



Volgenau School of Engineering

SYSTEMS ENGINEERING, B.S. 2020- 2021

Sample Schedule for NVCC Transfers (ADVANCE) to Undergraduate Systems Engineering Major

As the systems around us grow more complex, the need grows for engineers who understand not just the pieces, but how they interact. Whereas other engineering disciplines concentrate on individual aspects of a system (electronics, ergonomics, software, etc.), systems engineers focus on the system as a whole. Systems engineers work as the lead of their projects, integrating all the disciplines and specialty groups into a team effort, forming a structured development process that proceeds from concept to design to production to operation. Systems engineers consider both the business and the technical needs of all customers with the goal of providing a quality product that meets the user needs.

Our nationally recognized program in systems engineering at George Mason University prepares students for immediate employment as well as for a lifetime of learning. Our program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. Our educational program reflects the systems engineer's unique perspective that considers all aspects of a system throughout the entire lifetime of that system. The systems engineering program at George Mason is interdisciplinary, drawing from other engineering disciplines, computer science, operations research, psychology and economics. The core systems engineering courses tie together these diverse threads to provide a global understanding of how individual disciplines fit into the development of complex, large scale systems.

Admission Requirements

Admission to George Mason is competitive in that the number of qualified candidates for admission generally exceeds the number of new students who can be accommodated. Each candidate who presents sufficient admission qualifications is reviewed in the context of other qualified applicants. An offer of admission is valid only for the semester for which the student applied. Application for undergraduate admission can be made online at George Mason's website <http://admissions.gmu.edu>. The Office of Admissions can also provide forms upon request.

Freshman Requirements

The following factors are considered when reviewing applications for admission:

- Cumulative high school grade point average for course work completed in grades 9 through 12.
- Level of difficulty of course work elected throughout the high school years particularly in English, mathematics, laboratory science, and foreign language.
- Scores from the Scholastic Aptitude Test (SAT) and/or American College Test (ACT), and Test of English as a Foreign Language (TOEFL) if appropriate.

Transfer Requirements

The university accepts qualified students who wish to transfer from other colleges. A transfer applicant who has completed at least 30 semester hours of transferable credit must submit two copies of official transcripts from each collegiate institution attended. Transfer applicants with fewer than 30 semester hours of transferable credit must also submit a copy of their secondary school record, as well as SAT or ACT scores.

We invite requests for additional information. Please contact:

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<http://seor.gmu.edu> seor@gmu.edu

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1 st Sem		NVCC		GMU		2 nd Sem		NVCC		GMU					
		SDV 100 or SDV 101 Success Skills		UNIV 100	College	1		CSC 200 or CSC 130 or EGR 126 (Prereq for CSC 201) No credit for these preqs at GMU (OR) If above pre-req is complete then take CSC 201 CS112 Introduction to Computer Programming		3-4					
		ART 100, 101, 102, MUS 121, CST 130, 151		Arts Elective		3									
		ENG 111 Composition I		ENGH 101		3		PHY 231 University Physics I and Laboratory		PHYS 160, 161	5				
		MTH 263 Analytic Geometry and Calculus I		MATH 113		4		ENG 112 Composition II		ENGH ---	3				
		ECO 202 Contemporary Microeconomic Principles		ECON 103		3		EGR 121 Introduction to Engineering		ENGR 107	2				
		CST 100, 110 Oral Communication		COMM 100 or 101		3		MTH 264 Analytic Geometry and Calculus II		MATH 114	4				
					Total	17				Total	17-18				
3 rd Sem		NVCC		GMU		4 th Sem		NVCC		GMU					
		MTH 265 Calculus III		MATH 213		4		HIS 101, 102, 112 World History		HIST 101/102 / 125	3				
		PHY 232 University Physics II and Laboratory		PHYS 260, 261		5		IF CSC 200/130/EGR 126 is complete then take CSC 201 at NVCC and [PHYS262/263 or CHEM 211/213 or CHEM 271/272 or BIOL 213] @ Mason* (OR) IF CSC 201 is complete then take CSC 202 at NVCC and [PHYS262/263 or CHEM 211/213 or CHEM 271/272 or BIOL 213] @ Mason* (OR) IF CSC 201 is complete then take CHM 111 at NVCC and SYST 230 @ Mason* Object-Oriented Modeling and Design* (highly recommended option) (OR) IF CSC 201 is complete then take both CSC 202 and CHM 111 at NVCC (only 6 cr are taken at Mason with this option while at NVCC)		4+4					
▶		SYST 101 @ Mason Understanding Systems Engineering		SYST 101*		3			MTH 267 Elementary Differential Equations		MATH 214	3			
		MTH 266 Linear Algebra		MATH 203		3		ENG 236, 241, 242, 251, 252, 253 Literature		ENGH 202	3				
▶		SYST 210 @ Mason Systems Design		SYST 210*		3									
					Total	18				Total	17				
TRANSFER TO MASON															
5 th Sem				GMU				6 th Sem				GMU			
				Technical Elective or OR 441 Deterministic OR		3						SYST 220 Dynamical Systems I		3	
				STAT 344 Probability & Statistics for Eng & Scientists I		3						SYST 221 Systems Modeling Laboratory		1	
				Global Understanding (SYST 202 or any)– Mason Core		3						SYST 330 Systems Methods or SYST 230		3	
				PHYS262/263 or CHEM 211/213 or CHEM 271/272 or BIOL 213 (OR) CDS 130/CS 112 (OR) CS 211/SYST 230		3-4						SYST 335 Discrete Systems Modeling & Simulation		3	
				ENGH 302 Adv Composition (Nat Sci section)		3						SYST 371 Systems Engineering Management		3	
				Technical Elective could be added if PHYS262/263 or CHEM 211/213 or CHEM 271/272 or BIOL 213 (AND) CDS 130/CS 112 (AND) CS 211/SYST 230 are all completed								SYST 395 Applied Systems Engineering		3	
				Total		15-16						Total		16	
7 th Sem				GMU				8 th Sem				GMU			
				SYST 320 Dynamical Systems II		3						SYST 495 Senior Deign Project II		3	
				SYST 470 Human Factors Engineering		3						OR 442 Stochastic Operations Research		3	
				SYST 473 Decision and Risk Analysis		3						STAT 354 Probability & Statistics for Eng & Scientists II		3	
				SYST 489 Senior Seminar		3						Technical Elective		3	
				SYST 490 Senior Design Project I		3						Technical Elective		3	
				OR 441 Deterministic Operations Research (OR) Technical Elective		3						SYST 330 or OR 441 Deterministic Operations Research			
				Total		18						Total		15	

Pathway 1. SYST 101, SYST 210, SYST 230 @Mason – Highly Recommended pathway

Pathway 2. SYST 101, SYST 210, and PHYS 262/263 or CHEM 211/213 or CHEM 271/272 or BIOL 213 @Mason

Semester-hour credits must total at least 123 hours, at least 45 of which must be at the 300 level or above. At least one-fourth of the total semester hours must be taken at GMU in order to satisfy the residency requirements.

1. ▶ * - these are courses offered at Mason
2. Students are strongly encouraged to take CSC 201 and either CHM 111 or CSC 202 prior to transfer. CSC 202 can be fulfilled with SYST 230 at Mason.