Volgenau School of Engineering

SYSTEMS ENGINEERING, B.S.

2020- 2021

Sample Schedule for NVCC Transfers (NON-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:

Volgenau School of Engineering Department of Systems Engineering and Operations Research
George Mason University Mail Stop 4A6, Nguyen Engineering Building Suite 2100, Fairfax, VA 22030
Phone: (703) 993-5689 Fax: (703) 993-1521
http://seor.gmu.edu seor@gmu.edu

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1st Sem	NVCC	GMU		2nd Sem	NVCC	GMU	
	SDV 100 or SDV 101 College Success Skills	UNIV 100	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** CS 112 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
3rd Sem	NVCC	GMU		4th Sem	NVCC	GMU	
	MTH 265 Calculus III	MATH 213	4		**CSC 201 (OR) CSC 202 (OR) CHM 111** CS 112 (OR) CS 211 (OR) CHEM 211/213 Introduction to computer programming or Object-Oriented Programming or Chemistry		4
	PHY 232 University Physics II and Laboratory	PHYS 260, 261	5		**EGR 245** Engineering Mechanics - Dynamics	ME 231	3
	EGR 240 Solid Mechanics (Statics)	ME 211	3		**EGR 246** Mechanics of Materials	ME 212	3
	MTH 266 Linear Algebra	MATH 203	3		**ENG 236, 241, 242, 251, 252, 253** Literature	ENGH 202	3
	HIS 101, 102, 112 World History	HIST 101/102 / 125	3		**MTH 267** Elementary Differential Equations	MATH 214	3
		Total	18			Total	16
TRANSFER TO MASON							
5th Sem	GMU			6th Sem	GMU		
	Global Understanding (SYST 202 or any)– Mason Core		3		SYST 220 Dynamical Systems I		3
	STAT 344 Probability & Statistics for Engineers & Scientists I		3		SYST 221 Systems Modeling Laboratory		1
	SYST 101 Understanding Systems Engineering		3		SYST 330 Systems Methods (OR) SYST 230 Object-Oriented Modeling and Design		3/4
	SYST 210 Systems Design		3		SYST 335 Discrete Systems Modeling & Simulation		3
	PHYS262/263 or CHEM 211/213 or CHEM 271/272 or BIOL 213 (OR) CDS130/CS112 (OR) CS211/SYST 230		4		SYST 371 Systems Engineering Management		3
	Technical Elective (if other than the transferred ME)				SYST 395 Applied Systems Engineering		3
		Total	16			Total	16-17
7th Sem	GMU			8th 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 Engineers & Scientists II		3
	SYST 489 Senior Seminar		3		ENGH 302 Adv Composition (Nat Sci section)		3
	SYST 490 Senior Design Project I		3		SYST 330 Systems Methods (If not completed)		
	OR 441 Deterministic Operations Research		3		Technical Elective (if other than the transferred ME)		
					Technical Elective (if other than the transferred ME)		
		Total	18			Total	12

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. Students are strongly encouraged to take CSC 201 prior to transfer. If possible CSC 202 or CHM 111 is also encouraged.
2. Students who take EGR 240, EGR 245, and EGR 246 will have satisfied the Mechanical Engineering (ME) specialization for the BSSE Degree, which reduces 9 credits at Mason. Students could pursue other specializations by taking additional three technical electives once at Mason as follows. The systems engineering program requires nine semester hours of technical electives. Students must select one of ten specialization areas: Aviation Systems, Bioengineering, Control Systems, Computer Network Systems, Data Analytics, Environmental Engineering Systems, Financial Engineering, Mechanical Engineering, Operations Research or Software Intensive Systems. **All specializations and the corresponding plan of study must be approved by the student's advisor.**