

## Michigan Technological University

### Minor in Systems Engineering

Program Code ESEM, Academic Year 2020-21

Department of Engineering Fundamentals

Total Credits Required: 20

#### Required Courses: 14 credits

Course	Credits
ENG 1505 Introduction to Systems Engineering (1) <i>Prereqs: ENG1001 or ENG1101 or CS1121 or CS1131</i>	
ENG 2505 Intro to Low Fidelity Systems Modeling (3) <i>Prereqs: (ENG1505(C) and MA2160 and (ENG1102 or CS1121 or CS1131))</i>	
ENG 3505 Low Fidelity Systems Modeling (1) <i>Prereqs: (ENG1505 and ENG2505</i>	
ENG 4300/OSM 4300 Project Management (3) <i>Prereqs: BUS2100 or CEE3710 or MA2720 or MA3710 or EE3180 or BE2100</i>	
ENG 4505 Systems Analysis, Modeling, and Design (3) <i>Prereqs: ENG3505</i>	
ENG 4510 Sustainable Futures I (3) <i>Prereqs: none</i>	

#### Elective Courses: select 6 credits from one of the following groups

##### A. Environmental Engineering and Sustainability

Course	Credits
CEE 3501 Environmental Engineering Fundamentals (3) <b>OR</b> CEE 3503 Environmental Engineering (3) <i>Prereqs to either course: MA2160 and CH1112 or (CH1150 and CH1151)</i>	
<b>AND</b> CEE 4506 Sustainable Engineering (3) <i>Prereqs: CEE3501 or CEE3503</i>	

##### B. Supply Chain, Logistics, Management

Course	Credits
OSM 3150 Intro to Supply Chain Management (3) <i>Prereq: OSM3000</i> <b>OR</b> OSM 4700 Logistics and Transportation Management (3) <i>Prereqs: (MA2710 or MA2720 or MA3710 or CEE3710) and (MA1135 or MA1160 or MA1161)</i>	
<b>AND</b> OSM 3600 Procurement and Supply Management (3) <i>Prereq: none</i>	

##### C. Design, LEAN, and Six Sigma

Course	Credits
MEEM 4650 Quality Engineering (3) <i>Prereqs: (MA3710 or MA3720 or MA2710 or MA2720) and MEEM3600(C)</i> <b>OR</b> OSM 4650 Six Sigma Fundamentals (3) <i>Prereqs: MA2710 or MA2720 or MA3710 or MA3720 or BUS2100 or CEE3710</i> <b>OR, take all 3 credits below:</b> ENT 3959 Fund of Six Sigma I (1) <i>Prereqs: none</i> ENT 3967 Design for Six Sigma (1) <i>Prereqs: none</i> ENT 3982 Continuous Improvement Using LEAN Principles (1) <i>Prereqs: none</i>	
<b>AND</b> HON 3300 Innovation through Human Centered Design (3) <i>Prereqs: none</i> <b>OR, select 3 credits from the following</b> ENT 3953 Ignite: Ideate, Innovate, Create! (1) <i>Prereqs: none</i> ENT 3958 Ethics in Engineering Design and Implementation (1) <i>Prereqs: ENG1101 or (ENG1001 and ENG1100)</i> ENT 3963 Deliver: Explore, Develop, Execute! (1) <i>Prereqs: none</i> ENT 3983 The Culture of Continuous Improvement (1) <i>Prereqs: none</i>	