

2-2.5 Year MS & MSE Plan		Requirement	Notes	Course #	Credits	Term
Engineering	Environmental Engineering Core	18CR in CEE courses at the 500 or 600 level 6CR in additional CEE courses	Required: CEE 581 CEE 582 CEE 591 CEE 881 (1 st Fall in program) And one course from List A (next page) *	CEE 581		
				CEE 582		
				CEE 591		
				CEE 881		
		3CR in approved Mathematics or equivalent	See Env. Eng dept. requirements and Cognates (next page)			
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)	NRE 557		
	9CR total	Sustainable Design & Technology Minimum. 3CR	Required: NRE 574 See List 2 for other acceptable courses (next page)	NRE 574		
		Sustainable Enterprise Minimum 3CR	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>	One statistics course	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		"NRE" - Minimum 25CR			
			"CEE"- Minimum 18CR			
	TOTAL CREDIT HOURS		Minimum 54 Credit Hours			

**Please see the Civil and Environmental Engineering Student Services Office if you would prefer to complete their Research or Thesis in Engineering

A) Sustainable Energy Systems (12CR total)

Required:

CEE 567 (3) Energy Infrastructure Systems (W)

Civil and Environmental Engineering (choose one):

CEE 526 (3) Design of Hydraulic Systems (W)

CEE 549 (3) Geoenvironmental Engineering (F)

CEE 592 (3) Biological Processes in Environ Eng (W)

Energy Electives (choose two):

CHE 548 (3) Electrochemical Engineering (F)

CHE 568 (3) Fuel Cells and Fuel Processors (F)

EECS 463 (4) Power Systems Des & Operations (F)

EECS 498 (4) Grid Integrations of Alt Energy Sources (W)

ME 432 (3) Combustion (W)

ME 433 (3) Advanced Energy Solutions (F,W)

ME 571 (3) Energy Generation and Storage (F)

ME 589 (3) Sustainable Des of Technology Systems (F)

NERS 531 (3) Nuclear Waste Management (W)

Natural Resources and Environment

1) Systems Analysis for Sustainability (6 hrs)

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 501.086 (3) Tools and Topics in Environmental Economics (W TBD)

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 501.039 (3) Land Use and Global Change (F)

NRE 501.036 (3) Sustainable Systems in Developing Countries (W)

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

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)

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)

3) Sustainable Enterprise (3-9 hrs)

NRE 501.032 (3) Transportation Energy and Climate (W)

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)

ES 520 (1.5) CleanTech Venture Opportunities (F)

FIN 637 (2.25) Finance and Sustainable Enterprises (F)

STRATEGY 735-739 (1.5) Environmental Management Topics (F & W)

Cognates

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

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