

GIFTS: Helping Students to Advise Themselves Using a Graded Curricular Map in the First Year

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GIFTS: Helping First-Year Students to Advise Themselves Using a Graded Curricular Map

Although teaching first-year engineers involves introducing engineering skills, it also regularly includes advising students as well. Students are desperate for advice on course selection, majors, minors, studying abroad, internships, and other topics that could affect their future. Most engineering curricula require significant coursework that makes fitting in additional opportunities complicated. This can lead students to choose another major to pursue their other interests. To combat this issue, our first-year engineering course includes a graded assignment in which students develop a curricular map with all the required courses to graduate with the major(s) and minor(s) they want. Students use a template (Figure 1) which is programmed to add credits based on requirements and provides warnings when students don't meet these.

Course			Credits			Designation			Total Credits			For EGR Majors			
Course	Credits	Designation	Course	Credits	Designation	Designation	Total Credits	Minimum Required Credits	Reason						
Fall Year 1						Spring Year 1						Math/Basic Science	28	30	ABET-Required
EGR	111	4	Engineering	EGR	112	4	Engineering	Engineering	12	47	ABET-Required				
MTH	112	4	Math/Basic Science	MTH	113	4	Math/Basic Science	Social Science	0	Review the Academic Bulletin					
CHM	111/111L	4	Math/Basic Science	PHY	113/113L	4	Math/Basic Science	Literature	0						
FYS	100	3	Other	WRI	111	4	Other	Fine Arts	0						
								Humanities	3						
								Language	0						
								Other	8						
Total:	15			Total:	16			Total:	51		120	To graduate			
Fall Year 2						Spring Year 2						Study Abroad Semester:			
EGR	211	4	Engineering	EGR	212	4	Engineering	Math/Basic Science							
MTH	205	4	Math/Basic Science					Social Science							
PHI	111	3	Humanities					Literature							
PHY	114/114L	4	Math/Basic Science					Fine Arts							
HES	100	1	Other					Humanities							
								Language							
								Other							
Total:	16			Total:	4			Minimum: 12							
Fall Year 3						Spring Year 3						Pre-College/Transfer Credits			
									MTH	111	4	Math/Basic Science			
Total:	0		Minimum: 12	Total:	0		Minimum: 12	**Pre-college/transfer credits do not always apply for EGR major requirements. Check with your advisor.							
Fall Year 4						Spring Year 4						Summer Credits			
Total:	0		Minimum: 12	Total:	0		Minimum: 12								

Figure 1: Curricular map Excel spreadsheet where red indicates an incomplete item that a student must still complete. A drop down menu for ‘designation’ options is shown.

The goal of this assignment is not to have a set plan for each semester, but to guide students towards the resources they must use to choose classes and understand what they require. Students explore major and minor requirements, consider graduation requirements, find pre-requisite courses, and discover any relevant programs (e.g. study abroad). Students can resubmit their curricular map an unlimited number of times in response to comments until they achieve full credit in order to develop mastery learning. This assignment ultimately helps students to discover how they can find the answers to many of their advising questions on their own, empowering them to explore the opportunities available to them and pursue all of their interests.