

Guidance for Manufacturing and Design Engineering Majors

- ❖ The guidance here is based on the [2020 Manufacturing and Design Engineering degree requirements](#). You can find Data Science & Engineering (DSE) Minor curriculum details on the [DSE website](#).
- ❖ The DSE Minor requires 8 courses. McCormick requires that each minor consist of 5 courses that are **not** used towards any of your major requirements.
 - “Major Requirements” are those designated as “Major Program (16 units)” in the catalog. They are also designated with purple banners in your MAS degree audit:

▶ MADE Major Requirements	0/9 units
Major Requirement	
▶ MADE Senior Design Project	0/3 units
Major Requirement	
▶ Technical Electives	0/4 units
Major Requirement	

- You can count up to 3 courses towards both DSE minor and your major requirements.
- Basic Engineering and Unrestricted Electives are not considered major requirements.
- Talk to your advisor about how to choose DSE core courses and electives that can be used towards your MaDE tech electives.
- ❖ Double counting rules also apply to minors and certificates.
 - This means your DSE minor must use 5 courses that do not apply to your major program, or to any other minors and certificates.
 - Take advantage of flexibility in some of the minor requirements.
Example: if you have credit for both COMP_SCI 150 and COMP_SCI 211, you can use either of them to fulfill the programming foundations requirement.
- ❖ Be mindful of prerequisites, both for DSE Core Courses and for DSE Electives. Declaration of the minor does not imply that any prerequisites will be waived for you.

The guide below represents a possible path for MaDE majors who are pursuing the DSE minor. If you are considering other paths, talk to your advisor or email us at dse@northwestern.edu.

DSE Minor Requirements	Course Selection	How does this count for my major?		Notes
		Not Major Requirement	Major Requirement	
Data Science Core: 4 courses				
Statistics Foundations	IEMS 201		Yes	Double Count
Programming Foundations	COMP_SCI 150	Basic engineering <i>Computer Programming</i>		
Intermediate Programming	COMP_SCI 217	Unrestricted Elective		
Applied Machine Learning	IEMS 304	Unrestricted Elective		
Data Science Studio Courses: 2 courses				
	DATA_ENG 200	Unrestricted Elective		
	DATA_ENG 300		Tech Elective	Double Count
Electives: 2 courses				
	IEMS 307		Yes	Double Count
	DSE Approved Elective	Unrestricted Elective		