

# EME M.S. CHECKSHEET: Non-thesis based

Name: \_\_\_\_\_ PSU ID: \_\_\_\_\_

<b>1) EME non-thesis M.S. course credit requirement:</b> Thirty-three (33) course credits																																																								
<p style="text-align: center;"><b>Take <u>two</u> of following core EME courses (6 cred. total):</b> EME 501 / 511 / 521 / 531/ 551</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 40%;">Course taken</th> <th style="width: 45%;">Semester taken</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> </tbody> </table>		Course taken	Semester taken	1			2			<p><b>Completed?</b> YES/NO</p>																																												
	Course taken	Semester taken																																																						
1																																																								
2																																																								
<p style="text-align: center;"><b>27 additional course credits</b></p> <p><b>-Base program students:</b> 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. <b>Please complete 'Base EME program students' table</b> on your right.</p> <p><b>-Option students: Please complete option checksheet now.</b> In addition to the four courses (12 credits) indicated there, you are required to complete <b>five more graduate-level courses</b> (15 credits). Please indicate the five additional courses in the <b>'EME students completing an option' table</b> on your right. Of these five, <b>at least two</b> of these courses must be from the EME core <i>and/or</i> option list (and NOT already reported elsewhere in these check sheets).</p>	<p style="text-align: center;"><b>Base EME program students:</b> <b>Show 27 cred (9 courses) of 500-level classes</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th colspan="2" style="text-align: center;">Two additional classes from EME 501/511/521 /531/551 core (not used before)</th> </tr> <tr> <th></th> <th style="width: 40%;">Course taken</th> <th style="width: 45%;">Semester taken</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: center;"><b>Show additional 21 cred (7 classes) of 500-level courses</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td style="text-align: center;">3</td><td></td><td></td></tr> <tr><td style="text-align: center;">4</td><td></td><td></td></tr> <tr><td style="text-align: center;">5</td><td></td><td></td></tr> <tr><td style="text-align: center;">6</td><td></td><td></td></tr> <tr><td style="text-align: center;">7</td><td></td><td></td></tr> <tr><td style="text-align: center;">8</td><td></td><td></td></tr> <tr><td style="text-align: center;">9</td><td></td><td></td></tr> </tbody> </table> <p style="text-align: center;"><b>EME students completing an option:</b> <b>Show 15 cred (5 courses) of 500-level classes</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th colspan="2" style="text-align: center;">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)</th> </tr> <tr> <th></th> <th style="width: 40%;">Course taken</th> <th style="width: 45%;">Semester taken</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: center;"><b>Show additional 9 credits (3 classes of 3 cred/each) of 500-level courses</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td style="text-align: center;">3</td><td></td><td></td></tr> <tr><td style="text-align: center;">4</td><td></td><td></td></tr> <tr><td style="text-align: center;">5</td><td></td><td></td></tr> </tbody> </table>		Two additional classes from EME 501/511/521 /531/551 core (not used before)			Course taken	Semester taken	1			2			3			4			5			6			7			8			9				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			3			4			5			<p><b>Completed?</b> YES/NO</p>
	Two additional classes from EME 501/511/521 /531/551 core (not used before)																																																							
	Course taken	Semester taken																																																						
1																																																								
2																																																								
3																																																								
4																																																								
5																																																								
6																																																								
7																																																								
8																																																								
9																																																								
	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																																																								
3																																																								
4																																																								
5																																																								

<b>2) M.S. Research Culminating Experience:</b> Three (3) credits of an EME research capstone experience		
<p>EME 580 (course-based) (3 cred) or EME 596 (paper-based; <b>must also submit paper approval form</b>) (3 cred)</p>	<p>Course taken: _____</p> <p>Semester taken: _____</p>	<p><b>Completed?</b> YES/NO</p>

<b>3) Remaining M.S. Milestones</b>					<b>Indicate dates:</b>
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.



**John and Willie Leone Family Department of  
Energy and Mineral Engineering (EME)**

EME Graduate Education Office  
The Pennsylvania State University  
103 Hosler Building  
University Park, PA 16802-5000, USA

+1 814 863-0373  
+1 814 865-3248 (Fax)

[www.eme.psu.edu/academics/graduate](http://www.eme.psu.edu/academics/graduate)

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

Name: \_\_\_\_\_ PSU ID: \_\_\_\_\_

<b>ESysE Option Specialization Courses (12 credits)</b>		
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)		
<b>Total credits (must add to 12):</b>		

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

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

<b>PNGE Option Specialization Courses (12 credits)</b>		
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 (†)		
<b>Total credits (must add to 12):</b>		

Last Rev: 08/2018 – AHGE

(†) 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.

# 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**