

**Michigan Technological University****Minor in Sustainable Biomaterials**

Program Code: FSBM, Academic Year 2019-20

College of Forest Resources and Environmental Science

Total Credits Required: 18

**Required Courses: 6 credits**

Course	Credits
FW 3097 Forest Biomaterials (3) <i>Prereqs: none</i>	
ENG 4510 Sustainable Futures I (3) <i>May not be Freshman or Sophomore</i>	

**Core Elective Course: choose one**

Course	Credits
CEE 4233 Structural Timber Design (3) <i>Prereqs: CEE3202</i>	
EC 4640 Natural Resource Economics (3) <i>Prereqs: (EC2001 or EC3002 or FW4080) and UN1015 and (UN1025 or Modern Lang -3000 +)</i>	
FW 1035 Wood Anatomy and Properties (4) <i>Prereqs: none</i>	
SS 3313 Sustainability Science, Policy, and Assessment (3) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	

**Elective Courses: choose 9 credits, not already completed**

Course	Credits
CEE 4233 Structural Timber Design (3) <i>Prereqs: CEE3202</i>	
CEE 4506 Application of Sustainability Principles to Engineering Practice (3) <i>Prereqs: CEE3501 or CEE3503</i>	
CEE 4993 Engineering with Developing Communities (2) <i>Prereqs: (ENG2120 or MEEM2150) and (CEE3620)</i>	
CH 3540 Biophysical Chemistry (3) <i>Prereqs: (BL1020 or BL1040) and CH1122 or (CH1160 and CH1161) and MA2160 and PH2200</i>	
CH 3541 Biophysical Chemistry Laboratory (2) <i>Prereqs: (CH3540)</i>	
CH/CM 4610 Introduction to Polymer Science (3) <i>Prereqs: CH1122 or (CH1160 and CH1161)</i>	
CM 3979 Alternative Energy Technologies and Processes (1) <i>Prereqs: CH1112 or (CH1150 and CH1151) and (MA1160 or MA1161)</i>	
CM 4080 Undergraduate Research in Biofuels Engineering (1-3) <i>Prereqs: none</i>	
CMG 3250 Structural Analysis and Design (3) <i>Prereqs: CMG 2120 or MET 2120</i>	
CMG 4800 Sustainable Construction (3) <i>Must have Junior or Senior standing</i>	
EC/GE 4620 Energy Economics (3) <i>Prereqs: EC2001 and UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	
EC 4640 Natural Resource Economics (3) <i>Prereqs: (EC2001 or EC3002 or FW4080) and UN1015 and (UN1025 or Modern Lang -3000 +)</i>	
EC 4650 Environmental Economics (3) <i>Prereqs: (EC2001 or EC3002) and UN1015 and (UN1025 or Modern Language - 3000 Level +)</i>	
ENG 3505 Modeling Laboratory for Sustainable Systems (1) <i>Prereqs: ENG1505 and ENg2505 and ENG4510(c)</i>	
ENG 4505 Systems Analysis, Modeling, and Design (3) <i>Prereqs: ENG3505 and ENG4510</i>	
FA 2190 Art and Nature (3) <i>Prereqs: none</i>	
FW 3010 Practice of Silviculture (4) <i>Prereqs: FW 2010 and FW2051</i>	
FW 3098 Adding Value to Biomaterials (2) <i>Prereqs: none</i>	
FW 3110 Natural Resource Policy (3) <i>Prereqs: none</i>	
FW 3116 Ethnobotany (3) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	
FW 3150 Timber Harvesting (2) <i>Prereqs: FW2051</i>	
FW 3765 Maple Syrup Management and Culture (1) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	
FW 4080 Forest Economics & Finance (3) <i>Prereqs: none</i>	
MSE 4777 Distributed Additive Manufacturing Open-Source 3-D Printing (3) <i>Must be enrolled in the College of Engineering; Must have Junior or Senior standing</i>	
SS 3300 Environmental Problems (3) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	
SS 3313 Sustainability Science, Policy, and Assessment (3) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	
SS 3630 Environmental Policy and Politics (3) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	
SS 4390 Seminar in Sustainability Issues (3) <i>Prereqs: UN1015 and (UN1025 or Modern Language - 3000 level or higher)</i>	