Washington University in St. Louis
JAMES MCKELVEY SCHOOL OF ENGINEERING

Dual Degree Engineering Program

Systems Science & Engineering Sample Curriculum

	WashU Course	Fall	Spring
Home Institution (3-4 years)			
Calculus II, III	Math 132, 233	3	3
Differential Equations	Math 217	3	
Linear Algebra strongly recommended	Math 309		3
General Physics I, II	Physics 191, 192	3	3
General Physics Lab I, II	Physics 191L, 192L	1	1
General Chemistry I	Chem 111A	3	
General Chemistry Laboratory I	Chem 151	2	
Introduction to Computer Science (MATLAB also helpful)	CSE 131	3	
Outside concentration (in one science/math area)*		6	6
English Composition	CWP 100		3
Humanities and social science electives		6	9
Additional home institution degree requirements		varies	varies
90 units or more of transferable college credit	**Subtotal**	**90+ to transfer**	
First Year of Dual Degree Curriculum at WashU Numbers in **bold** denote courses typically offered in both fall and spring semesters			
Applied Linear Algebra for Engineers	ESE 2180	3	
Introduction to Electrical and Electronic Circuits	ESE 230	4	
Probability and Statistics for Engineering	**ESE 326**	3	
Optimization	ESE 4031 or **415**	3	
Engineering Ethics and Sustainability	**ENGR 4501**	1	
Applied Vector Calculus and Dynamics for Engineers	ESE 2190		3
Introduction to Engineering Design	ESE 205		3
Signals and Systems	ESE 351		3
SSE elective	ESE XXX		3
Technical Writing	**ENGR 310**		3
	Subtotal	**14**	**15**
Second Year of Dual Degree Curriculum at WashU			
Control Systems	ESE 441	3	
Required Systems lab**	**ESE 4480**	3	
SSE electives	ESE XXX	6	3
Elective Systems lab	**ESE 4481** or other		3
Systems Science & Engineering Capstone Design Project	**ESE 499**		3
Free elective***		3	6
	Subtotal	**15**	**15**
60 units or more must be taken at Washington Univ.	**Total**	**60+ for WU degree**	

*12 units (9 at level 200 or higher) in one engineering concentration outside of systems science and engineering are required. Concentrations in economics, mathematics, physics, pre-medicine and other fields can be arranged with special departmental approval to meet a student's specific needs.

**Either ESE 4480 or 4481 is required as a systems lab. ESE 441 is a corequisite for 4480 and prerequisite for 4481, so 4480 is suggested in the third semester.

***The WashU degree requires 3 H/SS credits at level 300 or higher. If these credits are not taken at the home institution, the requirement can be satisfied at WashU with ENGR 4501 (required for SSE) + ENGR 4502 + ENGR 4503.

Master's degree candidates should consult with their faculty advisor regarding graduate courses taken third year. Some graduate courses may be necessary second year. 84 minimum WashU residency units are required for the Master's degree.

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