

MSU Graduation Requirements for
 MINOR in Computer Engineering
 (30 credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (23 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
CSCI 111—Prog with Java OR CSCI 127	4		
CSCI 112—Prog Design with C	3		
CSCI 132—Basic Data Structs	4		
CSCI 232—Data Structs & Algs	4		
EELE 261—Intro to Logic Circuits	4		
EELE 371—Microprocessor HW/SW Sys	4		

Take 7 credits minimum from the following:

EELE 367—Logic Design	4		
EELE 465—Microcontroller Applications	4		
EELE 466—Computer Arch & Syst Org	4		
EELE 475—Hrdwr/Sftwr Eng for Emb Sys	3		

Note:

By carefully selecting electives, the EE major and CpE minor can both be completed in 128 credits.

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.

MSU Graduation Requirements for
 MINOR in Electrical Engineering
 (30 credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (21 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
EELE 101—Intro to Electr Fund	3		
EELE 201—Circuits I	4		
EELE 203—Circuits II	4		
EELE 308—Signal and System Analysis	3		
EELE 317—Electronics	4		
EELE 334—Electromag Theory I	3		

Take 9 credits minimum from the following:

EELE 321—Intro to Feedback Control	3		
EELE 432—Applied Electromagnetics	3		
EELE 355—Electrical Machinery	4		
EELE 409—EE Material Science	3		
EELE 411—Adv Analog Electronics	3		
EELE 414—Intro to VLSI Design	3		
EELE 422—Intro Modern Control	3		
EELE 445—Telecommunications Systems	4		
EELE 447—Mobile Wireless Sys	3		
EELE 482—Electro-optical Systems	3		
EELE 484—Laser Engineering	3		

Note:

By carefully selecting electives, the CpE major and EE minor can both be completed in 126 credits.

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.

MSU Graduation Requirements for
 MINOR in Mechatronics
 (31 credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (31 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
CSCI 111—Java OR CSCI 112 OR 127	3-4		
EGEN 365—Introduction to Mechatronics	3		
EGEN 201—Engr Mechanics-Statics	3		
EGEN 202—Engr Mechanics-Dynamics	3		
EGEN 205—Mechanics of Materials	3		
EELE 261—Intro to Logic Circuits	4		
EELE 317—Electronics	4		
EELE 321—Intro Feedback Control	3		
EELE 371—Microprocessor HW/SW Sys	4		

Notes:

By carefully selecting electives, the CpE major and Mechatronics minor can be completed in 142 credits.

By carefully selecting electives, the EE major and Mechatronics minor can be completed in 128 credits.

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.

MSU Graduation Requirements for
 MINOR in Computer Science
 (27 credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (12 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
CSCI 111—Prog with Java OR CSCI 127	4		
CSCI 132—Basic Data Structs	4		
CSCI 232—Data Struct & Algs	4		

Take 9 cr. 300-400 level taught by CS Dept.:

CSCI/CS/SE			
"			
"			
"			

Take 6 cr. other classes (any level) from CS:

CAPP/CSCI/CS/SE			
"			
"			
"			

Note: By carefully selecting electives, CpE majors can apply all 27 credits of CS courses toward both the CpE major and the CS minor.

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.

MSU Graduation Requirements for
 MINOR in Aerospace
 (31+ credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (19 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
M 171—Calculus I	4		
M 172—Calculus II	4		
PHSX 220—Physics I	4		
PHSX 222—Physics II	4		
EMEC 368—Intro to Aerospace	3		

Take one course in each of the three areas:

<i>Materials and Structures (see list)</i>	<i>3-4</i>		
<i>Thermo/Fluids (see list)</i>	<i>3-4</i>		
<i>Focused Topics (see list)</i>	<i>3-4</i>		

Take one additional elective class (whole list):

<i>Aerospace Minor Elective</i>	<i>3-4</i>		

<p><i>Materials and Structures</i></p> <ul style="list-style-type: none"> EMEC 444 Mechanical Behavior of Materials EMAT 463 Composite Materials EMEC 447 Aircraft Structures EMEC 405 Finite Element Analysis PHSX 442 Novel Materials EMAT 350 Engineering Materials 	<p><i>Focused Topics</i></p> <ul style="list-style-type: none"> ETME 415 Design for Manufacturing & Tooling EMEC 403 CAE IV-Design Integration ETME 410 CNC & CAM Technology EIND 422 Introduction to Simulation EELE 308 Signals & Systems Analysis EELE 321 Introduction to Feedback Controls EELE 422 Introduction to Modern Control EELE 465 Microcontroller Applications EELE 482 Electro-Optical Systems EGEN 310R Multidisc Engineering Design EMEC 467 MEMS PHSX 327 Optics PHSX 337 Laser Applications PHSX 435 Astrophysics
<p><i>Thermo/Fluids</i></p> <ul style="list-style-type: none"> EGEN 335 Fluid Mechanics EGEN 435 Fluid Dynamics EGEN 324 Applied Thermodynamics EMEC 326 Fundamentals of Heat Transfer EMEC 436 Dynamics of Fluids ETME 422 Principles of HVAC I ECHM 424 Transport Analysis 	

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.

MSU Graduation Requirements for
 MINOR in Mathematics
 (28 credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (19 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
M 171Q--Calculus I	4		
M 172Q--Calculus II	4		
M 221--Introduction to Linear Algebra	3		
M 273Q--Multivariable Calculus	4		
M 274--Intro to Differential Equation	4		

Take 9 credits minimum from the following:

M 328--Higher Math for Sec Teachers	3		
M 330--History of Mathematics	3		
M 333--Linear Algebra	3		
M 348--Techniques of Applied Math I	3		
M 349--Techniques of Applied Math II	3		
M 381--Advanced Calculus I	3		
M 382--Advanced Calculus II	3		
M 431--Abstract Algebra I	3		
M 421--Probability Theory	3		
M 422--Mathematical Statistics	3		
M 441--Num Linear Alg & Optimization	3		
M 442--Num Solution of Diff Equations	3		
M 472--Intro to Complex Analysis	3		
M 450--Applied Mathematics I	3		
M 451--Applied Mathematics II	3		
M 454--Intro to Dynamical Systems I	3		
M 455--Intro to Dynamical Systems II	3		
M 486R--Research Exp in Applied Math	3		

Note: By carefully selecting electives, EE students can apply all 28 credits of Math courses to both the EE major and the Math minor. CpE students can apply up to 24 credits of Math courses to both the CpE major and the Math minor.

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.

MSU Graduation Requirements for
 MINOR in Optics
 (21 credits)

Name: _____

ID: - _____

Date: _____

<i>Required courses (12 credits):</i>	<i>Cr.</i>	<i>Term Enrolled</i>	<i>Course Grade</i>
EELE 334—Electromagnetics	3		
EELE 432—Applied Electromagnetics	3		
EELE 482—Electro-Optical Systems	3		
PHSX 427—Advanced Optics or PHSX 437—Laser Applications	3		

Take 9 credits minimum from the following:

CHMY 371—Physical Chemistry-Quantum Chemistry and Spectroscopy I	3		
PHSX 427—Advanced Optics	3		
PHSX 437—Laser Applications	3		
PHSX 444—Advanced Physics Lab	4		
EELE 408—Photovoltaic Systems	3		
EELE 481—Optical Design	3		
EELE 484—Laser Engineering	3		
EELE 488R—Electrical Engr Design I ¹	2		
EELE 489R—Electrical Engr Design II ¹	3		
EELE 491—Special Topics ²	3		
EELE 492—Independent Study ²	3		
PHSX 499—Senior Capstone Seminar ¹	1		
EELE 490R—Undergraduate Research ¹	1-6		
PHSX 490R—Undergraduate Research ¹	1-6		
PHSX 494—Seminar/Workshop ¹	1		

¹ A maximum of four (4) credits of these classes may be used if the topic is directly related to optics, on approval by academic advisor and research advisor/instructor.

² A maximum of three (3) credits of these classes may be used if the topic is directly related to optics, on approval by academic advisor and research advisor/instructor.

Students must receive a grade of "C-" or better in all courses used to fulfill the minor.