

Michigan Technological University

Minor in Systems Engineering

Program Code ESEM, Academic Year 2019-20

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 Low Fidelity Systems Modeling (3) <i>Prereqs: (ENG1505(C) and MA2160 and (ENG1102 or CS1121 or CS1131))</i>	
ENG 3505 Modeling Laboratory for Sustainable Systems (1) <i>Prereqs: (ENG1505(C) and MA2160 and (ENG1102 or CS1121 or CS1131))</i>	
ENG 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 and ENG4510</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) OR CEE 3503 Environmental Engineering (3) <i>Prereqs to either course: MA2160 and CH1112 or (CH1150 and CH1151)</i>	
AND CEE 4506 Application of Sustainability Principles to Engineering Practice (3) <i>Prereqs: CEE3501 or CEE3503</i>	

B. Supply Chain, Logistics, Management

Course	Credits
OSM 3150 Intro to Supply Chain Mgmt (3) <i>Prereq: OSM3000</i> OR OSM 4700 Logistics and Transportation Mgmt (3) <i>Prereqs: (MA2710 or MA2720 or MA3710 or CEE3710) and (MA1135 or MA1160 or MA1161)</i>	
AND 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</i> OR OSM 4650 Six Sigma Fundamentals (3) <i>Prereqs: MA2710 or MA2720 or MA3710 or MA3720 or BUS2100 or CEE3710</i> OR, take all 3 credits below: 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>	
AND HON 3300 Innovation through Human Centered Design (3) <i>Prereqs: none</i> OR, select 3 credits from the following 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>	