

**AUBURN UNIVERSITY**



**MECHANICAL ENGINEERING**

**STUDENT**

**HANDBOOK**

# Welcome to the Mechanical Engineering Department of Auburn University!

The purpose of this handbook is to give you all the information and tools you need to successfully complete a Mechanical Engineering degree at Auburn.

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## **Fact Sheet for Mechanical Engineering**

- Mechanical and Materials Engineering programs with 30 faculty
- Largest undergraduate enrollment of the entire university with 711 students in Fall 2009
- 157 Graduate students with research areas in Transportation, Vehicles, Electronic Packaging, Detection and Food Safety
- One of the best-funded research programs at the university
- Rigorous and innovative curriculum that produces extremely successful alumni world-wide
- Comprehensive Design courses offer hands-on, problem-solving projects sponsored by major companies that take the students from concept to design to prototype
- New minor offered in Automotive Engineering
- Largest departmental participation in Co-Op program
- Student groups include the American Society of Mechanical Engineers (ASME), Pi Tau Sigma and Alpha Sigma Mu honor societies
- War Eagle Motor Sports extracurricular program has winning teams in Baja SAE, Formula SAE, and Sol of Auburn solar car, and TIGER hybrid commuter vehicle

## **Department Info**

Contacts: Department Chair – Dr. Jeffrey Suhling  
272 Ross Hall  
334-844-4820  
[suhlijc@auburn.edu](mailto:suhlijc@auburn.edu)

Undergraduate Program Officer – Dr. Sushil Bhavnani  
268 Ross Hall  
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Academic Advisor – Karen Clark  
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Auburn University, AL 36849  
Phone: 334-844-4820  
Fax: 334-844-3307

Website: [www.eng.auburn.edu/mech](http://www.eng.auburn.edu/mech)

## College of Engineering

Deans' Office:            Dean Larry Benefield  
                                 1301 Shelby Center  
                                 334-844-2308

Engineering Student Services (central advising office):  
                                 Dr. Bob Karcher, Assistant Dean of Student Services  
                                 1210 Shelby Center  
                                 334-844-4310

Transfer Students:	Donna Kelly	334-844-2288
Advisors:	Rob Kulick	334-844-2290
	Laura Kincaid	334-844-2312
	John Raines	334-844-2289

Global Education Initiative (Study Abroad):    Dr. Nick Conrad  
   2321 Shelby  
   334-844-2894

BellSouth Minority Engineering Program:        Dr. Shirley Harris  
   1214 Shelby  
   334-844-2330

Programs:            Aerospace Engineering – 211 Davis Hall  
                                 Biosystems Engineering – 209 Corley  
                                 Chemical Engineering – 211 Ross Hall  
                                 Civil Engineering – 238 Harbert Hall  
                                 Computer Science and Software Engineering – 3101 Shelby  
                                 Electrical and Computer Engineering – 200 Broun Hall  
                                 Industrial and Systems Engineering – 3301 Shelby  
                                 Mechanical Engineering – 270 Ross Hall  
                                 Materials Engineering – 273 Wilmore  
                                 Polymer and Fiber Engineering – 101 Textile Building

## **Campus Info**

Academic Calendar: [www.auburn.edu/main/auweb\\_calendar.html](http://www.auburn.edu/main/auweb_calendar.html)  
(or page 4 of the AU Bulletin)

Enrollment Services: The Quad Center 334-844-6425

Registrar: Mary Martin Hall 334-844-4367

Student Financial Services (Bursar): Mary Martin Hall 334-844-4634  
(Financial Aid: 203 Mary Martin Hall)

Foy Information Desk: Student Center 334-844-4244

Housing and Residence Life: Burton Hall 334-844-4580

Parking Services: 334-844-4143 or 334-844-4144

Tiger Transit: 334-844-4757

## **Resources**

Career Development Services: 303 Mary Martin Hall 334-844-4744

Cater Center for Academic Excellence: Cater Hall 334-844-4277

Dean of Students: 334-844-1300

English Center and Composition Hot Line: 3183 Haley Center 334-844-5749

Medical Clinic: 334-844-4416 (appointments)

OIT Assistance: RDB Library (1<sup>st</sup> floor) 334-844-4944

Student Counseling Services: 2086 Medical Center 334-844-5123

## **Curriculum Model** (yellow sheet)

This lists all courses required for a Bachelor of Mechanical Engineering (BME), in the recommended order of progression.

Everything on this list is required for graduation. You have some choices with core classes and technical electives, but if a course number is listed, you must take that class.

It is not essential to follow this progression exactly. If you have completed the pre-requisites, you are allowed to take a course, but the closer you follow this list, the less likely you are to have pre-requisite problems and hold-ups. Also, the closer you follow this list, the more logical the progression will be. Remember, the curriculum is laid out that way for a reason!

Passing grades are A – D on most courses, with two exceptions. In Statics and Dynamics (MECH 2110) and Thermodynamics I (ENGR 2010) you must receive a grade of C or better. If you get a D or an F, you must retake the course until you get a C or better.

All required Mechanical Engineering courses (in bold) are taught every semester, including summer. We teach all of our courses all the time! You should rarely have trouble getting a seat in one of these classes.

### HELPFUL HINTS:

MECH course labs usually do not start until after the first scheduled lecture. The instructor should give you information about when the labs start and what building and room they will be in.

Check your schedule on Tiger-i just before classes start and verify the room. It may have changed! Sometimes classes have to be moved to a different classroom, so double check before you go to class on the first day.

# BACHELOR OF MECHANICAL ENGINEERING

## CURRICULUM MODEL

<u>Freshman Fall</u> ENGR1100 Engineering Orientation 0 COMP1200 Introduction to Computing for E & S 2 CHEM1030 Fundamentals of Chemistry I 3 CHEM1031 Fundamentals of Chemistry I Lab 1 MATH1610 Calculus I 4 ENGL1100 English Composition I 3 Core History <u>3</u> 16	<u>Freshman Spring</u> ENGR1110 Introduction to Engineering 2 PHYS1600 Engineering Physics I 4 MATH1620 Calculus II 4 ENGL1120 English Composition II 3 Core History <u>3</u> 16
<u>Sophomore Fall</u> <b>MECH2110 Statics and Dynamics</b> 4 PHYS1610 Engineering Physics II 4 MATH2630 Calculus III 4 MATH2650 Linear Differential Equations <u>3</u> 15	<u>Sophomore Spring</u> <b>MECH2120 Kinematics &amp; Dynamics of Machines</b> 4 <b>MECH2220 Computer Aided Engineering</b> 3 ENGR2010 Thermodynamics I 3 MATL2100 Introduction to Materials Science 3 MATH2660 Topics in Linear Algebra 3 <b>MECH2AA0 Mech. Engr. Progress Assessment I</b> <u>0</u> 16
<u>Junior Fall</u> <b>MECH3020 Thermodynamics II</b> 3 <b>MECH3030 Fluid Mechanics</b> 3 <b>MECH3130 Mechanics of Materials</b> 4 <b>MECH3200 Concepts in Design &amp; Manufacturing</b> 2 <b>MECH3210 Design &amp; Manufacturing Lab</b> 1 ELEC3810 Fundamentals of Electrical Engineering <u>3</u> 16	<u>Junior Spring</u> <b>MECH3040 Heat Transfer</b> 3 <b>MECH3050 Measurement and Instrumentation</b> 3 <b>MECH3140 System Dynamics and Controls</b> 3 <b>MECH3230 Machine Design</b> 3 INSY3600 Engineering Economics 3 <b>MECH3AA0 Mech. Engr. Progress Assessment II</b> <u>0</u> 15
<u>Senior Fall</u> <b>MECH4240 Comprehensive Design I</b> 2 <b>Technical Elective</b> 3 <b>Technical Elective</b> 3 ENGL2200 World Literature I 3 Core Social Science 3 Core Ethics <u>3</u> 17	<u>Senior Spring</u> <b>MECH4250 Comprehensive Design II</b> 2 <b>Technical Elective</b> 3 Free Elective or ROTC 3 ENGL2210 World Literature II 3 Core Social Science 3 Core Fine Arts <u>3</u> 17

total 128 semester hours

Revised September 27, 2007 - MECH2@@0 and MECH3@@0 re-numbered to MECH2AA0 and MECH3AA0,  
 MECH2210 changed to MECH3200 and MECH3210,  
 MECH3220 changed to MECH2220

Revised March 25, 2004 - Great Books changed to World Literature

Revised, August 19, 2002 - MECH2000 and MECH3000 re-numbered to MECH2@@0 and MECH3@@0

Revised August 16, 2001 - MECH2000, ME Progress Assessment I, and MECH3000, ME Progress Assessment II added

# STUDENT NOTES

**Mechanical Engineering Progress Assessment I / II**  
(MECH 2AA0/MECH 3AA0)

These are two major exams that must be passed in order to graduate. They are designed to test your knowledge and retention of subject matter from classes the classes you have already completed. It is not new material, but stuff you should already know. The first should be taken around the end of your sophomore year, and the second at the end of the junior year.

You will be allowed to use the NCEE Handbook for the tests.

You must pass MECH 2AA0 before you can take MECH 3AA0.  
You must pass both of them before starting Comprehensive Design I / II.

**Comprehensive Design I / II** (MECH 4240 / MECH 4250)

These are industry sponsored (NASA, Sears, Miller Industries, Harris, etc.) group design projects. They must be taken in consecutive semesters. If you plan on enrolling in the Co-op Program, make sure not to schedule a co-op semester in between them.

## 2AA0 / 3AA0 Topic Cross Reference

### Referenced for Seventh Edition of NCEE Handbook

#### MECH 2AA0

No.	Topic	Course	Reference
3	Calculus	MATH 1610, 1620, 2630	pp. 3-11
2	Differential Equations	MATH 2650	pg. 12-13, 174
2	Particle Dynamics	MECH 2110	Pg. 29-33
2	Chemistry	CHEM 1030, 1031	pp.78-81
3	Circuits & Thermo	PHYS 1600, 1610	pp. 56, 57, 167-171, 179-182
3	Statics	MECH 2110	pp. 24-28

#### MECH 3AA0

No.	Topic	Course	Reference
2	Computers & Programming	MECH 2220	pp. 91,187- 188
2	Linear Algebra	MATH 2660	Pg. 6-7
2	Fluids	MECH 3030	pp.44-55
2	Energy Conversion Cycles	MECH 3020	pp. 56-66, 212-216
2	Mechanics of Materials	MECH 3130	pp. 38-43
1	Refrigeration & HVAC	MECH 3020	pp. 56-66, 217-218
2	Design & Manufacturing	MECH 3200, 3210	pp.15-23
1	Ethics		pp. 99-100
Essay	Contemporary Issues		

#### Allowed Calculators

- Hewlett Packard – HP 33s
- Hewlett Packard – HP 9s
- Casio – 115 MS and 115 MS Plus
- Texas Instruments – TI 30X IIS and TI 30X IIB
- Texas Instruments – TI 36X

The following description of MECH2AA0 contains **essential information.** Please read carefully.

- a. MECH 2AA0 is a zero credit course consisting of three 2.5 hour exams. The students are graded on a S/U basis. The student can take the exam up to three times per semester. To obtain an “S” grade the student must pass only one of these exams. A passing grade of 67.7% or above is considered a passing score. The exams consist of 15 multiple-choice questions similar to those found on the morning section of the FE exam. The problems are approximately equally distributed between physics (particle dynamics, thermodynamics, electricity) statics, calculus, differential equations, and chemistry.
- b. You are allowed to bring the reference book titled “Fundamentals of Engineering-Supplied Reference Handbook” published by the National Council of Examiners for Engineering and Land Surveyors. No hand written information in these books is allowed. You will be provided a department calculator for the exam. The reference book is available in the University Bookstore.
- c. The instructor is Dr. Harris, Ross 250. Students are encouraged to contact the course TA (TBA) for questions and help in preparing for the exam.
- d. The objectives of MECH 2AA0 are as follows:
  - To help students develop better learning habits which rely on developing understanding rather than memorization
  - To insure that students have the required level of knowledge before becoming graduate engineers
  - To serve as a tool for the faculty to assess and improve the ME program
  - To improve the pass rate on the FE exam
- e. The dates of the MECH 2AA0 exams are held on the 4<sup>th</sup>, 7<sup>th</sup>, and 10<sup>th</sup> weeks of the semester. The exams will be held from 6:<sup>00</sup> to 8:<sup>30</sup> p.m. in Broun Hall 238 (Electrical Engineering, main lecture halls).
- f. Previous administered exams (some with solutions or answers) are available on the class web page on Black Board.
- g. If you have any other course scheduled during this exam slot, please see the Professor teaching that course. We have made arrangements with all MECH course teachers to work around the conflict. If you are taking any non-MECH classes during that time slot please see Dr. Harris to obtain a permission slip.

The following description of MECH3AA0 contains **essential information.** Please read carefully.

- a. MECH 3AA0 is a zero credit course consisting of three 2.5 hour exams. The students are graded on a S/U basis. The student can take the exam up to three times per semester. To obtain an “S” grade the student must pass only one of these exams. A passing grade of 64.2% or above is considered a passing score. The exams consist of 14 multiple-choice questions and one essay question similar to those found on the afternoon section of the FE exam for mechanical engineers. The problems are (with approximate number of problems indicated in parenthesis): kinematics and dynamics of machines (1), linear algebra (2), fluid mechanics (2), thermodynamics (2), mechanics of materials (2), computer aided engineering (2), electrical engineering (1), ethics (1), current issues (1), and societal expectations (essay)
- b. You are allowed to bring the reference book titled “Fundamentals of Engineering-Supplied Reference Handbook” published by the National Council of Examiners for Engineering and Land Surveyors. **No hand written information in these books is allowed.** You will be provided a department calculator for the exam. The reference book is available in the University Bookstore.
- c. The instructor is Dr. Harris, Ross 250. Students are encouraged to contact the course TA (TBA) for questions and help in preparing for the exam.
- d. The objectives of MECH 3AA0 are as follows:
  - To help students develop better learning habits which rely on developing understanding rather than memorization
  - To insure that students have the required level of knowledge before becoming graduate engineers
  - To serve as a tool for the faculty to assess and improve the ME program
  - To improve the pass rate on the FE exam
- e. The dates of the MECH 3AA0 exams are held on the 5<sup>th</sup>, 8<sup>th</sup>, and 11<sup>th</sup> weeks of the semester. The exams will be held from 6<sup>:00</sup> to 8<sup>:30</sup> p.m. in Broun Hall 238 (Electrical Engineering, main lecture halls).
- f. Previous administered exams with solutions are available on the class web page on Blackboard.
- g. If you have any other course scheduled during this exam slot, please see the Professor teaching that course. We have made arrangements with all MECH course teachers to work around the conflict. If you are taking any non-MECH classes during that time slot please see Dr. Harris to obtain permission slip.

## **Pre-Requisites and Co-Requisites** (green sheet)

This sheet lists all the pre-requisites and co-requisites for all of the required Mechanical Engineering courses (listed in bold on the yellow sheet).

Co-Requisites may be taken either before or at the same time as the class.

Pre-requisites **must** be completed before the course.

The flow chart at the bottom of the page shows the progression of courses from freshman to senior year. Solid lines indicate pre-requisites. Dotted lines indicate co-requisites. This illustrates how the courses flow from one to another, and will help with planning your schedule. Remember, the more closely you follow the curriculum model (yellow sheet), the more logical your progression of course work will be.

## **Technical Electives** (back of green sheet)

This is the catalog list of all the technical electives that you have to choose from in your senior year. You are required to complete three of these for the BME degree. All BME technical electives must be MECH courses.

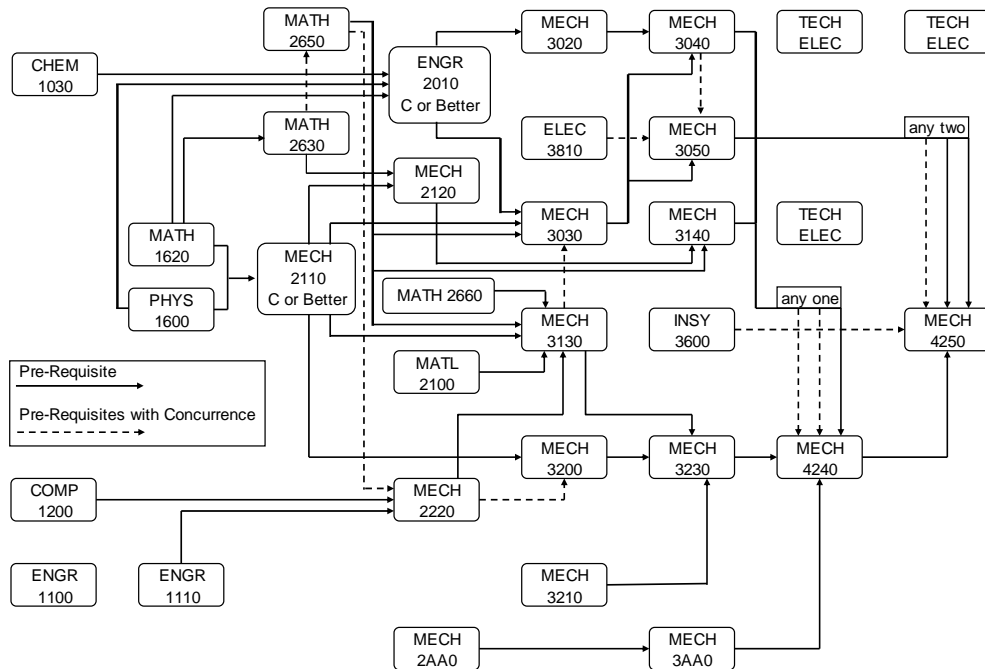
The pre-requisites are listed for each course.

Note: some of these are taught on a regular rotation, but some are offered infrequently. If you are interested in a particular course, use the orange (peach) sheet to see the proposed schedule for technical electives.

**DEPARTMENT OF MECHANICAL ENGINEERING**  
**LIST OF PRE-REQUISITES AND CO-REQUISITES**  
 (NOTE: Co-requisites are denoted as “pre-requisites with concurrency” in Banner/Tiger-i)

**REQUIRED COURSES (4000 and 5000 level electives listed on back)**

Number	Title	Credit	Prerequisites/Corequisites
MECH2AA0	Mechanical Engineering Progress Assessment I	0	None
MECH2110	Statics and Dynamics	4	Pr: MATH1620, PHYS1600
MECH2120	Kinematics and Dynamics of Machines	4	Pr: MECH2110 (grade of C or Better) , MATH2630
MECH2220	Computer Aided Engineering	3	Pr: COMP1200, ENGR1110 Coreq: MATH2650
MECH3AA0	Mechanical Engineering Progress Assessment II		Pr: MECH2AA0
MECH3020	Thermodynamics II	3	Pr: ENGR2010 (grade of C or better)
MECH3030	Fluid Mechanics	3	Pr: ENGR2010 (C or better), MECH2110 (C or better), MATH2650 Coreq: MECH3130
MECH3040	Heat Transfer	3	Pr: MECH3020, MECH3030
MECH3050	Measurements and Instrumentation	3	Pr: MECH3030 Coreq: MECH3040, ELEC3810
MECH3130	Mechanics of Materials	4	Pr: MECH2110 (C or better), MATL2100, MATH2650, MATH2660, and either MECH2220 or MECH3220
MECH3140	System Dynamics and Controls	3	Pr: MECH2120, MATH2650
MECH3200	Concepts in Design and Manufacturing	2	Pr: MECH2110 (grade of C or better) Co-req: either MECH2220 or MECH3220
MECH3210	Design and Manufacturing Lab	1	Pr: MATL2100
MECH3230	Machine Design	3	Pr: MECH3130, and either MECH2220 or MECH3220, and either MECH2210 or both MECH3200 / 3210
MECH4240	Comprehensive Design I	2	Pr: MECH3AA0, MECH3230, and 1 of the following 3: MECH3040, MECH3050, MECH3140. Remaining 2 courses will be co-requisites.
MECH4250	Comprehensive Design II	2	Pr: MECH4240, and 2 of the following 3: MECH3040, MECH3050, MECH3140. Remaining course will be a co-requisite. Coreq: INSY3600



### 4000 LEVEL ELECTIVES

Number	Title	Credit	Prerequisites/Corequisites
MECH4300	Mechanical Equipment Engineering	3	Pr: MECH3020, MECH3030
MECH4310	Heating, Ventilating, Air Conditioning, and Refrigeration	3	Pr: MECH3040
MECH4320	Applied CFD and Heat Transfer	3	Pr: MECH3040, MATH2660
MECH4410	Engines	3	Pr: MECH3020, MECH3030
MECH4420	Vehicle Dynamics	3	Pr: MECH2120
MECH4430	Vehicle Design	3	Pr: ENGR2100 or ENGR2070 or MECH3130
MECH4510	Industrial and Environmental Noise Control	3	Pr: MECH2120, and either MECH2220 or MECH3220
MECH4520	Machinery Noise and Vibration Diagnostics	3	Pr: MECH2120, and either MECH2220 or MECH3220
MECH4700	Integrating Engineering Theory and Practice	3	Pr: Either MECH2210 or both MECH320 / MECH3210

### 5000 LEVEL ELECTIVES

Number	Title	Credit	Prerequisites/Corequisites
MECH5010	Compressible Fluid Flow	3	Pr: MECH3020, MECH3030
MECH5110	Intermediate Heat Transfer	3	Pr: MECH3040
MECH5120	Combustion	3	Pr: MECH3040
MECH5210	Electronics Thermal Management	3	Pr: MECH3040, ELEC3810
MECH5300	Advanced Mechanics of Materials	3	Pr: MECH3130
MECH5310	Mechanics of Electronic Packaging	3	Pr: MECH3130, ELEC3810
MECH5390	Fundamentals of the Finite Element Method	3	Pr: MECH3040, MECH3130, MATH2660
MECH5410	Dynamics of Rotating Machinery	3	Pr: MECH3140
MECH5420	Dynamics of Multibody Systems	3	Pr: MECH3140
MECH5430	Basics of Sensor Applications	3	Pr: MECH3130
MECH5450	Non-Destructive Evaluation of Materials and Structures	3	Pr: MECH3130
MECH5510	Engineering Acoustics	3	Pr: MATH2650
MECH5610	Mechanical Vibration	3	Pr: MECH3140, MATH2650, MATH2660
MECH5620	Stability and Vibration of Discrete Systems	3	Pr: MECH5610
MECH5710	Kinematics and Dynamics of Robots	3	Pr: MECH3140
MECH5720	Control of Robotic Motion	3	Pr: MECH3140
MECH5810	Mechatronics	3	Pr: MECH2120, ELEC3810
MECH5820	Introduction to Optimal Systems	3	Pr: MECH3230

Revision 7, August 15, 2008: MECH2110 and ENGR2010 need a grade of C or better, effective in Spring semester 2009.

MECH4240: 1 of 3 co-reqs will now be a pre-req. MECH4250: 1 of 3 pre-reqs will now be a co-req.

Revision 6, September 27, 2007: MECH2@@0 and MECH3@@0 re-numbered to MECH2AA0 and MECH3AA0, MECH3220 changed to MECH2220,

MECH2210 changed to MECH3200 and MECH3210

Revision 5, March 25, 2004: All 6000 level courses changed to 5000 level

Revision 4, May 1, 2003: MECH4430 added, MECH4440 removed, MECH2@@0 added as a prerequisite for MECH3@@0

Revision 3, August 19, 2002: MECH2000 and MECH3000 re-numbered to MECH2@@0 and MECH3@@0

Revision 2, May 20, 2002: MECH2000, MECH3000 added (supersedes document dated April 1, 2000)

Revision 1, April 1, 2000 (supersedes original document dated October 29, 1999)

**Mechanical Engineering Department  
Proposed Technical Electives Schedule  
Spring 2009 – Summer 2011**

**March 5, 2009**

<b>SEMESTER</b>	<b>COURSE # (HOURS)</b>	<b>COURSE NAME</b>	<b>Pre-Requisites</b>
Spring 2009	MECH 4310 (3)	Heating, Ventilating, Air Conditioning, and Refrigeration (Dyer)	Pr: MECH3040
Spring 2009	MECH 4430 (3)	Vehicle Design (Jones )	Pr: MECH3130
Spring 2009	MECH 5210 (3)	Electronics Thermal Management (Bhavnani)	Pr: MECH3040, ELEC3810
Spring 2009	MECH 5310 (3)	Mechanics of Electronic Packaging (Suhling)	Pr: MECH3130, ELEC3810
Spring 2009	MECH 5390 (3)	Fundamentals of the Finite Element Method (Lall)	Pr: MECH3040, MECH3130, MATH2660
Spring 2009	MECH 5610 (3)	Mechanical Vibration (Sinha)	Pr: MECH2120, MATH2650, MATH2660
Spring 2009	MECH 5970-004 (3)	Design of Feedback Control for Dynamic Systems (Choe)	Pr: MECH3140
Spring 2009	MECH 5970-008 (3)	Energy Conversion (Harris)	Pr: MECH3020, MECH3030
Summer 2009	MECH 4300	Mechanical Equipment Engineering (Dyer)	Pr: MECH3020
Summer 2009	MECH 4410	Engines (Jones)	Pr: ENGR2010, MECH3030
Fall 2009	MECH 4420 (3)	Vehicle Dynamics (Bevly)	Pr: MECH2120, MECH3030
Fall 2009	MECH 5120 (3)	Combustion (Mackowski)	Pr: MECH3040
Fall 2009	MECH 5230 (3)	Friction, Wear and Lubrication (Jackson)	Pr: MECH3030, MECH3130, MECH3230
Fall 2009	MECH 5430 (3)	Basics of Sensor Applications (Thakur)	Pr: MECH3130
Fall 2009	MECH 5450 (3)	Nondestructive Evaluation of Materials/Structures (Raju)	Pr: MECH3130
Fall 2009	MECH 5710 (3)	Kinematics and Dynamics of Robots (Marghitu)	Pr: MECH3140
Fall 2009	MECH 5810 (3)	Mechatronics (Choe)	Pr: MECH2120, ELEC3810
Fall 2009	MECH 5970-004 (3)	Hybrid & Fuel Cell Systems & Components (Choe)	Pr: MECH5810
Spring 2010	MECH 4310 (3)	Heating, Ventilating, Air Conditioning, and Refrigeration (Dyer)	Pr: MECH3040
Spring 2010	MECH 4430 (3)	Vehicle Design (Jones )	Pr: MECH3130
Spring 2010	MECH 5220 (3)	Virtual Prototyping (Beale)	Pr: MECH3131, MECH2220
Spring 2010	MECH 5390 (3)	Fundamentals of the Finite Element Method (Lall)	Pr: MECH3040, MECH3130, MATH2660
Spring 2010	MECH 5510 (3)	Engineering Acoustics (Crocker)	Pr: MATH2650
Spring 2010	MECH 5610 (3)	Mechanical Vibration (Sinha)	Pr: MECH2120, MATH2650, MATH2660
Spring 2010	MECH 5970-014 (3)	Renewable Energy Resources and Applications (Mackowski / Bhavnani)	Pr: ENGR2010 or ENGR2200 or inst. permission
Spring 2010	MECH 5970-004 (3)	Design of Feedback Control for Dynamic Systems (Choe)	Pr: MECH3140
Spring 2010	MECH 5970-017 (3)	Advanced Manufacturing Concepts (Payton)	Pr: MATL2100

Summer 2010	MECH 4300 (3)	Mechanical Equipment Engineering	(Dyer)	Pr: MECH3020
Summer 2010	MECH 4410 (3)	Engines	(Jones)	Pr: ENGR2010, MECH3030
Fall 2010	MECH 4420 (3)	Vehicle Dynamics	(Bevly)	Pr: MECH2120, MECH3030
Fall 2010	MECH 5230 (3)	Friction, Wear and Lubrication	(Jackson)	Pr: MECH3030, MECH3130, MECH3230
Fall 2010	MECH 5300 (3)	Advanced Mechanics of Materials	(Tippur)	Pr: MECH3130
Fall 2010	MECH 5430 (3)	Basics of Sensor Applications	(Thakur)	Pr: MECH3130
Fall 2010	MECH 5450 (3)	Nondestructive Evaluation of Materials/Structures	(Raju)	Pr: MECH3130
Fall 2010	MECH 5710 (3)	Kinematics and Dynamics of Robots	(Marghitu)	Pr: MECH3140
Fall 2010	MECH 5810 (3)	Mechatronics	(Choe)	Pr: MECH2120, ELEC3810
Spring 2011	MECH 4310 (3)	Heating, Ventilating, Air Conditioning, and Refrigeration	(Dyer)	Pr: MECH3040
Spring 2011	MECH 4430 (3)	Vehicle Design	(Jones )	Pr: MECH3130
Spring 2011	MECH 5210 (3)	Electronics Thermal Management	(Bhavnnani)	Pr: MECH3040, ELEC3810
Spring 2011	MECH 5220 (3)	Virtual Prototyping	(Beale)	Pr: MECH3131, MECH2220
Spring 2011	MECH 5310 (3)	Mechanics of Electronic Packaging	(Suhling)	Pr: MECH3130, ELEC3810
Spring 2011	MECH 5390 (3)	Fundamentals of the Finite Element Method	(Lall)	Pr: MECH3040, MECH3130, MATH2660
Spring 2011	MECH 5510 (3)	Engineering Acoustics	(Crocker)	Pr: MATH2650
Spring 2011	MECH 5610 (3)	Mechanical Vibration	(Sinha)	Pr: MECH2120, MATH 2650, MATH2660
Spring 2011	MECH 5970-004 (3)	Design of Feedback Control for Dynamic Systems	(Choe)	Pr: MECH3140
Spring 2011	MECH 5970-014 (3)	Renewable Energy Resources and Applications	(Mackowski / Bhavnnani)	Pr: Pr: ENGR2010 or ENGR2200 or inst. permission
Spring 2011	MECH 5970-017 (3)	Advanced Manufacturing Concepts	(Payton)	Pr: MATL2100
Summer 2011	MECH 4300 (3)	Mechanical Equipment Engineering	(Dyer)	Pr: MECH3020
Summer 2011	MECH 4410 (3)	Engines	(Jones)	Pr: ENGR2010, MECH3030

# STUDENT NOTES

**ME UG e-mail** (blue sheet)

This contains instructions for signing up for the department list-serve group. Important information is regularly sent out to this list including:

Registration / Advising  
Special Events / Meetings  
Scholarships / Internships  
Job Announcements!!!

Please subscribe to this list as soon as you have set up your Auburn e-mail.

Remember:

**e-mail is the official mode of communication here at Auburn!**

The bottom of the sheet lists the contact information and office hours for the Mechanical Engineering Undergraduate Program Officer (faculty advisor). If you come for advising during the listed hours, you do not have to make an appointment.

# ME UNDERGRADUATES

Please use these instructions to subscribe to the informational electronic mail group for undergraduates in the Mechanical Engineering Department.

## INSTRUCTIONS

**Send mail to:** [me-ug-request@mailman.eng.auburn.edu](mailto:me-ug-request@mailman.eng.auburn.edu)

**Body of letter:** **subscribe**

If you don't have an engineering computer account, you can obtain one by going to Engineering Network services in L-Building 103.

The department will not be using regular (snail) mail to send you information. Please sign up so that you are well informed on important matters such as registration and course updates, job opportunities, etc.

If you have any questions please stop by to see me at my office, 268 Ross Hall, between 2:00 p.m. and 4:00 p.m., Monday through Friday.

Best Wishes

Dr. Sushil Bhavnani  
Undergraduate Program Officer  
Department of Mechanical Engineering

[me\\_advisor@eng.auburn.edu](mailto:me_advisor@eng.auburn.edu)  
334-844-3309

# STUDENT NOTES

# Scholarship Quick View

## Samuel Ginn College of Engineering

### Minimum Eligibility Requirements

- Minimum score of 27 on the ACT or 1220 on the SAT
- Minimum high school cumulative GPA of 3.0
- All admissions material must be postmarked by December 1
- Accepted for enrollment in the College of Engineering
- Admissions materials include: application for admission, application fee, official ACT/SAT scores, and official high school transcript

### Engineering General Scholarships

- Your application to Auburn automatically enters you into the scholarship pool; no additional application is required
- Open to all majors; may be restricted according to state or county residency as well as financial need; awarded by the College of Engineering's Scholarship Committee
- Notification between January and March

### Departmental/Program Scholarships

- To maximize opportunities for departmental/program scholarships, students should declare an engineering major
- Restricted to major; additional restrictions may include state or county residency, financial need, class level, or other criteria specified by donor
- Change of major results in loss of scholarship
- Biosystems, Civil, Chemical, Computer Science and Software, Industrial and Systems, Materials, and Polymer and Fiber engineering require a separate application
- No application required for other departments/programs
- Notification in early spring
- See contact list below for applications

<b>Program</b>	<b>Contact</b>	<b>Phone</b>	<b>E-mail</b>	
Biosystems	Steve Taylor	334.844.3534	taylost@auburn.edu	
Chemical	Jennifer Harris	334.844.2030	harrijm@auburn.edu	
Civil	Charlotte Burleson	334.844.6287	burlect@auburn.edu	Computer
Science				
and Software	Barbara McCormack	334.844.6313	mccorba@auburn.edu	
Industrial				
and Systems	Alice Smith	334.844.1400	aesmith@auburn.edu	
Materials	Jeff Fergus	334.844.3405	ferguje@auburn.edu	
Polymer and Fiber	Julia Freeman	334.844.5457	freemja@auburn.edu	

**[eng.auburn.edu/scholarships](http://eng.auburn.edu/scholarships)**

## **College of Engineering Scholarship Program**

Mary Lynn Saidla  
Scholarship Coordinator  
Office of Student Services  
1210 C Shelby Center  
Samuel Ginn College of Engineering  
Auburn University, AL 36849  
334.844.2249  
[www.eng.auburn.edu/scholarships](http://www.eng.auburn.edu/scholarships)

## **Auburn University Scholarship Program**

Velda Rooker  
Director  
University Scholarship Office  
The Quad Center  
Auburn University, AL 36849  
334.844.7570  
[www.auburn.edu/scholarship](http://www.auburn.edu/scholarship)

# Auburn Co-Op Program



"The best preparation for work is not thinking about work, talking about work, or studying for work: it is work."

-- Former Massachusetts Governor William Weld

## What is Co-Op?

Cooperative education can confirm or redirect career decision-making through on-the-job experience in a chosen field. . . since co-ops "TEST DRIVE" their career! Cooperative Education enhances classroom learning and adds relevance to education by integrating academic theory with real world work experience. Co-Ops have the opportunity to test classroom learning in the laboratory of the real world.

## How does Co-Op work?

By alternating terms of school and work, students obtain paid, practical work experience in the career of their choice. Experience that means better qualifications when competing for a job at graduation.

## The Co-Op Advantage

- Co-Op experience improves employment prospects at graduation.
- Co-Op graduates are in possession of transferable, relevant work experience.
- Many employers hire only graduates with strong experience in the field.
- Co-Op grads have established relationships with potential employers.
- Co-Op grads often receive higher starting salaries at graduation than regular graduates.
- Professional confidence is increased when students know they can successfully perform in the workplace . . . where it really counts!



## When do I apply?

Students are eligible to begin co-oping as early as the summer after their freshman year! To learn more, visit our website.

104 Ramsay Hall  
334.844.5410  
[www.auburn.edu/co-op](http://www.auburn.edu/co-op)



## Typical Work / School Co-Op Alternation Plans

School Term	Plan A	Plan B	Plan C	Plan D	Plan E
1st year - Fall	School	School	School	School	School
1st year - Spring	School	School	School	School	School
1st year - Summer	<i>Work #1</i>	*	*	*	*
2nd year - Fall	School	<i>Work #1</i>	School	School	School
2nd year - Spring	<i>Work #2</i>	School	<i>Work #1</i>	School	School
2nd year - Summer	School	<i>Work #2</i>	School	<i>Work #1</i>	*
3rd year - Fall	<i>Work #3</i>	School	<i>Work #2</i>	School	<i>Work #1</i>
3rd year - Spring	School	<i>Work #3</i>	School	<i>Work #2</i>	School
3rd year - Summer	*	*	<i>Work #3</i>	School	<i>Work #2</i>
4th year - Fall	School	School	School	<i>Work #3</i>	School
4th year - Spring	School	School	School	School	<i>Work #3</i>
4th year - Summer	*	*	*	*	*
5th year - Fall	School	School	School	School	School
5th year - Spring	School	School	School	School	School

\* Optional Term(s) - Extra Co-Op Work Term(s), Internship(s), Study-Abroad, Summer Job(s), etc.

**Auburn University**  
 Cooperative Education Program  
 104 Ramsay Hall  
 Auburn, AL 36849-5123



# Engineering Our World



Europe  
South America  
Pacific Rim

**Work Abroad**  
Summer jobs not in major



**Internships**  
Paid/Unpaid  
Volunteer programs  
U.S. State Department

**Study Abroad**  
Course work in major  
Core  
Electives  
All languages



**AU Global Education Initiative  
for Engineering Majors**



Auburn University is an equal opportunity educational institution/employer.

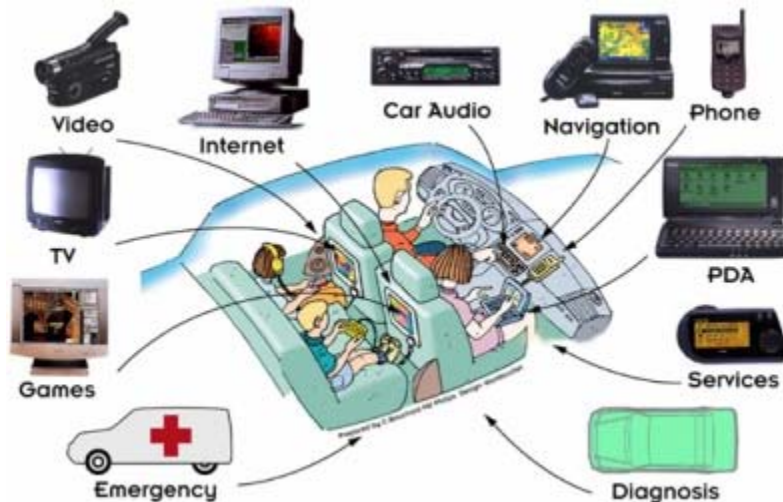
**Learn More**  
[www.auburn.edu/studyabroad](http://www.auburn.edu/studyabroad)

**Get Started**  
Engineering Student Services: 1210 Shelby Center  
Office of International Education: 201 Hargis

# SAMUEL GINN COLLEGE OF ENGINEERING

## Automotive Engineering and Manufacturing Minor

The Departments of Industrial and Systems Engineering and Mechanical Engineering are offering a new minor in Automotive Engineering and Manufacturing



The Auto Minor focuses on subjects like:

- Automotive Design
- Automotive Manufacturing Concepts
- Vehicle Technology
- Factory Floor Control
- Six Sigma (with Green Belt)
- Lean Manufacturing

### MECH Track Course Requirements:

**MECH 4410 Engines**

**MECH 4420 Vehicle Dynamics**

**MECH 4430 Vehicle Design**

**INSY 5800 Lean Manufacturing Systems**

**INSY 5860 Automotive Manufacturing Systems**

# The Three Minor Tracks:

Automotive Engineering and Manufacturing Minor INSY Track - Regular		
Year	Fall Semester	Spring Semester
Junior	INSY 5800	MECH 4430 <a href="#">INSY 5840</a>
Senior	<a href="#">INSY 5860</a>	<a href="#">INSY 5330</a> OR <a href="#">INSY 5830</a>

Automotive Engineering and Manufacturing Minor INSY Track - Students on Car Teams Approval of Dept. Head & Car Team Advisor Required		
Year	Fall Semester	Spring Semester
Junior	INSY 5800	MECH 4430 <a href="#">INSY 5840</a>
Senior	<a href="#">INSY 5860</a> MECH 4440	MECH 4450

Automotive Engineering and Manufacturing Minor MECH Track		
Year	Fall Semester	Spring Semester
Junior	INSY 5800	MECH 4430 MECH 4410*
Senior	<a href="#">INSY 5860</a> MECH 4420*	
* INSY 5840 may be substituted for MECH 4410 or MECH 4420 with permission of department head		

## **Student Organizations**

American Society of Mechanical Engineers (ASME) – Student Chapter

Faculty Advisor: Dr. Robert Jackson  
103 Ross Hall  
334-844-3340

Pi Tau Sigma Honor Society

Faculty Advisor: Dr. Subhash Sinha  
338 Ross Hall  
334-844-3325

War Eagle Motor Sports (Formula SAE / Baja SAE)

Faculty Advisor: Dr. Peter Jones  
346 Ross Hall  
334-844-3368

Sol of Auburn Solar Car / TIGER Hybrid Vehicle

Faculty Advisor: Dr. Sushil Bhavnani  
268 Ross Hall  
334-844-3303