

# PROGRESS REPORT AND PLAN OF STUDY FOR B.S. IN SYSTEMS ENGINEERING

Student \_\_\_\_\_ G# \_\_\_\_\_ Email \_\_\_\_\_ Ph.No. \_\_\_\_\_

1<sup>st</sup> Sem/Year at GMU \_\_\_\_\_ Advisor's Name \_\_\_\_\_ Date \_\_\_\_\_

Sem/Year this form was filled out \_\_\_\_\_

**Instructions:**

- 1) **PRINT OUT YOUR DEGREE ANALYSIS FROM PATRIOTWEB. TO REVIEW YOUR PROGRESS, ENTER LATEST GRADES OF ALL COURSES YOU HAVE ALREADY TAKEN. MARK TRANSFER COURSES SHOWING IN YOUR DEGREE ANALYSIS WITH A "T". PUT CHECK MARKS (✓) ON COURSES YOU ARE CURRENTLY TAKING. FILL OUT THE PLAN OF STUDY FORM (NEXT PAGE) TO SHOW COURSES YOU WILL BE TAKING FOR THE COMING SEMESTERS or WRITE SEMESTERS BELOW IF YOU ARE FOLLOWING THE SCHEDULE.**
- 2) NOTE: No math, science, or VSE course, required for the major, may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major.

\*For catalog year **prior** to Fall 2014, CS 211, PHYS 260, MATH 203, MATH 214 and STAT 354 do not require a grade of C or better.

\*\*For catalog year **prior** to Fall 2015, SYST 395 is not required. \*\*\*CHEM 211 corequisite not required for BIOL 213

Grade	First Semester (Fall _____)		Grade	Second Semester (Spring _____)	
	COMM 100 or COMM 101 (Fa / Sp)	3		CS 112 (Fa / Sp) C or better	4
	ECON 103 (Fa / Sp)	3		MATH 114 (Fa / Sp) C or better	4
	ENGH 101 (Fa / Sp) C or better	3		PHYS 160 (Fa / Sp) C or better	3
	ENGR 107 (Fa / Sp)	2		PHYS 161 (Fa / Sp) C or better	1
	MATH 113 (Fa / Sp) C or better	<u>4</u>		SYST 101 (Fa / Sp) C or better	<u>3</u>
		15			15
	<u>Third Semester (Fall _____)</u>			<u>Fourth Semester (Spring _____)</u>	
	CS 211 (Fa / Sp) C or better*	3		CHEM 211-3*** or 251 or BIOL 213 or PHYS 262-3	4
	MATH 213 (Fa / Sp) C or better	3		MATH 203 (Fa / Sp) C or better*	3
	PHYS 260 (Fa / Sp) C or better*	3		MATH 214 (Fa / Sp) C or better*	3
	PHYS 261 (Fa / Sp)	1		SYST 220 ( <b>Spring only</b> ) C or better	3
	SYST 210 (Fa / Sp) C or better	3		SYST 221 ( <b>Spring only</b> ) C or better	1
	Literature Elective _____	<u>3</u>		Arts Elective _____	<u>3</u>
		16			17
	<u>Fifth Semester (Fall _____)</u>			<u>Sixth Semester (Spring _____)</u>	
	SYST 320 ( <b>Fall only</b> ) C or better	3		SYST 330 ( <b>Spring only</b> ) C or better	3
	OR 441 (Fa / Sp) C or better	3		SYST 335 ( <b>Spring only</b> ) C or better	3
	STAT 344 (Fa / Sp) C or better	3		STAT 354 (Fa / Sp) C or better*	3
	ENGH 302 (Fa / Sp) C or better	3		SYST 371 ( <b>Spring only</b> ) C or better	3
	Technical Elective _____	<u>3</u>		SYST 395 ( <b>Spring only</b> ) C or better	<u>3</u>
	(C or better)	15			15
	<u>Seventh Semester (Fall _____)</u>			<u>Eighth Semester (Spring _____)</u>	
	SYST 470 ( <b>Fall only</b> ) C or better	3		SYST 495 ( <b>Spring only</b> ) C or better	3
	SYST 473 ( <b>Fall only</b> ) C or better	3		OR 442 (Fa / Sp) C or better	3
	SYST 489 ( <b>Fall only</b> ) C or better	3		Global Understanding _____	3
	SYST 490 ( <b>Fall only</b> ) C or better	3		HIST 100 or HIST 125	3
	Technical Elective _____	<u>3</u>		Technical Elective _____	<u>3</u>
	(C or better)	15		(C or better)	15

Technical Emphasis \_\_\_\_\_ (See attached for list of courses)

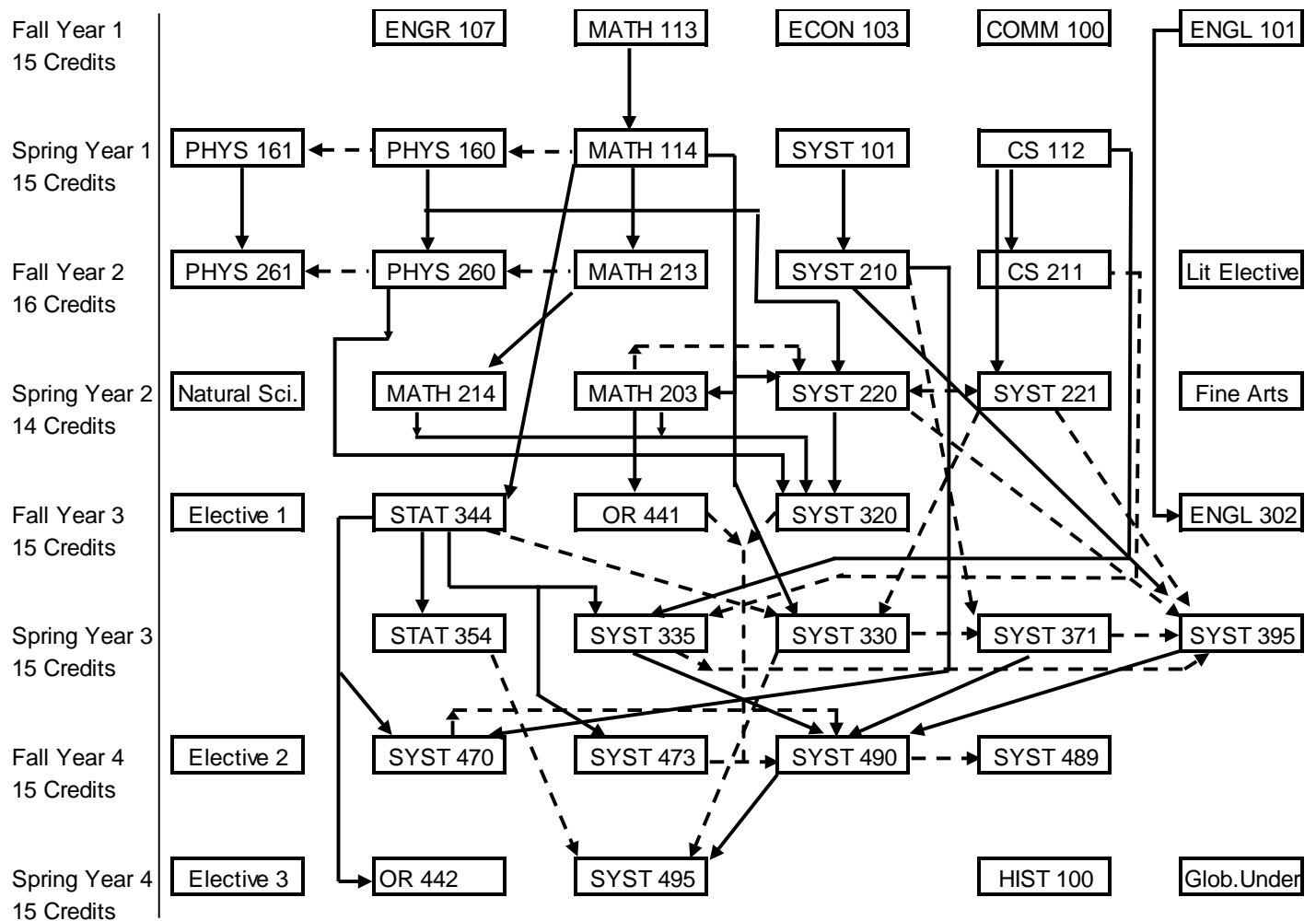
Student's Signature \_\_\_\_\_ Date \_\_\_\_\_ Advisor's Signature \_\_\_\_\_ Date \_\_\_\_\_ Chair's Signature \_\_\_\_\_ Date \_\_\_\_\_

Semester-hour credits must total at least 123 hours, at least 45 of which must be at the 300 or above level courses. Note Transfer courses labeled with an "L" in the GMU equivalent course do not count towards the 45 hours of 300 or above level courses. At least one-fourth of the total semester hours must be taken at GMU in order to satisfy the residency requirements.

Students must attach a degree evaluation with this plan of study. The above signatures indicate that the degree evaluation is attached and has been reviewed in particular to identify transfer credits that do or do not apply to this program.

## Prerequisites for the BSSE

The following chart shows the prerequisite sequences for required courses in the SE program. Prerequisites for technical elective sequences vary with the specialization area and the specific electives chosen. *It is essential for students to complete their mathematics and physics courses as early as possible because many later courses have these courses as prerequisites.*



### Prerequisite Diagram for Required Courses in BSSE Program

(Solid lines represent prerequisites; dashed lines represent corequisites)

Students taking SYST 490 must have 90 satisfactory credits applicable to the BS degree.

This diagram can also be found at <http://seor.gmu.edu/bsse/prereqs.pdf>

Name \_\_\_\_\_ **Plan of Study**

Fall _____	Credits	Spring _____	Credits	Summer _____	Credits
Fall _____		Spring _____		Summer _____	
Fall _____		Spring _____		Summer _____	
Fall _____		Spring _____		Summer _____	

**Technical Emphasis Areas (Grade of C or better)**

- Aviation System:** SYST 420 (**Fall only**), SYST 460 (**Fall only**), SYST 461 (**Spring only**)
- Bioengineering:** BENG 313 (**Fall only**) and two from BENG 304 (**Spring only**), BENG 406 (**Spring only**), BENG 420 (**Fall only**)
- Control Systems:** ECE 201 (Fall and Spring), ECE 220 (Fall and Spring), SYST 421 (Fall and Spring)
- Computer Network Systems:** SYST 420 (**Fall only**), ECE 465 (**Spring only**), TCOM 500 (Fall and Spring)
- Data Analytics:** CS 310 (Fall and Spring), CS 484 (**Spring only**), STAT 463 (**Alternate Spring only**) or SYST 438 (**Fall only**)
- Engineering Systems:** CEIE 210 (Fall and Spring), CEIE 240 (**Spring only**), CEIE 310 (Fall and Spring)
- Financial Engineering:** SYST 438 (**Fall only**), SYST 488 (**Spring only**), STAT 463 or STAT 455 (**Alternate Spring only**)
- Mechanical Engineering (Design):** ME 211, ME 212, ME 341 (all Fall and Spring)
- Mechanical Engineering (Thermal Fluid):** ME 221, ME 322, ME 323 or ME 342 (all Fall and Spring)
- Operations Research:** OR 481 (Fall and Spring), SYST 420 (**Fall only**), SYST 465 (**Spring only**)
- Software-Intensive Systems:** CS 310 (Fall and Spring), CS 321 (Fall and Spring), CS 332 (**Fall only**)

## BS SYSTEMS ENGINEERING: LIST OF ALL COURSE REQUIREMENTS (TOTAL CREDITS 123)

### Mathematics and Statistics Credits 23

- \_\_\_ MATH 113 - Analytic Geometry and Calculus I
- \_\_\_ MATH 114 - Analytic Geometry and Calculus II **Prereq(s)** C or better in MATH 113
- \_\_\_ MATH 203 - Linear Algebra **Prereq(s)** C or better in MATH 114 or MATH 116
- \_\_\_ MATH 213 - Analytic Geometry and Calculus III **Prereq(s)** C or better in MATH 114 or MATH 116
- \_\_\_ MATH 214 - Elementary Differential Equations **Prereq(s)** Grade of C or better in MATH 213 or 215
- \_\_\_ STAT 344 - Probability and Statistics for Engineers and Scientists I **Prereq(s)** C or higher in MATH 114 or MATH 116
- \_\_\_ STAT 354 - Probability and Statistics for Engineers and Scientists II **Prereq(s)** C or higher STAT 344

### Natural Sciences Credits 12

- \_\_\_ PHYS 160 - University Physics I **Coreq(s)** MATH 114
- \_\_\_ PHYS 161 - University Physics I Laboratory **Coreq(s)** PHYS 160 and MATH 114
- \_\_\_ PHYS 260 - University Physics II **Prereq(s)** PHYS 160 with a grade of C or better **Coreq(s)** MATH 213
- \_\_\_ PHYS 261 - University Physics II Laboratory **Prereq(s)** minimum grade of C in PHYS 161 **Coreq(s)** MATH 213 and PHYS 260
- \_\_\_ PHYS 262 - University Physics III **Prereq(s)** PHYS 260 with a grade of C or better **Coreq(s)** MATH 214 **and**
- \_\_\_ PHYS 263 - University Physics III Laboratory **Prereq(s)** C or higher in PHYS 261 **Coreq(s)** PHYS 262 **or**
- \_\_\_ CHEM 251 - General Chemistry for Engineers **or**
- \_\_\_ CHEM 211 - General Chemistry and CHEM 213 General Chemistry Laboratory **or**
- \_\_\_ BIOL 213 - Cell Structure and Function **Coreq(s)** CHEM 211 (coreq waived for BSSE students)

### Computer Science Credits 7

- \_\_\_ CS 112 - Introduction to Computer Programming **Prereq(s)** C or better in MATH 104 or MATH 105 or MATH 113
- \_\_\_ CS 211 - Object-Oriented Programming **Prereq(s)** Grade of C or better in CS 112

### Communication and Economics Credits 6

- \_\_\_ COMM 100 - Public Speaking **or**
- \_\_\_ COMM 101 - Interpersonal and Group Interaction
- \_\_\_ ECON 103 - Contemporary Microeconomic Principles

### Engineering Credits 2

- \_\_\_ ENGR 107 - Introduction to Engineering

### Systems Engineering Credits 55

- \_\_\_ SYST 101 - Understanding Systems Engineering - Limited to 2 attempts
- \_\_\_ SYST 210 - Systems Design **Prereq(s)** SYST 101 or sophomore standing
- \_\_\_ SYST 220 - Dynamical Systems I **Prereq(s)** C or higher in MATH 114 or 116 and PHYS 160 **Coreq(s)** MATH 203 and SYST 221
- \_\_\_ SYST 221 - Systems Modeling Laboratory **Prereq(s)** CS 112 **Coreq(s)** SYST 220
- \_\_\_ SYST 320 - Dynamical Systems II **Prereq(s)** C or higher in SYST 220, MATH 203, MATH 214, PHYS 260
- \_\_\_ SYST 330 - Systems Methods **Prereq(s)** C or better in MATH 114 or MATH 116 **Coreq(s)** STAT 344 and SYST 221
- \_\_\_ SYST 335 - Discrete Systems Modeling and Simulation **Prereq(s)** CS 112 and STAT 344 or MATH 351 **Coreq(s)** CS 211
- \_\_\_ SYST 371 - Systems Engineering Management **Coreq(s)** SYST 210 and SYST 330
- \_\_\_ SYST 395 - Applied Systems Engineering **Prereq(s)** SYST 210 **Coreq(s)** SYST 220, SYST 221, SYST 335, SYST 371
- \_\_\_ SYST 470 - Human Factors Engineering **Prereq(s)** C or better in SYST 210 and STAT 344
- \_\_\_ SYST 473 - Decision and Risk Analysis **Prereq(s)** C or higher in STAT 344 or STAT 346 or MATH 351 or in STAT 250
- \_\_\_ SYST 489 - Senior Seminar **Coreq(s)** SYST 490
- \_\_\_ SYST 490 - Senior Design Project I **Prereq(s)** Grade of C or better in SYST 335, SYST 371, SYST 395, and 90 satisfactory credits  
**Coreq(s)** SYST 320, SYST 470, SYST 473, and OR 441
- \_\_\_ SYST 495 - Senior Design Project II **Prereq** Grade of C or better in SYST 490 **Coreq(s)** SYST 330, STAT 354
- \_\_\_ OR 441 - Deterministic Operations Research **Prereq(s)** C or higher in MATH 203, or permission of instructor
- \_\_\_ OR 442 - Stochastic Operations Research **Prereq(s)** C or higher in STAT 344 or STAT 346 or MATH 351 or equivalent
- \_\_\_ 3 approved technical electives selected from one of the Technical Emphasis Areas. Credits 9

### Additional Mason Core Credits 18

Students must complete all Mason Core requirements not fulfilled by major requirements.

- \_\_\_ ENGH 101 - Composition
- \_\_\_ ENGH 302 - Advanced Composition (must complete a natural sciences and technology section)
- \_\_\_ Literature
- \_\_\_ Arts
- \_\_\_ Western Civilization/World History
- \_\_\_ Global Understanding