EME M.S. CHECKSHEET: Non-thesis based

Name:_____ PSU ID: _____

1) EME *non-thesis* M.S. course credit requirement: Thirty-three (33) course credits

Take <u>two</u> of following core EME courses (6 cred. total): EME 501 / 511 / 521 / 531/ 551

	Course taken	Semester taken
1		
2		

Completed? YES/NO

27 additional course credits

-<u>Base program students</u>: Please show at least eighteen (27) additional credits of 500 courses (9 courses), which must include 2 additional core EME courses beyond those reported above. **Please complete 'Base EME program students' table** on your right.

-<u>Option students</u>: **Please complete option checksheet now.** In addition to the four courses (12 credits) indicated there, you are required to complete ***five more graduate-level courses*** (15 credits). Please indicate the five additional courses in the **'EME students completing an option' table** on your right. Of these five, **at least two** of these courses must be from the EME core *and/or* option list (and NOT already reported elsewhere in these check sheets).

<u>Base EME program students</u>: Show 27 cred (9 courses) of 500-level classes

	Two additional classes from EME 501/511/521 /531/551 core (not used before)	
	Course taken	**Semester taken**
1		
2		
	Show additional 21 cred (7 classes) of 500-level courses	
3		
4		
5		
6		
7		
8		
9		

<u>EME students completing an option</u>: Show 15 cred (5 courses) of 500-level classes

	Two additional classes from your <u>OPTION</u> list <u>AND/OR</u> from EME 501/511/521 /531/551 core list (not used before)	
	Course taken	**Semester taken**
1		
2		
	Show additional 9 credits (3 classes of 3 cred/each) of 500-level courses	
3		
4		
5		

Completed? YES/NO

2) M.S. Research Culminating Experience: Three (3) credits of an EME research capstone experience

EME 580 (course-based) (3 cred) **or EME 596** (paper-based; <u>must also submit paper approval form</u>) (3 cred)

Course taken:

Semester taken:

Completed? YES/NO

3) Remaining M.S. Milestones					**Indicate dates:**
Date **SARI@PSU CITI Online Training** passed:					
Date of each **SARI @PSU 5 hr. training:**					
Date **Exit Survey** completed:					

Please note that, in addition to the Departmental requirements above, PSU's Grad School will (independently) verify that you satisfy PSU-wide degree completion criteria. Among those, by the time you desire to graduate, you must have **GPA > 3.0,** have no missing or deferred grades, have taken no more than 6 credits of 400-level courses, and have completed your requirements within 8 years of admission, among others.

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EME OPTION CHECKSHEET (M.S. and Ph.D)

Name:_____ PSU ID: _____

ESysE Option Specialization Courses (12 credits)		
Requirement / Credits	**Class & Semester taken**	**Credits earned**
ENNEC 540(3)		
ENNEC 560(3)		
EME 522(3)		
EME 523(3)		
EME 524(3)		
EME 526(3)		
EME 527(3)		
IE 505(3)		
IE 516(3)		
Total credits (must add to 12):		

FSc Option Specialization Courses (12 credits)		
Requirement / Credits	**Class & Semester taken**	**Credits earned**
FSC 503(3) *or* CHE510(3)		
FSC 504(3)		
FSC 506(3)		
EME 570 *or* CHE 536		
CHE 544(3) *or* CHE 546		
ME 523(3)		
Total credits (must add to 12):		

MMPE Option Specialization Courses (12 credits)		
Requirement / Credits	**Class & Semester taken**	**Credits earned**
MNG 541(3)		
MNG 554(3)		
MNG 512(3)		
MN PR 505(3)		
MN PR 507(3)		
Total credits (must add to 12):		

PNGE Option Specialization Courses (12 credits)		
Requirement / Credits	**Class & Semester taken**	**Credits earned**
PNG 501(3)		
PNG 502(3)		
PNG 512(3)		
PNG 518(3)		
PNG 520(3)		
PNG 526(3)		
PNG 530(3)		
PNG 555(3)		
PNG 566(3)		
PNG 577(3)		
PNG 597s (†)		
Total credits (must add to 12):		

(†) Any PNG 597s (Special Topics class) may be used here. However, no PNG 596 (Individual Studies) credits may be used within this 12-credit option course count.

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EME M.S. Non-thesis – Pre-approved list of classes

All EME Core Courses:

EME 501(3): Design Under Uncertainty in EME Systems
EME 511(3): Interfacial Phenomena in EME Systems
EME 521(3): Mathematical Modeling of EME Systems
EME 531(3): Thermodynamics in EME Systems
EME 551(3): Safety, Health, and Environmental Risks in EME Production

Any course within EME Graduate Option list:

CHE 510(3): Surface Characterization of Materials (FSc option)
CHE 536(3): Heterogeneous Catalysis (FSc option)
CHE 544(3): General Transport Phenomena (FSc option)
CHE 546(3): Transport Phenomena II (FSc option)
ENNEC 540(3): Economic Analysis of Energy Markets (ESysE option)
EME 522(3): Computational Methods for Electric Power Systems Analysis (ESysE option)
EME 523(3): Stochastic Optimization Methods for Energy and Environmental Systems (ESysE option)
EME 524(3): Machine Learning for Energy and Mineral Engineering Problems (ESysE option)
EME 526(3): Solar Utility and Portfolio Management (ESysE option)
EME 527(3): Stochastic Modeling of Spatial Variability in Energy and Environmental System (ESysE option)
EME 570 (MATSE 570) (3): Catalytic Materials (FSc option)
FSC 503(3): Analytic Methods in Fuel Science (FSc option)
FSC 504(3): Problems in Fuels Engineering (FSc option)
FSC 506(3): Carbon Reactions (FSc option)
IE 505(3): Linear Programming (ESysE option)
IE 516(3): Applied Stochastic Processes (ESysE option)
ME 523(3): Numerical Solutions Applied to Heat Transfer and Fluid Mechanics Problems (FSc option)
MNG 541(3): Surface Mine Equipment Selection Anal. (MMPE option)
MNG 554(3): Rock Mechanics Design (MMPE option)
MNG 512(3): Mineral Property Evaluation (MMPE option)
MN PR 505(3): Particle Separation (MMPE option)
MN PR 507(3): Hydrometallurgical Processing (MMPE option)
PNG 501(3): Flow in Porous Media (PNGE option)
PNG 502(3): Coupled Flow and Deformation in Porous Media (PNGE option)
PNG 512(3): Numerical Reservoir Simulation (PNGE option)
PNG 518(3): Design of Miscible Recovery Projects (PNGE option)
PNG 520(3): Thermodynamics Hydrocarbon Fluids (PNGE option)
PNG 526(3): Well Stimulation (PNGE option)
PNG 530(3): Natural Gas Engineering (PNGE option)
PNG 555(3): Unconventional Resources Analysis (PNGE option)
PNG 566(3): Reservoir Characterization (PNGE option)
PNG 577(3): Production and Completions Eng. (PNGE option)
PNG 597(3): Special Topics (PNGE option)

Other non-EME/non-option courses:

AEREC 510(3): Econometrics I
AEREC 511(3): Econometrics II
AEREC 512(3): Applied Microeconomic Theory I
AEREC 529(3): Applied Welfare Economics
CHE 524(3): Chemical Engineering Applications of Thermodynamics
CHE 576 (CE 576) (3): Environmental Transport Processes
EMCH 524A(3): Mathematical Methods in Engineering
IE 525(3): Convex Optimization
STAT 501(3): Regression Methods
STAT 502(3): Analysis of Variance and Design of Experiments
STAT 515(3): Stochastic Processes and Monte Carlo Methods
STAT 540(3): Statistical Computing
STAT 557(3): Data Mining I

& Up to 6 credits of 400-level undergrad courses (please seek prior review from AHGE for selecting UG courses)

Please note: Taking 12 cred/semester allows non-thesis M.S. students to graduate in 3 semesters