I	CHEM 211-213	Major & Nat Science
5 ECO 202	3	ECO 202 Principles of Microeconomics	ECON 103	Major & Soc/Behav
6 EGR 122 Required (NOVA Catalog: EGR 121)	3	EGR 122 Engineering Design ¹	ME 151	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 #2)	4	PHY 241 University Physics I	PHYS 160-161	Major & Nat Science
10 Technical Elective #1	3	CST 100 Principles of Public Speaking OR CST 110 Introduction to Human Communication	COMM 100 COMM 101	Major & Oral Comm
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 Technical Elective #2	4	PHY 242 University Physics II	PHYS 260-261	Major
13 Technical Elective #3	3	EGR 240 Statics	ME 211	Major

14	Technical Elective #4	4	EGR 125 Introduction to Computer Programming for Engineers	ENGR 125T	Major & Info Tech
15	MTH 265	4	MTH 265 Calculus III	MATH 213	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 (<i>recommended</i>)	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 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	EGR 245 Dynamics	ME 231	Major
20	Technical Elective #6	3	EGR 246 Mechanics of Materials	CEIE L310 or ME 212	Major
21	Technical Elective #7	3	EGR 248 Thermodynamics for Engineering	ME 221	Major

A. S. ENGINEERING DEGREE

68

TOTAL

For academic policies and procedures, please see NOVA catalog - <http://www.nvcc.edu/catalog/index.html>

B.S. Mechanical Engineering

Students may complete an optional concentration in Aerospace Engineering, Engineering Design, Engineering Mechanics, Microfabrication, Robotics, or Specialized Facilities. See George Mason catalog and advisor for more information.

GEORGE MASON DEGREE REQUIREMENT	Credits	Course	GEORGE MASON CORE/DEGREE EQUIVALENT
22 Engineering	3	ECE 330 Circuit Theory	Major
23 Engineering	3	Approved Math/Science course ³	Major
24 Engineering	1	ME 311 Mechanical Experimentation I	Major
25 Engineering	3	ME 313 Material Science	Major
26 Engineering	3	ME 322 Fluid Mechanics	Major
27 Engineering	3	ME 341 Design of Mechanical Elements OR ME 342 Design of Thermal Systems	Major
28 Engineering	3	ME 351 Analytical Methods in Engineering	Major
29 Gen Ed: Written Communication (Upper-level)	3	ENGH 302 Advanced Composition (Natural Science Section)	Written Comm
30 Engineering	3	ME 331 Mechatronics	Major
31 Engineering	1	ME 321 Mechanical Experimentation II	Major
32 Engineering	3	ME 323 Heat Transfer	Major
33 Engineering	3	ME 352 Entrepreneurship in Engineering	Major
34 Engineering	3	ME 443 Mechanical Design I	Fall Only Major
35 Engineering	2	ME 453 Developing the Societal Engineer	Fall Only Major
36 Elective	3	300/400 Elective from the College of Engineering & Computing ⁴	Major
37 Elective	3	300/400 Elective from the College of Engineering & Computing ⁴	Major
38 Elective	3	300/400 Elective from the College of Engineering & Computing ⁴	Major
39 Elective	3	300/400 Elective from the College of Engineering & Computing ⁴	Major
40 Engineering	4	ME 432 System Dynamics and Control	Major

41	Gen Ed: Apex/Engineering	3	ME 444 Mechanical Design II	Spring Only	Apex & Writing Intensive
B.S. MECH. ENGINEERING					
DEGREE TOTAL 124					
<p><u>Important Academic Information:</u></p> <p>¹Students will need a course substitute submitted for EGR 122 to count for EGR 121. See your ADVANCE Coach. Students need departmental approval to enroll in EGR 122. Contact your campus dean for Engineering for permission to register for this course: https://www.nvcc.edu/academics/divisions/mstb/contact.html#panel3</p> <p>²200-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.</p> <p>³For approved Math/Science Electives, please visit: https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/mechanical/mechanical-engineering-bs/#requirementstext.</p> <p>⁴Students may also choose to use these electives to complete an optional concentration in Aerospace Engineering, Engineering Design, Engineering Mechanics, Microfabrication, Robotics, or Specialized Facilities.</p>					
<p><u>General Education Waiver Policy and Guidance:</u></p> <ul style="list-style-type: none"> • 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. 					
<p><u>Additional General Notes & Resources:</u></p> <ul style="list-style-type: none"> • 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. 					