ADVANCE
A NOVA | MASON PARTNERSHIP

A.S. Engineering /
B.S. Mechanical Engineering Pathway
2023-2024

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 101	Written Comm
3	**MTH 263**	4	MTH 263 Calculus I	MATH 113	Quantitative
4	**CHM 111 Required** ***(NOVA Catalog: Lab Science #1)***	4	CHM 111 General Chemistry I	CHEM 211-213	Nat Science
5	**ECO 202**	3	ECO 202 Principles of Microeconomics	ECON 103	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 XXX	General Elective
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	Nat Science
10	**Technical Elective #1**	3	CST 100 Principles of Public Speaking **OR** CST 110 Introduction to Human Communication	COMM 100 COMM 101	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	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 ***(recommended)***	HIST 101 HIST 102 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 or Microfabrication. See Mason catalog and advisor for more information.

	MASON DEGREE REQUIREMENT	Credits	Course		MASON CORE/DEGREE EQUIVALENT
22	**Engineering**	3	ECE 330 Circuit Theory	**Fall Only**	Major
23	**Gen Ed: Global Understanding**	3	Approved Global Understanding course[4]		Global Understanding
24	**Engineering**	3	Approved Math/Science course[5]		Major
25	**Engineering**	1	ME 311 Mechanical Experimentation I	**Fall Only**	Major
26	**Engineering**	3	ME 313 Material Science		Major
27	**Engineering**	3	ME 322 Fluid Mechanics		Major
28	**Engineering**	3	ME 341 Design of Mechanical Elements **OR** ME 342 Design of Thermal Systems		Major
29	**Engineering**	3	ME 351 Analytical Methods in Engineering		Major
30	**Gen Ed: Written Communication (Upper-level)**	3	ENGH 302 Advanced Composition (Natural Science Section)		Written Comm
31	**Engineering**	3	ME 331 Mechatronics		Major
32	**Engineering**	1	ME 321 Mechanical Experimentation II	**Spring Only**	Major
33	**Engineering**	3	ME 323 Heat Transfer	**Spring & Summer Only**	Major
34	**Engineering**	3	ME 352 Entrepreneurship in Engineering	**Spring Only**	Major
35	**Engineering**	3	ME 443 Mechanical Design I	**Fall Only**	Major
36	**Engineering**	2	ME 453 Developing the Societal Engineer	**Fall Only**	Major
37	**Elective**	3	300/400 Elective[6]		Major
38	**Elective**	3	300/400 Elective[6]		Major
39	**Elective**	3	300/400 Elective[6]		Major
40	**Elective**	3	300/400 Elective[6]		Major
41	**Engineering**	4	ME 432 Control Engineering		Major
42	**Gen Ed: Synthesis/Engineering**	3	ME 444 Mechanical Design II	**Spring Only**	Synthesis & Writing Intensive
B.S. MECH. ENGINEERING DEGREE TOTAL		**127**			

Important Academic Information:

[1]Students who complete ENG 111 after Spring 2024 will earn ENGH elective for ENG 111 and ENGH 101 for ENG 112.

[2]Students 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

[3]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.

[4]For approved Mason Core courses, please visit - https://catalog.gmu.edu/mason-core/. Students with a completed AS, AA, or AFA degree are eligible for a waiver of the Foundation and Exploration (lower division) Mason Core general education categories and do not need this course. Please see your ADVANCE Coach for more information.

[5]For approved Math/Science Electives, please visit: https://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/mechanical/mechanical-engineering-bs/#requirementstext . Students may also choose to use these electives to complete an optional concentration in Aerospace Engineering or Microfabrication

Additional General Notes & Resources:

• Students who complete a VCCS transfer associate degree (AS, AA, & AFA) will receive a waiver of the Foundation and Exploration (lower division) Mason Core general education categories. 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.

• 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.