

ADVANCE

A NOVA | MASON PARTNERSHIP

A.S. Engineering /
B.S. Mechanical Engineering Pathway
2024-2025

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 ¹	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 ²	ME 151	Major
7	ENG 112	3	ENG 112 College Composition II ¹	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 Solid Mechanics (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 ³	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 Engineering Mechanics (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	ME 221	Major

A. S. ENGINEERING DEGREE

TOTAL 68

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 Mechanics, Microfabrication, Robotics, or Specialized Facilities. See Mason catalog and advisor for more information.

	MASON DEGREE REQUIREMENT	Credits	Course		MASON CORE/DEGREE EQUIVALENT
22	Engineering	3	ECE 330 Circuit Theory		Major
23	Engineering	3	Approved Math/Science course ⁴		Major
24	Engineering	1	ME 311 Mechanical Experimentation I	Fall Only	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	Spring Only	Major
32	Engineering	3	ME 323 Heat Transfer	Spring & Summer Only	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 ⁵		Major
37	Elective	3	300/400 Elective from the College of Engineering & Computing ⁵		Major
38	Elective	3	300/400 Elective from the College of Engineering & Computing ⁵		Major
39	Elective	3	300/400 Elective from the College of Engineering & Computing ⁵		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>Important Academic Information:</p> <p>¹Students who complete ENG 111 after Spring 2024 will earn ENGH elective for ENG 111 and ENGH 101 for ENG 112.</p> <p>²Students 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>³200-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>⁴For approved Math/Science Electives, please visit: https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/mechanical/mechanical-engineering-bs/#requirements-text.</p> <p>⁵Students may also choose to use these electives to complete an optional concentration in Aerospace Engineering, Engineering Mechanics, Microfabrication, Robotics, or Specialized Facilities.</p>					
<p>General Education Waiver Policy and Guidance:</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 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>Additional General Notes & Resources:</p> <ul style="list-style-type: none"> 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. 					