

2-2.5 Year MS & MSE Plan		Requirement	Notes	Course #	Credits	Term	
Engineering	Mechanical Engineering Core	12CR in ME courses at the 500 or 600 level	Required: ME 589 ME 433 And one course from List A (next page)				
		6-9CR in additional ME courses or research	Depends on ME option: • Coursework Only • Individual Research Project* • Thesis* Please see: http://me.engin.umich.edu/students/masters.shtml				
		6CR in acceptable Mathematics or equivalent	Please see: http://me.engin.umich.edu/students/acceptable_math.shtml				
Natural Resources and Environment	SS Core <i>[SS-specific requirements]</i>	6CR in Systems Analysis for Sustainability	Required: NRE 557/CEE 586 And one course from List 1 (next page)				
		9CR total	Sustainable Design & Technology <i>Minimum. 3CR</i>	Required: NRE 574 See List 2 for other acceptable courses (next page)			
			Sustainable Enterprise <i>Minimum 3CR</i>	See List 3 for acceptable courses (next page)			
	NRE Core <i>[School-wide requirement]</i>	NRE 509 NRE 510 NRE 580	10CR in total				
	Analytics <i>[School-wide requirement]</i>	3CR in Analytics	NRE 538 or equivalent required: http://www.snre.umich.edu/sites/snre.umich.edu/files/Statistic%20Courses%201108.pdf				
Opus* <i>[School-wide requirement]</i>	Master's Project/Thesis/Practicum	At most 6CR of NRE 700/701					
Cognates <i>[Rackham requirement]</i>		Please see next page for cognate requirement information					
TOTALS	TOTAL CREDIT HOURS BY SCHOOL	SNRE - Minimum 25CR					
	TOTAL CREDIT HOURS	ME - Minimum 18CR					
		Minimum 54 Credit Hours					

*Please see the Mechanical Engineering Student Services Office if you would prefer to complete their Research or Thesis option in lieu of the SNRE Opus

A) Mechanical Engineering

ME 432 (3)	Combustion (F)
ME 438 (4)	Internal Combustion Engines (F)
ME 537 (3)	Advanced Combustion (W)
ESENG 501/CEE 565 (3)	Seminars on Energy Systems Technology and Policy (F)

Natural Resources and Environment

1) Systems Analysis for Sustainability (6 hrs) fulfills SNRE Analytics requirement

NRE 531 (4)	Principles of GIS (W)
NRE 550/STRATEGY 566 (3)	Systems Thinking For Sustainable Development (W)
NRE 557/CEE 586 (3)	Industrial Ecology (W)
NRE 570 (3)	Microeconomics with Natural Resource Applications (W)
*NRE 571 (3)	Environmental Economics (F)
*NRE 583 (3)	Intermediate Natural Resource Economics
NRE 595/CEE 589 (3)	Risk-Benefit Analysis in Environmental Engineering (F)
NRE 501.092	Environmental Systems Analysis (F)

*Please note that only 1 (one) econ course can be counted under the Systems Analysis requirement

2) Sustainable Design and Technology (3-9hrs)

NRE 574/PUBPOL 519 (3)	Sustainable Energy Systems (F)
NRE 576/UP 576 (3)	Ecological Design Approaches to Brownfield Redevelopment (F)
NRE 605/BA 605 (3)	Green Development (W)
NRE 687 (4)	Landscape Analysis and Planning
NRE 501.022 (2)	Constructed Wetlands (W)
NRE 501.031 (2)	Sustainable Site Design (W)
Arch 575 (3)	Building Ecology (F)
CEE 460 (3)	Design of Environmental Engineering Systems (F)
CEE 582 (3)	Environmental Microbiology (F)
CEE 686/ChE 686 (2-3)	Case Studies in Environmental Sustainability (W)
ChE 496 (3)	Hydrogen Production & Storage
ME 589 (3)	Sustainable Design of Technology Systems (F)
ME 599	Special Topics in Mech Engineering [TBD] (F & W)
EECS 498 (3)	Grid Integration of Alternative Energy Sources (TBD)
OMS 613 (1.5)	Sustainable Manufacturing (W)

3) Sustainable Enterprise (3-9 hrs)

NRE 512/BA 512 (1.5)	Ethics Corporate Management (F & W)
NRE 513/STRAT 564&565 (3)	Competitive Environmental Strategy (F)
NRE 527 (3)	Energy Markets and Energy Politics (F)
NRE 532 (3)	Natural Resources Conflict Management (F)
NRE 533 (3)	Negotiating Skills In Environmental Dispute Resolution (W)
BE 555 (1.5)	Non-Market Strategy (F)
NRE 560/UP 560/HB 710 (3)	Behavior and Environment (F)
NRE 565 (3)	Principles of Sustainability (W)
NRE 605/BA 605 (3)	Green Development (W)
ENG 521 (3)	CleanTech Entrepreneurship (F)
FIN 637 (2.25)	Finance and Sustainable Enterprises (F)
LHC 503 (1.5)	Business Ethics, Science & Technology (F)
OMS 613 (1.5)	Sustainable Manufacturing (W)
STRATEGY 735-739 (1.5)	Environmental Management Topics (F & W)

Cognates

SNRE – Minimum 4 credits outside SNRE. Can be fulfilled with ME coursework.

ME – 3-6 credits outside ME at the 4xx level or above. Can be fulfilled by ME Mathematics requirement.