

The George W. Woodruff School of Mechanical Engineering



2010-2011 Undergraduate Handbook

**Programs in
Mechanical Engineering
and
Nuclear and Radiological Engineering**



CONTENTS

	Page
INTRODUCTION.....	1
The Undergraduate Handbook	1
The Woodruff School of Mechanical Engineering	1
Degrees.....	1
Accreditation	1
Educational Objectives.....	2
The Georgia Tech General Catalog.....	3
Sources of Information.....	3
Web Sites	3
E-mail.....	3
Bulletin Boards	4
Student and Faculty Expectations	4
Faculty Expectations of Students	4
Student Expectations of Faculty.....	4
Woodruff School Honor Code	4
Preamble.....	4
Honor Pledge.....	5
Student Conduct.....	5
 THE OFFICE OF STUDENT SERVICES	 6
Hours and Location	6
Academic Advising.....	6
Personnel	6
Associate Chairs for Undergraduate Studies	7
Advisors	7
Other Resources	8
 THE MECHANICAL ENGINEERING PROGRAM	 9
What You Need to Know (Educational Outcomes).....	9
Degree Designators	9
The Cooperative Plan	9
The International Cooperative Plan	10
The International Plan	10
Curriculum	10
Mechanical Engineering Courses	11
Prerequisites and Corequisites for Mechanical Engineering Courses.....	11
Mechanical Engineering Electives.....	13
Mechanical Engineering Elective Courses.....	13
Additional Mechanical Engineering Courses.....	14
General Requirements in the Mechanical Engineering Curriculum	14
Overall GPA.....	14
ME GPA.....	14
Grade Requirements.....	14
Pass/Fail	14

ME Electives	14
Free Electives	15
Class Withdrawals.....	15
Social Science and Humanities Requirements	15
Undergraduate Research/Special Problems Courses	16
Mechanical Engineering Scholarships and Awards	17
Financial Aid Sources	17
THE NUCLEAR AND RADIOLOGICAL ENGINEERING PROGRAM	18
What You Need to Know (Educational Outcomes).....	18
Faculty Advisors in Nuclear Engineering	19
Degree Designators	20
The Cooperative Plan	20
The International Cooperative Plan	20
Curriculum	20
Nuclear and Radiological 2009-2010 Curriculum Revision.....	21
Nuclear and Radiological Engineering Courses	22
Prerequisites and Corequisites for Nuclear Engineering Courses.....	22
NRE Technical Electives	24
Nuclear and Radiological Engineering Elective Courses	24
General Requirements.....	24
Overall GPA.....	24
NRE GPA.....	24
Grade Requirements.....	24
Pass/Fail	24
Technical Electives	25
Class Withdrawals.....	25
Social Science and Humanities Requirements	25
Undergraduate Research/Special Problems Courses	26
Nuclear and Radiological Engineering Scholarships	27
Academic Common Market	27
Financial Aid Sources	27
REGISTRATION.....	28
OSCAR	28
Holds	28
Cross Registration	28
Overrides	28
Restricted or Graduate Courses.....	28
RULES AND REGULATIONS	29
Academic Classification.....	29
Academic Load	29
Academic Standing	29
Good Standing.....	29
Academic Warning	29
Academic Probation.....	29
Academic Dismissal.....	29
Academic Review	30
Change of Major	30

Dropped for Unsatisfactory Scholarship.....	30
Exam Policy	31
Grade Substitution Policy	31
Graduate Course Option.....	32
Incompletes	32
Petitions to the Faculty.....	32
Readmission	32
Repeating Courses.....	33
Ten-Year Rule.....	33
Thirty-Six Hour Rule	33
Transfer Credit	33
Voluntary Withdrawal with All W Grades	34
Withdrawal From a Course	34
GRADUATION.....	35
Degree Petitions	35
Curriculum Advising and Program Planning (CAPP)	35
Graduation with Academic Distinction.....	35
SPECIAL PROGRAMS.....	37
The Undergraduate Professional Internship Program	37
The BS/MS Program.....	37
Studying Abroad	37
A Second Undergraduate Degree.....	38
The Frank K. Webb Program in Professional Communication	38
Academic Assistance	38
Fundamentals of Engineering Exam	38
Certificate Program and Minor in Nuclear and Radiological Engineering.....	39
Minor in Technology and Management.....	39
FACILITIES.....	40
Computers	40
Computer Clusters.....	40
Using the School's Computers.....	41
Wireless/Walkup Network (LAWN)	41
Woodruff School Cyber Station.....	41
Copy and Fax Machines.....	41
STUDENT ORGANIZATIONS	42
Honor Society	42
Professional Societies	42
Student Competition Groups.....	42
Umbrella Groups.....	42
WOODRUFF SCHOOL FACULTY	42
APPENDIX	43
ME Undergraduate Curriculum.....	44
ME Undergraduate Curriculum: International Plan.....	46
NRE Undergraduate Curriculum	48

INTRODUCTION

The Undergraduate Handbook

This handbook outlines the procedures that will help you earn a bachelor's degree from Georgia Tech. It will be found in its entirety at

www.me.gatech.edu/undergraduate/handbooks.shtml

A careful and complete reading of this document is advised. The handbook is updated yearly, typically before the start of the fall semester. Any major changes or additions made prior to that update will be posted to our web page (www.me.gatech.edu), and an e-mail alert will be sent to all students affected by the change. If you have a question that this handbook does not address, please contact the Office of Student Services.

The Woodruff School of Mechanical Engineering

This guide details the bachelor's degree programs in the George W. Woodruff School of Mechanical Engineering at Georgia Tech. The history of Georgia Tech is synonymous with mechanical engineering, which is the oldest degree program on campus. In October 1888, 129 young men registered for the only degree-granting program when the Georgia School of Technology, as the Institute was then called, opened its doors as a School of Mechanical Engineering.

Today, the Woodruff School is the largest undergraduate program in the College of Engineering. In September 1985 the School assumed the name of one of its most distinguished alumni, Atlanta businessman and philanthropist, George W. Woodruff (class of 1917). We are one of the largest producers of bachelor's degrees in mechanical engineering in the country, and the undergraduate program is currently ranked 6th in the nation by *U. S. News & World Report*.

Degrees

The Woodruff School offers two undergraduate degrees: A bachelor of science degree in mechanical engineering (B.S.M.E.) and one in nuclear and radiological engineering (B.S.N.R.E.). **One hundred and twenty six credits are required for graduation with either degree.** In addition, there is an International Plan designator for the bachelor of science degree in mechanical engineering and a Cooperative Plan designator for the degrees in mechanical engineering and nuclear and radiological engineering.

Accreditation

The undergraduate degree programs in the Woodruff School and the College of Engineering at Georgia Tech are accredited by the Engineering Accreditation Commission of ABET. Our most recent accreditation review was done in 2008. The accreditation reports for our programs may be found at

www.me.gatech.edu/about/degrees.shtml

In addition, in 2004 the program underwent an accreditation review by the Southern Association of Colleges and Schools (SACS).

Educational Objectives

The faculty of the Woodruff School strive to continuously improve our undergraduate programs in Mechanical Engineering and Nuclear and Radiological Engineering. The educational objectives reflect the needs, and have been reviewed by, among others, the Advisory Board, the faculty, and the students.

Mechanical Engineering

- Our graduates will be successfully employed in ME related fields or other career paths, including industry, academe, government, and non-governmental organizations.
- Our graduates will be global collaborators, leading and participating in culturally-diverse teams.
- Our graduates will continue professional development by obtaining continuing education credits, professional registration or certifications, or post-graduate studies credits or degrees.

Nuclear and Radiological Engineering

- Our graduates will have a successful career in nuclear and radiological engineering or other fields.
- Our graduates will conduct themselves with the highest professional and ethical principles.
- Our graduates will engage in life-long learning through continuing education, professional development activities, and other career appropriate options.

Georgia Tech Regional Engineering Program in Mechanical Engineering

- Our graduates will be successfully employed in ME and other related fields in industry, academe, government, or non-profit organizations.
- Our graduates will continue to learn and enhance their professional skills through activities such as participation in professional organizations and post-graduate studies.
- Our graduates will be competitive in creating and adding value to products, processes and services attuned to a global economy.
- Our graduates will perform successfully in distributed and culturally diverse work environments.

The Georgia Tech General Catalog



The Georgia Tech General Catalog is online at

www.catalog.gatech.edu

Pay particular attention to the general rules and regulations that govern all undergraduate students at Georgia Tech, which are found at

www.catalog.gatech.edu/genregulations

Updates to the Georgia Tech catalog, including changes, additions, and deletions that have gone into effect since the publication of the catalog may be found at

www.catalog.gatech.edu/updates

Sources of Information

There are a number of sources of information about Georgia Tech and the Woodruff School that should be of help. Copies of many of these documents are available in the Office of Student Services or view at

www.me.gatech.edu/news/pubs_brochures.shtml



Web Sites

The Woodruff School's web site at www.me.gatech.edu allows you to locate information on the Internet about our academic programs, advisement, course offerings, research programs, faculty and staff, student organizations, events, and other items. The **Undergraduate Programs** page should be a first stop as you navigate through the Woodruff School on the Internet. A search engine is also available at the site. For additional information about the Nuclear and Radiological Engineering program, go to

www.nre.gatech.edu

Also, visit the undergraduate advisement site by going to www.me.gatech.edu, selecting **Undergraduate Programs**, and then selecting **Advisement**.

For materials about Georgia Tech, see:

www.gatech.edu

E-mail

Nearly all announcements are sent electronically, so it is important that you check your e-mail daily. The Woodruff School attempts to use this means of communication sparingly. E-mail is used to tell you about a special event or to invite you to attend a social event in the Woodruff School.

Bulletin Boards

There are several bulletin boards in Woodruff School buildings. The one located outside the Office of Student Services (in the MRDC Building) is particularly important. Notices concerning class schedules, class cancellations, room assignments and initial class meeting times may be found here first.

Student and Faculty Expectations

The students and faculty in the Woodruff School are committed to improving the quality of undergraduate education, including better communications between students and faculty. In this spirit, the Woodruff School Undergraduate Committee, the Woodruff School Student Advisory Committee, and the Woodruff School faculty prepared the following list of expectations.

Faculty Expectations of Students

- Review prerequisite course materials,
- Read handout materials provided in class,
- Complete out-of-class assignments on time,
- Come prepared for class,
- Participate in the classroom by asking questions and contributing to any discussion,
- Get help/feedback from the professor as needed, and
- Follow the Woodruff School Honor Code.

Student Expectations of Faculty

- Provide students with written documentation concerning course content and evaluation procedures,
- Set and advertise office hours and be available to students at other times by appointment,
- Put course material in context by relating it to real-world problems and applications, current research, or the content of other courses in the curriculum,
- Respect students and be receptive to their opinions and questions,
- Treat students fairly and equitably,
- Come prepared for class,
- Return graded material in a timely fashion, and
- Set examinations appropriately for the material being tested.

Woodruff School Honor Code

Preamble

Honesty is expected of all students and practitioners of Mechanical Engineering and Nuclear and Radiological Engineering. The Georgia Tech *Academic Honor Code* was developed by students and faculty to remind everyone of the importance of honesty in their professional lives. It also serves to increase awareness on the part of both students and faculty of the rules regarding academic honesty and the process to be followed when these rules are broken. You are advised to review the code and bring any questions that you may have to the attention of your instructors. **The complete Georgia Tech *Academic Honor Code* can be found at**

www.honor.gatech.edu

The following items are taken from this web site:

Students must sign the Honor Agreement affirming their commitment to uphold the Honor Code before becoming a part of the Georgia Tech community. The Honor Agreement may reappear on exams and other assignments to remind students of their responsibilities under the Georgia Institute of Technology *Academic Honor Code*.

Honor Agreement: Having read the Georgia Institute of Technology *Academic Honor Code*, I understand and accept my responsibility as a member of the Georgia Tech Community to uphold the Honor Code at all times. In addition, my options for reporting honor violations are detailed in the code.

Honor Pledge

All students are required, when requested, to attach the following statement to any material turned in for a grade in any course in the Woodruff School:

On my honor, I/we pledge that I/we have neither given nor received inappropriate aid in the preparation of this assignment.

Signature(s)

An assignment is incomplete without this pledge. It is the responsibility of the faculty member teaching the course to make clear to the students at the beginning of the semester what is considered appropriate and what is not.

Student Conduct

In addition to the honor pledge, you should be aware of the rules for student conduct found in the *Georgia Tech General Catalog*. Of particular relevance are those rules that apply to academic misconduct. Please refer to

www.osi.gatech.edu

or

www.catalog.gatech.edu/genregulations

for the complete information on the code of student conduct.

THE OFFICE OF STUDENT SERVICES

The purpose of the Office of Student Services is to help you graduate with a bachelor's degree in mechanical engineering and/or nuclear and radiological engineering in a timely manner. To make this process as easy as possible, the Office of Student Services provides information about such things as advising, faculty, scholarships, summer internships, and study-abroad programs. Most importantly, please come to the Office of Student Services for any questions you have about the Woodruff School, the College of Engineering, or the Institute.



Hours and Location

The Office of Student Services is located in Room 3112 in the MRDC Building. It is open daily, Monday through Friday, from 8 a.m. to noon and 1 p.m. to 5 p.m.

NOTE: There are two computer stations in the Office of Student Services (MRDC, Room 3112) that you can use for registration and to make appointments with the Academic Advisor.

Academic Advising

The Woodruff School is committed to your academic, personal, and professional development. Academic advising is an important part of the process for planning your career at Georgia Tech.

Visit the undergraduate advisement site by going to www.me.gatech.edu, selecting **Undergraduate Programs** and then selecting **Advisement**.

Personnel

Though the Woodruff School is large, we make every attempt to give students a good deal of individualized attention, particularly with regard to advising. Some of our resources are described below:

Associate Chairs for Undergraduate Studies

Dr. Al Ferri, Associate Chair for Undergraduate Studies
MRDC Building, Room 3103

- Oversight of the undergraduate program in the Woodruff School,
- Deals with transfer credit and technical issues,
- Provides career counseling and advice,
- *Ex officio* member of the School's Undergraduate Committee,
- Liaison for the undergraduate program with other academic units on the Georgia Tech campus.



Dr. Farzad Rahnema, Associate Chair of the Woodruff School and
 Chair of the Nuclear and Radiological Engineering/Medical Physics
 Programs

Neeley Building, Room 122

- Administers the NRE/MP programs in the Woodruff School,
- Provides career counseling and advice.



Advisors

Ms. Kristi Mehaffey, Undergraduate Academic Advisor
MRDC Building, Room 3108

- Advises all ME students with 45 or more credit hours, including transfer credits,
- Provides career counseling and advice,
- Participates in various outreach programs, and open houses for the families of our students, orientation sessions, and advises student groups,
- Determines if students have met the requirements for graduation.



Ms. Norma Frank, Academic Advisor I
MRDC Building, Room 3112

- Advises all ME students with less than 45 credit hours, including transfer credits.
- Supports the School's undergraduate programs in classroom assignments, exam schedules, reporting of grades, registration, and ordering textbooks,
- Advises students on scheduling issues,
- Process EIT/ FE applications.



Ms. Camellia Henry, Academic Assistant I
MRDC Building, Room 3112

- Advises all NRE students,
- Participates in various outreach programs, open houses for the families of our students, and orientation sessions.



Other Resources

Dr. David Rosen, Associate Chair for Administration
MRDC Building, Room 3218

- Responsible for the scheduling of classes and registration.



Dr. Christine Valle, Academic Professional
Love Building, Room 216

- Advises students accepted into the BS/MS program,
- Advises students accepted into the International Plan program.



Ms. Terri Keita, Academic Assistant II
MRDC Building, Room 3112

- Greets and assists students, faculty, staff and visitors to the Office of Student Services,
- Provides general office information to students, faculty, staff, and visitors,
- Answers telephone queries and schedules appointments.



Ms. Dimetra Diggs-Butler, Program Coordinator II
MRDC Building, Room 3201

- Handles registration processes.



THE MECHANICAL ENGINEERING PROGRAM

The undergraduate curriculum in mechanical engineering covers the fundamental aspects of the field, emphasizes basic principles, and educates you in the use of these principles to solve many kinds of engineering problems. The curriculum (programs of study) by hours and by semester with detailed footnotes for the B.S.M.E. program is found in the Appendix. You may also access this material at

www.me.gatech.edu/undergraduate/degrees_bsme_curr.shtml

What You Need to Know (Educational Outcomes)

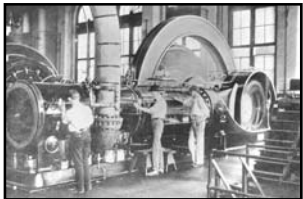
The Woodruff School educates students who will become leaders in industry, government, and academia. We expect our graduates to serve the profession, the state of Georgia, and the country. Upon graduation, our students will have obtained:

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- an ability to function on multidisciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an understanding of professional and ethical responsibility;
- an ability to communicate effectively;
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- a recognition of the need for, and an ability to engage in life-long learning;
- a knowledge of contemporary issues;
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- an ability to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes; and have the ability to work professionally in both thermal and mechanical systems areas. (Program Criteria - ASME)

Degree Designators

Several degree designators are available for Mechanical Engineering students.

The Cooperative Program



Since 1912, Georgia Tech has offered a cooperative program to those students who wish to combine career-related experience with classroom studies. The program is the fourth oldest of its kind in the world and the largest optional co-op program in the country. The program alternates between industrial assignments and classroom studies on a semester basis that starts after the freshman year. If you participate in the cooperative program, you will receive the degree of Bachelor of Science in Mechanical Engineering, Cooperative Plan. You will then have completed the



The International Cooperative Program

www.profpractice.gatech.edu

Mechanical engineering students can spend two semesters abroad, gaining valuable international experience and receiving the “International Plan” degree designation. This degree designation is especially important in today's global economy, where more companies are looking for graduates with international experience in their major area. Mechanical engineering students can spend a year at Georgia Tech Lorraine in Metz, France, at the Technical University in Munich, or at other approved locations.

www.internationalplan.gatech.edu

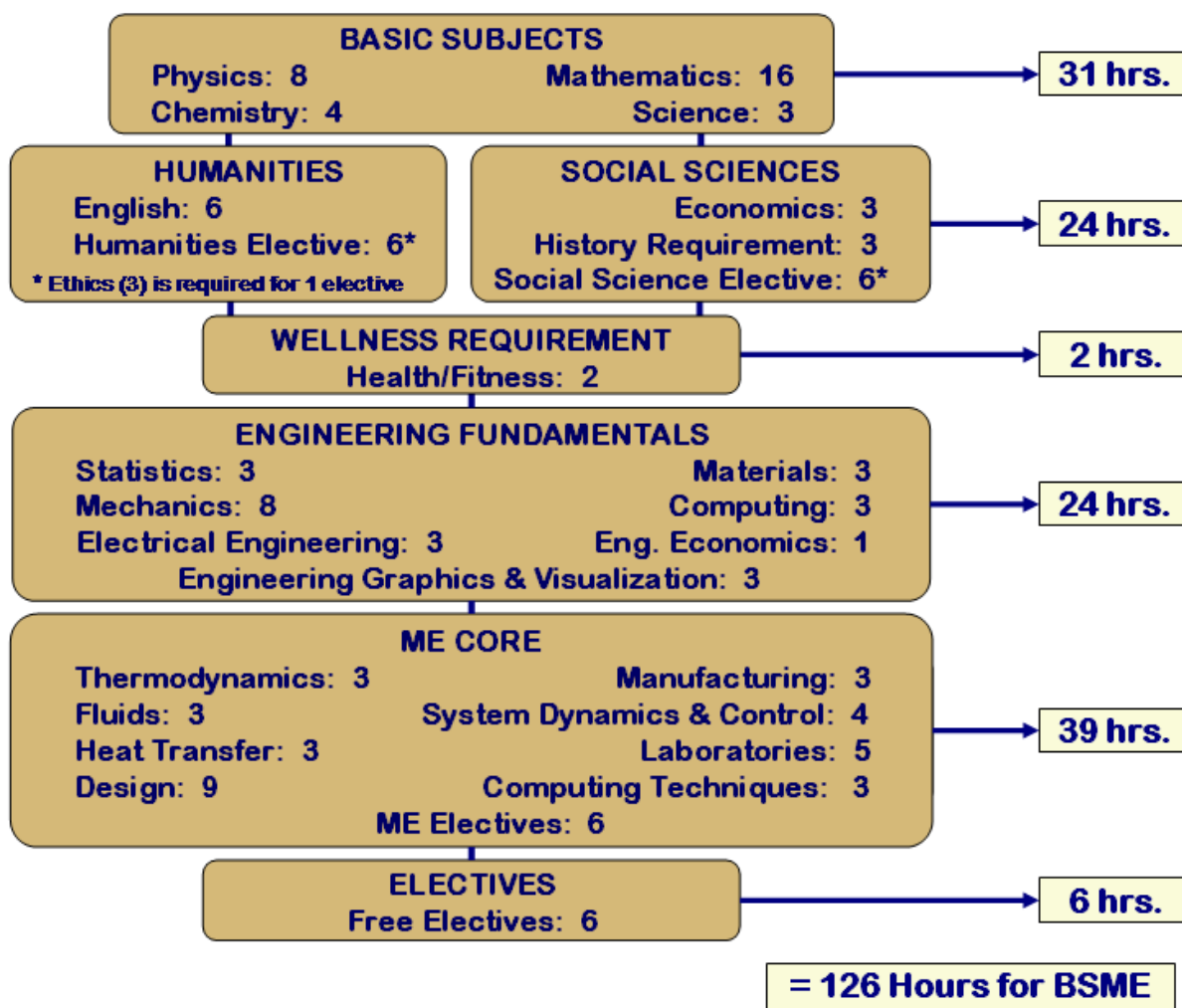
The Mechanical Engineering curriculum can be found in the Appendix or at

www.me.gatech.edu/undergraduate/degrees_bsme_curr.shtml

The curriculum guide or program of study contains a list of all the classes required to obtain a B.S.M.E. degree. In addition, the curriculum broken down by subjects is as follows:

BSME CURRICULUM BY HOURS

Catalog: 2010 - 2011



Mechanical Engineering Courses

Descriptions of Mechanical Engineering courses are found in OSCAR at

https://oscar.gatech.edu/pls/bprod/bwckctlg.p_disp_dyn_ctlg

To view the course syllabi, go to

www.me.gatech.edu/undergraduate/curricula_me.shtml

Prerequisites and Corequisites for Mechanical Engineering Courses

The prerequisites and corequisites for each course in ME are shown in the curriculum guides (programs of study) which is in the Appendix of this handbook and in a table below. Prerequisites for each course can be found in the course syllabi accessible from our home page at

www.me.gatech.edu/undergraduate/degrees_bsme.shtml

It is your responsibility to check the prerequisites before registering for any course. You must satisfactorily complete the appropriate prerequisites or their equivalents before enrolling in any ME course. Corequisites may be taken simultaneously. OSCAR allows you to display course catalog descriptions, including prerequisites, while you are registering.

Course	Prerequisites	Corequisites
ME 1750	None	
ME 1770	None	
ME 2016	MATH 1502, CS 1371	MATH 2403
ME 2110	ME/AE/CE 1770	COE 2001
ME 2202	COE 2001	
ME 3015	MATH 2403, ME 2016, ME 2202, ECE 3710	
ME 3057	ME 3015, ME 3340, COE 3001	ME 3345, MATH/ISYE 3770
ME 3180	ME 2110, COE 3001	
ME 3322	PHYS 2211, MATH 2403	
ME 3340	ME 2202, MATH 2403	ME 3322
ME 3345	ME 3322, ME 3340, MATH 2403	
ME 4011	ME 3322	
ME 4012	ME 3015	
ME 4041	ME 3180, ME	
ME 4053	ME 3057, ME 3345, MATH /ISYE 3770	
ME 4171	Senior Standing	
ME 4172	Senior Standing	
ME 4182	ME 2110, ME 3180 or ME 4315	ME 4210
ME 4189	ME 2202, MATH 2403	
ME 4193	ME 3340, COE 3001	
ME 4210	ME 3345, COE 3001, ISYE/ MATH 3770	
ME 4213	COE 3001	
ME 4214	COE 3001	
ME 4315	ME 2110, ME 3345	
ME 4321	ME 3345	
ME 4324	ISYE 3025, ME 3345	
ME 4325	ME 3322	
ME 4330	ME 3345	
ME 4340	ME 3345	
ME 4342	ME 3345	
ME 4447	ME 3057	
ME 4451	ME 3015	
ME 4740	Senior Standing	
ME 4754	ECE 3040, ECE 3710	
ME 4757	ME 3340	
ME 4758	COE 3001	
ME 4760	MATH 2403	
ME 4763	Senior Standing	
ME 4764	Senior Standing	
ME 4775	CHEM 2312, CHEM 3411	
ME 4776	CHE/CHEM/ME/MSE/PTFE 4775	
ME 4777	MSE 2001, CHEM 2311	
ME 4781	ECE 3050 or ECE 3710	
ME 4782	MATH 1502	
ME 4791	COE 3001	
ME 4793	CHEM 1310, PHYS 2212	
ME 4794	CHEM 1310, PHYS 2212	
COE 2001	PHYS 2211, MATH 1502	
COE 3001	COE 2001	MATH 2403

Mechanical Engineering Electives

Elective courses are generally taught once a year or once every two years. To learn which mechanical engineering electives will be offered in a particular semester, check OSCAR or the advisement web site:

www.me.gatech.edu/undergraduate/registration.shtml

When planning your schedule, it is important that you keep alternative ME electives in mind because a course might be filled, there might be time conflicts, or the class might be canceled if the enrollment is less than 15 students. Also, be especially careful in planning your electives for your last semester, particularly if it is a summer semester. There are very few electives offered in the summer.

Mechanical Engineering Elective Courses

ME 4011	Internal Combustion Engines
ME 4012	Motion Control
ME 4041	Interactive Computer Graphics and Computer-Aided D
ME 4171	Environmentally Conscious Design and Manufacturing
ME 4172	Designing Sustainable Engineering Systems
ME 4189	Structural Vibrations
ME 4193	Tribological Design
ME 4213	Materials Selection and Failure Analysis
ME 4214	Mechanical Behavior of Materials
ME 4321	Refrigeration and Air Conditioning
ME 4324	Power Generation Technology
ME 4325	Fuel Cells
ME 4330	Heat and Mass Exchangers
ME 4340	Applied Fluid Mechanics
ME 4342	Computational Fluid Dynamics
ME 4447	Microprocessor Control of Manufacturing Systems
ME 4451	Robotics
ME 4698	Research Internship, ME
ME 4699	Research Special Problems, Mechanical Engineering
ME 4757	Biofluid Mechanics
ME 4758	Biosolid Mechanics
ME 4760	Engineering Acoustics and Noise Control
ME 4763	Pulping and Chemical Recovery
ME 4764	Bleaching and Papermaking
ME 4775	Polymer Science and Engineering I: Formation and Properties
ME 4776	Polymer Science and Engineering II: Analysis, Processing and Laboratory
ME 4777	Introduction to Polymer Science and Engineering
ME 4781	Biomedical Instrumentation
ME 4782	Biosystems Analysis
ME 4791	Mechanical Behavior of Composites
ME 4793	Composite Materials and Processes
ME 4794	Composite Materials and Manufacturing
ME 480X	Special Topics, Mechanical Engineering
ME 481X	Special Topics, Mechanical Engineering
ME 482X	Special Topics, Mechanical Engineering
ME 483X	Special Topics, Mechanical Engineering
ME 4903	Non-Research Special Problems, Mechanical Engineering

Additional Mechanical Engineering Courses

There are several courses that are taught by the School of Mechanical Engineering as service courses to other departments. Some of these classes cannot be taken by ME or NRE students. The following classes are taught in that category.

ME 3141	Cutting-Edge Eng Seminar	Free Elective only for ME students
ME 3720 *	Intro-Fluid & Thermal Engineering	Cannot be taken by ME & NRE students
ME 3743	Emerging Technologies	Free Elective only for ME students
ME 3744	Managing Prod Serv Tech Development	Free Elective only for ME students
ME 4741	Integrated Mgt Dev-Project Prep	Free Elective only for ME students
ME 4742	Tech & Mgt Cap Project	Free Elective only for ME students
ME 4753	Topics in Engineering Practice	Cannot be taken by undergraduates

* Notes: ME 3720 has prereqs of PHYS 2211, MATH 2403, CHEM 1310

General Requirements in the Mechanical Engineering Curriculum

To receive a bachelor's degree in Mechanical Engineering at Georgia Tech, you must satisfy the following requirements:

Overall GPA

Your cumulative grade point average (GPA) must be at least 2.0.

ME GPA

Your ME grade point average (GPA) must be at least 2.0. If classes are repeated, the most recent grade will be used to calculate the ME GPA. The ME GPA includes all ME and College of Engineering (COE) classes.

Grade Requirements

All classes used to graduate with a B.S.M.E. degree must be passed with a grade of D or better. If a student received an F, the class must be repeated. However, several math classes are required to have a C or better. MATH 1501, MATH 1502, MATH 1522 (Transfer Students only), MATH 2401 and MATH 2403 must be passed with a grade of C or better. If you make a D or F, the class must be repeated at Georgia Tech.

Pass/Fail

All classes used for the B.S.M.E. degree must be taken as a letter grade. No pass/fail classes are allowed to be used to satisfy any requirements for your B.S.M.E. degree.

ME Electives

ME electives include approved ME classes at the 3000 level or higher. ME 3141, ME 3720, ME 3743, ME 3744, ME 4741, ME 4742 and ME 4753 are not approved ME electives. In addition, the ME electives can overlap another course that you intend to use toward your B.S.M.E. degree.

- **Design Elective** (ME 3180 or ME 4315): If ME 3180 is used as the design elective, ME 4315 can be used as an ME Elective. Alternatively, if ME 4315 is used as the design elective, ME 3180 can be used as an ME Elective.

- **Research:** Students may use up to four hours of ME 4699/4903 for ME elective credit. In addition, up to six hours of 2699/4699/4903 from any department may be used as free elective credit.
- **Minors:** Students who successfully complete a Georgia Tech minor approved by the Woodruff School are allowed to substitute courses required for the minor for up to six hours of ME elective credit. If a student does not complete the minor, then this substitution is disallowed and the student must complete six hours of ME elective credit. The approved minors are:
 - Aerospace Engineering
 - Biology
 - Biomedical Engineering
 - Computing Science
 - Earth and Atmospheric Sciences
 - Materials Science and Engineering
 - Mathematics
 - Nuclear and Radiological Engineering

Free Electives

Free electives may be any class at the 2000 level or higher which does not overlap another course that you intend to use toward your B.S.M.E. degree. For example, MGT 2250, Management Statics, will not count as a free elective because the B.S.M.E. degree requires a statistics class. Up to 6 hours of research and special problems, 2699/4699/4903, from any department may be used as free elective credit.

Class Withdrawals

There is a restricted withdrawal policy for several Woodruff School courses. These are usually laboratory or other courses that require special departmental resources. Other courses with limited enrollments might be added to this list, and they will be so designated during registration. The courses are:

ME/CEE/AE 1770	Introduction to Engineering Graphics and Visualization
ME 2110	Creative Decisions and Design
ME 3057	Experimental Methodology Laboratory
ME 4053	Mechanical Engineering Systems Laboratory
ME 4182	Capstone Design

A withdrawal from one of the laboratory courses will be granted only in the event of serious illness or comparable circumstance beyond the student's control.

Social Science and Humanities Requirements

Each student must complete 12 hours of social science credits and 12 hours of humanities credits for graduation. This includes the following:

Humanities Requirements (12 hours total)	Social Science Requirements (12 hours total)
ENGL 1101 (3 hrs)	History ¹ (3 hrs) – Select one: HIST 2111, HIST 2112, INTA 1200, POL 1101, PUBP 3000
ENGL 1102 (3 hrs)	Economics ² (3 hrs) – Select one: ECON 2100, ECON 2101, ECON 2105, ECON 2106
Humanities Elective ^{3,4} (3 hrs)	Social Science Elective ^{3,4} (3 hrs)
Humanities Elective ³ (3 hrs)	Social Science Elective ³ (3 hrs)

Notes

¹If you select POL 1101 or INTA 1200 for your history requirement, the other course may not be taken as a Social Science Elective. Credit is only given for POL 1101 or INTA 1200 since the courses have duplicate material.

²Students can receive credit for either ECON 2100 or ECON 2101, or for ECON 2105/2106. Students can not receive credit for ECON 2100 and ECON 2101 or for ECON 2100 and ECON 2105/2106 or for ECON 2101 and ECON 2105/2106.

³Approved social science and humanities electives can be found at the two links below:

www.catalog.gatech.edu/students/ugrad/core/corec.php

www.catalog.gatech.edu/students/ugrad/core/coree.php

⁴One Social Science or Humanities elective must be an ethics class. Ethics must be selected from the following:

HTS 2084 (Social Science)
INTA 2030 (Social Science)
PST 3105 (Humanities)

PST 3109 (Humanities)
PST 3127 (Humanities)
PST 4176 (Humanities)

Undergraduate Research/Special Problems Courses

Several options are available for a Special Problems course or an Undergraduate Research course, as shown in the accompanying chart. ME 4903 is a non-research special problem. ME 4903 is usually a design course and may be combined with the capstone design class to work on a two-semester design problem. ME 4699 and ME 2699 are undergraduate research courses. ME 4699 is for juniors and seniors and will qualify as an ME elective for ME majors. ME 4698 and ME 2698 are research internships. Students are paid for working on a project and the class will be on your transcript as an audit class.

In all cases, you must find a faculty member to work with. To get an idea of a member's research interests, view the faculty web pages at

www.me.gatech.edu/faculty/index.shtml

or get a copy of the Research Brochure and its Addendum in the Office of Student Services.

The most effective method of finding a willing faculty member is to approach those who work in a field that interests you and let them know that you are interested. All courses are nominally three credit hours and class registration requires a permit. An alternative method for finding a research assignment is to e-mail Dr. Al Ferri. He often has a list of assignments that are available for students. Once you have found an interested faculty sponsor, you must fill out an Undergraduate Research/Special Problems Course Form. This can be found at

www.me.gatech.edu/docs/special_problem_form.pdf

Each special problem and research course must culminate in a written final report, which is to be submitted to the faculty advisor for grading and forwarded to the Office of Student Services at the end of the semester. All special problems taken for credit are given a letter grade. For more information about undergraduate research, see

www.undergradresearch.gatech.edu/

Undergraduate Research Courses								
Course Number	Standard Credit Hrs ^(1,2)	Hours Count for Degree per Institute?	Hours Count for Degree per ME?	Used As	For Pay?	Grading	New Description	Eligible
ME 4903	3	Yes	Yes	ME or Free Elective	No	A - F	Non-Research Special Problem ^(3, 5)	Juniors, Seniors
ME 4699	3	Yes	Yes	ME or Free Elective	No	A - F	Research Special Problem ^(3, 5)	Juniors, Seniors
ME 2699	3	Yes	Yes	Free Elective	No	A - F	Research Special Problem ^(3, 5)	Freshmen, Sophomores
ME 4698	3	No	No	Transcript Entry Only	Yes	Audit	Undergraduate Research – Pay ⁽⁴⁾	Juniors, Seniors
ME 2698	3	No	No	Transcript Entry Only	Yes	Audit	Undergraduate Research – Pay ⁽⁴⁾	Freshmen, Sophomores

Notes:

1. The courses are not strictly limited to 3 credit hours.
2. Three credit hours would typically require 9 research hours work per week (14 during the summer term)
3. Requires a written statement of work and deliverables. Must be signed by student and advisor to obtain a registration permit.
4. Requires completion of a form detailing hours to be worked and pay rate. Must be signed by student and advisor to obtain a registration permit.
5. ME students can satisfy a maximum of 4 hours of ME Elective credit with ME 4699 and ME 4903. In addition, up to six hours of 2699/4699/4903 from any department may be used as free elective credit.

Mechanical Engineering Scholarships and Awards

The Woodruff School has a few designated scholarships and awards for mechanical engineering students who excel in scholarship, leadership, and service to the School. The School makes every attempt to nominate its exceptional students by matching their qualifications as closely as possible to the spirit and requirements of each award. Students who are eligible for scholarships will be notified by the School.

Financial Aid Sources

If you need to take out a loan, U. S. (Stafford) and State Government loans are available to American citizens and permanent residents only; they require advance planning. For more information, contact the Office of Student Financial Planning and Services at (404) 894-4160 or at

www.finaid.gatech.edu

THE NUCLEAR AND RADIOLOGICAL ENGINEERING PROGRAM

The undergraduate curriculum in nuclear engineering covers the fundamental aspects of the field, emphasizes basic principles, and educates you in the use of these principles to solve many kinds of engineering problems. The curriculum guide (program of study) by hours and by semester with detailed footnotes for the B.S.N.R.E. program can be found in the Appendix. You may also access this material at

www.me.gatech.edu/undergraduate/degrees_bsnre_curr.shtml

What You Need to Know (Educational Outcomes)

The NRE Program in the Woodruff School educates students who will become members of the Nuclear and Radiological Engineering profession. We expect our graduates to have a productive and fulfilling professional life in serving the profession, the State of Georgia, and the country. Upon graduation with a B.S.N.R.E. degree, the students will have obtained:

- An ability to apply knowledge of mathematics, science, and engineering at the level required for nuclear and radiological engineering practice and advanced study as specified by the following criteria; that is, a knowledge:
 - of applied mathematics through the solution of ordinary and partial differential equations, statistics, Fourier and LaPlace transforms, and the numerical solution of nuclear engineering problems;
 - of applied nuclear physics, of the physics of nuclear reactors and of various radiation sources, of the physics of radiation detection, protection and interaction with matter;
 - of thermal engineering, of mechanics, of electrical circuits and E&M, and of the engineering of nuclear reactors.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An ability to design a nuclear or radiological system, component, or process to meet desired needs.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve nuclear and radiological engineering problems.
- An understanding of professional ethical responsibility.
- An ability to communicate effectively orally and in writing.
- The broad education necessary to understand the impact of engineering solutions in a global and societal context.
- A recognition of the need for, and an ability to engage in life-long learning.
- A knowledge of contemporary issues in nuclear and radiological engineering.
- An ability to use the techniques, skills, and modern engineering tools and major types of computational methods and codes necessary for nuclear and radiological engineering practice.

Faculty Advisors in Nuclear Engineering

In addition to the advising services in the Office of Student Services, each undergraduate in nuclear and radiological engineering will also be assigned a faculty advisor/mentor upon entry into the major. The faculty advisor will provide advice about upper-level NRE classes, out-of-class learning, and graduate school and employment information. Faculty advisors are assigned by the first letter of your last name.

A-B Dr. Said Abdel-Khalik



C Dr. Sang Cho



D-F Dr. Chaitanya Deo



G-I Dr. Nolan Hertel



J-L Dr. Bojan Petrovic



M-N Dr. Farzad Rahnema



P-R Dr. Lei Zhu



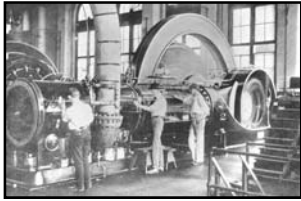
S-T Dr. Weston Stacey



U-Z Dr. Chris Wang



The Cooperative Program



If you participate in the cooperative program, you will receive the degree of Bachelor of Science in Nuclear and Radiological Engineering, Cooperative Plan. You will then have completed the same course work as that completed by regular four-year students. For more information or to apply for admission to the cooperative program, contact the Cooperative Division Office in the Savant Building at (404) 894-3320 or view

country. This is a great opportunity to utilize your foreign language skills, gain a global perspective, and experience a diverse culture. For more information on this program, please view

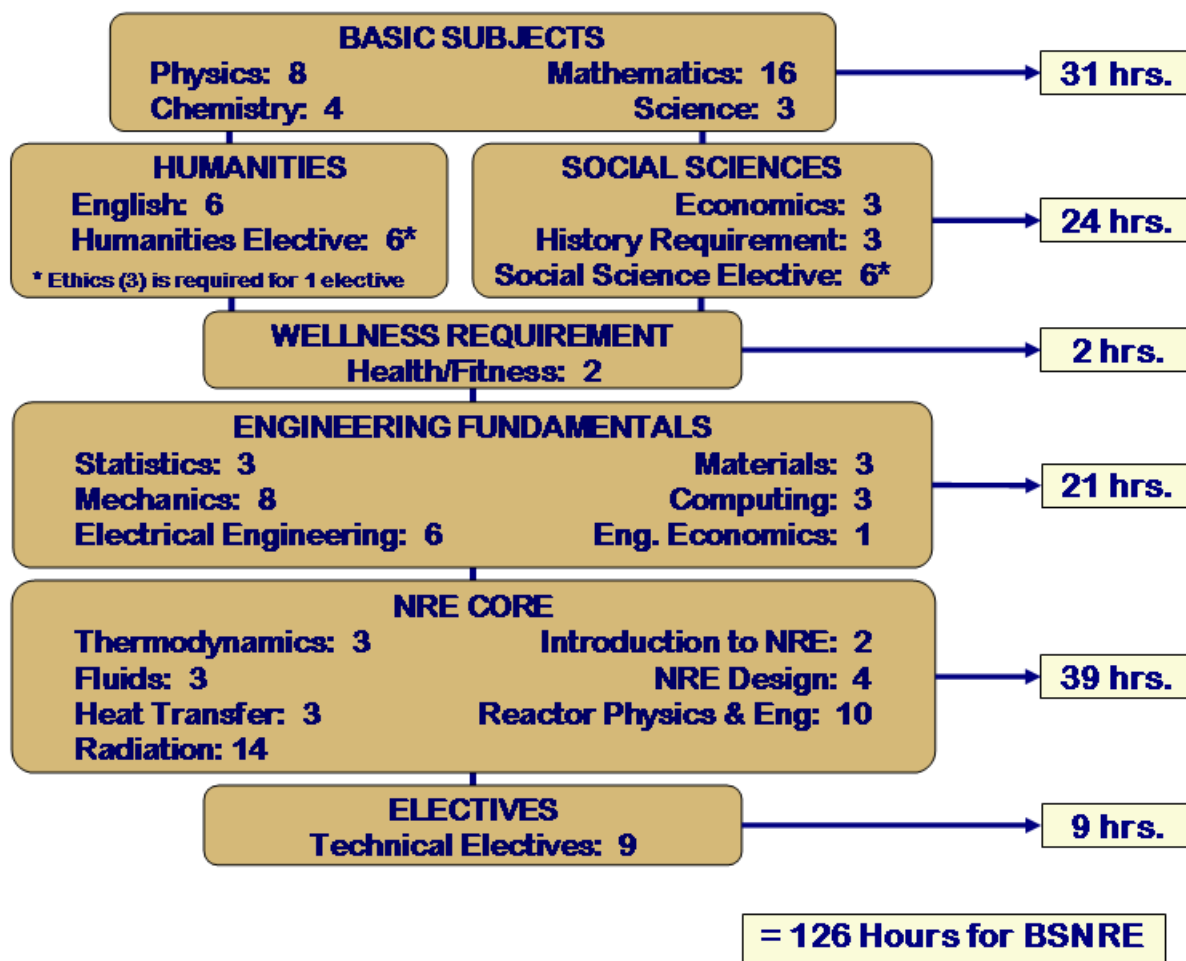
Curriculum

www.me.gatech.edu/undergraduate/degrees_bsnre_curr.shtml

NRE Undergraduate Curriculum (Catalog 2020-2021)										
First Year	ENGR 100	ENGR 101	ENGR 102	ENGR 103	ENGR 104	ENGR 105	ENGR 106	ENGR 107	ENGR 108	18 Hours
	ENGR 109	ENGR 110	ENGR 111	ENGR 112	ENGR 113	ENGR 114	ENGR 115	ENGR 116	ENGR 117	
	ENGR 118	ENGR 119	ENGR 120	ENGR 121	ENGR 122	ENGR 123	ENGR 124	ENGR 125	ENGR 126	
	ENGR 127	ENGR 128	ENGR 129	ENGR 130	ENGR 131	ENGR 132	ENGR 133	ENGR 134		
Second Year	ENGR 200	ENGR 201	ENGR 202	ENGR 203	ENGR 204	ENGR 205	ENGR 206	ENGR 207	ENGR 208	18 Hours
	ENGR 209	ENGR 210	ENGR 211	ENGR 212	ENGR 213	ENGR 214	ENGR 215	ENGR 216	ENGR 217	
	ENGR 218	ENGR 219	ENGR 220	ENGR 221	ENGR 222	ENGR 223	ENGR 224	ENGR 225	ENGR 226	
	ENGR 227	ENGR 228	ENGR 229	ENGR 230	ENGR 231	ENGR 232	ENGR 233	ENGR 234		
Third Year	ENGR 300	ENGR 301	ENGR 302	ENGR 303	ENGR 304	ENGR 305	ENGR 306	ENGR 307	ENGR 308	18 Hours
	ENGR 309	ENGR 310	ENGR 311	ENGR 312	ENGR 313	ENGR 314	ENGR 315	ENGR 316	ENGR 317	
	ENGR 318	ENGR 319	ENGR 320	ENGR 321	ENGR 322	ENGR 323	ENGR 324	ENGR 325	ENGR 326	
	ENGR 327	ENGR 328	ENGR 329	ENGR 330	ENGR 331	ENGR 332	ENGR 333	ENGR 334		
Fourth Year	ENGR 400	ENGR 401	ENGR 402	ENGR 403	ENGR 404	ENGR 405	ENGR 406	ENGR 407	ENGR 408	18 Hours
	ENGR 409	ENGR 410	ENGR 411	ENGR 412	ENGR 413	ENGR 414	ENGR 415	ENGR 416	ENGR 417	
	ENGR 418	ENGR 419	ENGR 420	ENGR 421	ENGR 422	ENGR 423	ENGR 424	ENGR 425	ENGR 426	
	ENGR 427	ENGR 428	ENGR 429	ENGR 430	ENGR 431	ENGR 432	ENGR 433	ENGR 434		
126 Total Hours										

BSNRE CURRICULUM BY HOURS

Catalog: 2010 - 2011



Nuclear and Radiological 2009-2010 Curriculum Revision

The N.R.E. curriculum underwent a significant revision for the 2009-2010 catalog year, last year. The 2009-2010 catalog year curriculum is the same as the 2010-2011 catalog year curriculum. Since the conversion from the 2008-2009 curriculum is still underway, the information is being included in this handbook. The curriculum change was made to give students a better background in nuclear reactor physics. An additional class was added in reactor physics, and other courses were combined so that the resulting change is the same number of credit hours. A summary of the curriculum changes are

Class	2008-2009 Curriculum	2009-2010 Curriculum
NRE 3112 – Nuclear Radiation Detection	Offering: Every Spring	Offering: Every Fall
NRE 3208 – Nuclear Reactor Physics 1	Not in curriculum	Offering: Every Spring Pre-reqs: NRE 3301, Math 2403
NRE 3212 – Fundamentals of NRE	Offering: Every Spring	Not in curriculum
NRE 3301 – Radiation	Offering: Every Fall	Offering: Every Spring

Physics	Co-req: PHYS 2213	Pre-reqs: Math 1502, PHYS 2211
NRE 4204 – Nuclear Reactor Physics	Offering: Every Fall Pre-reqs: NRE 3301, Math 2403	Not in curriculum
NRE 4206 – Radiation Physics Lab	Offering: Every Spring Pre-reqs: NRE 3112, NRE 4204	Offering: Every Spring Pre-reqs: NRE 3112, NRE 4208
NRE 4208 – Nuclear Reactor Physics 2	Not in curriculum	Offering: Every Fall Pre-reqs: NRE 3208, Math 2403
NRE 4232 – NRE Design	Offering: Every Spring Pre-reqs: NRE 4328, NRE 4204	Offering: Every Spring Pre-reqs: NRE 4328, NRE 4208

In order to help current students through the curriculum revision, the faculty carefully planned the classes over the next few years. The schedule of class offerings over the next 2 years is

	Freshman Year	Sophomore Year	Junior Year	Senior Year
Fall 2010	-	-	NRE 3112	NRE 4208 ³ NRE 4214 NRE 4328
Spring 2011	NRE 2110	NRE 3301 (new prereqs) ²	NRE 3316 NRE 3208	NRE 4206 (old prereqs) ^{1,4} NRE 4232 (old prereqs) ¹
Fall 2011	-	-	NRE 3112	NRE 4208 NRE 4214 NRE 4328
Spring 2012	NRE 2110	NRE 3301 (new prereqs) ²	NRE 3316 NRE 3208	NRE 4206 (new prereqs) ² NRE 4232 (new prereqs) ²

Notes:

1. (old prereqs) – This class is being offered with the 2008-2009 pre-reqs.
2. (new prereqs) – This class is being offered with the 2009-2010 pre-reqs.
3. NRE 4208 in Fall 2010 will be taught as NRE 4204. NRE 4208 prerequisites in fall 2010 only are NRE 3301 and MATH 2403. Prerequisites for NRE 4208 fall 2011 and beyond are NRE 3208 and MATH 2403.
4. NRE 4206 in Spring 2011 will have NRE 4208 or NRE 4204 as pre-requisites. This is because NRE 4208 in Fall 2011 is being taught as NRE 4204.

Nuclear and Radiological Engineering Courses

Descriptions of Nuclear and Radiological Engineering courses are described in OSCAR at

https://oscar.gatech.edu/pls/bprod/bwckctlg.p_disp_dyn_ctlg

To view the course syllabi, go to:

www.me.gatech.edu/undergraduate/curricula_nre.shtml

Prerequisites and Corequisites for Nuclear Engineering Courses

The prerequisites and corequisites for each course in NRE are shown in the curriculum guides (programs of study) and in a separate table below. Prerequisites for each course can be found in the course syllabi accessible from our home page at

www.me.gatech.edu/undergraduate/degrees_bsnre.shtml

It is your responsibility to check the prerequisites before registering for any course. You must satisfactorily complete the appropriate prerequisites or their equivalents before enrolling in any NRE course. Corequisites may be taken simultaneously. OSCAR allows you to display course catalog descriptions, including prerequisites, while you are registering.

Course	Prerequisites	Corequisites
NRE 2110	None	
NRE 3112	NRE 3301	
NRE 3208 ⁴	NRE 3301, MATH 2403	
NRE 3301 ¹	MATH 1502, PHYS 2211	
NRE 3316	NRE 3301, MATH 2403	
NRE 4206 ⁵	NRE 3112, NRE 4204	
NRE 4208 ²	NRE 3208, MATH 2403	
NRE 4214	ME 3322, ME 3340, ME 3345	
NRE 4232 ⁶	NRE 4328, NRE 4204	
NRE 4234	NRE 4204	
NRE 4266	NRE 4204, NRE 4214	
NRE 4328	NRE 3301, NRE 3316	
NRE 4404	NRE 3316	
NRE 4430	NRE 3316	
NRE 4610	Senior standing in science or engineering	
NRE 4750	NRE 3312, NRE 4204	
NRE 4770	Senior standing in NRE	
NRE 4801-2-3	Consent of the School	
NRE 4903	Consent of the School	
ME 3322	PHYS 2211, MATH 2403	
ME 3340	COE 2001, ME 2202 ³ , MATH 2403	ME 3322
ME 3345	ME 3322, ME 3340, MATH 2403	
COE 2001	PHYS 2211, MATH 1502	
COE 3001	COE 2001	MATH 2403

Notes:

1. NRE 3301 pre-reqs are effective Spring 2010. NRE 3301 during Fall 2009 has a co-requisite of PHYS 2213.
2. NRE 4208 is a new class in the 2009-2010 NRE curriculum. The first offering of this class will be Fall 2010. NRE 4208 in Fall 2010 will be taught as the old NRE 4204. NRE 4208 prerequisites in fall 2010 only are NRE 3301 and MATH 2403. Prerequisites for NRE 4208 fall 2011 and beyond are NRE 3208 and MATH 2403.
3. NRE students do not take ME 2202, so NRE 3301 or NRE 2110 will satisfy the pre-req for registration purposes.
4. NRE 3208 is a new class in the 2009-2010 NRE curriculum. The first offering of this class will be Spring 2010.
5. NRE 4206 pre-reqs will be NRE 3112 and (NRE 4204 or NRE 4208) during Spring 2011. Beginning Spring 2012 the pre-reqs will be NRE 3112 and NRE 4208.
6. NRE 4232 pre-reqs will be NRE 4328 and NRE 4208 through Spring 2011. Beginning Spring 2012 the pre-reqs will be NRE 4328 and NRE 4208.

NRE Technical Electives

Elective courses are generally taught once a year or once every two years. To learn which nuclear and radiological engineering electives will be offered in a particular semester, check OSCAR. Listed below are the elective course options for NRE.

When planning your schedule, it is important that you keep alternative technical electives in mind because a course might be filled, there might be time conflicts, or the class might be canceled if the enrollment is less than 15 students. However, the Woodruff School tries to offer a course when there is sufficient demand, even if the class was not planned for that semester. Also, be especially careful in planning your electives for your last semester, particularly if it is a summer semester. There are generally no NRE classes offered in the summer and very few technical electives.

Nuclear and Radiological Engineering Elective Courses

NRE 4234	Nuclear Criticality Safety Engineering
NRE 4266	Light Water Reactor Technology
NRE 4404	Radiological Assessment and Waste Management
NRE 4430	Nuclear Regulatory Requirements
NRE 4610	Introduction to Plasma Physics and Fusion Engineering
NRE 4698	Research Internship, NRE
NRE 4699	Research Special Problems, Nuclear and Radiological Engineering
NRE/MP 4750	Radiation Imaging
NRE 4770	Nuclear Chemical Engineering
NRE 480X	Special Topics in Nuclear and Radiological Engineering
NRE 4903	Non-Research Special Problems, Nuclear and Radiological Engineering

General Requirements

To receive a bachelor's degree in Nuclear and Radiological Engineering from Georgia Tech, you must satisfy the following requirements.

Overall GPA

Your cumulative grade point average (GPA) must be at least 2.0.

NRE GPA

Your NRE grade point average (GPA) must be at least 2.0. If classes are repeated, the most recent grade will be used to calculate the NRE GPA. The NRE GPA includes all NRE classes.

Grade Requirements

All classes used to graduate with a B.S.N.R.E. degree must be passed with a grade of D or better. If a student received an F, the class must be repeated. Math classes are an exception to this. MATH 1501, MATH 1502, MATH 1522 (Transfer Students only), MATH 2401, MATH 2403 and ISYE/MATH 3770 must be passed with a grade of C or better. If you make a D or F, the class must be repeated at Georgia Tech.

Pass/Fail

All classes used for the B.S.N.R.E. degree must be taken as a letter grade. No pass/fail classes are allowed to be used to satisfy any requirements for your B.S.N.R.E. degree.

Technical Electives

The NRE program requires Technical Electives. Technical electives have the following requirements:

- Technical Electives may be selected from any course offered in the Colleges of Engineering, Science, or Computing at the 3000 or 4000 level, excluding Psychology (PSYC) and Applied Physiology (APPH) classes.
- Technical electives may not duplicate any other class required for a B.S.N.R.E.

Class Withdrawals

There is a restricted withdrawal policy for several Woodruff School courses. These are usually laboratory or other courses that require special departmental resources. Other courses with limited enrollments might be added to this list, and they will be so designated during registration. The courses are:

NRE 3112	Nuclear Radiation Detection
NRE 4206	Radiation Physics Lab
NRE 4232	Nuclear Radiological Engineering Design

A withdrawal from one of the laboratory courses will be granted only in the event of serious illness or comparable circumstance beyond the student's control.

Social Science and Humanities Requirements

Each student must complete 12 hours of social science credits and 12 hours of humanities credits for graduation. This includes the following:

Humanities Requirements (12 hours total)	Social Science Requirements (12 hours total)
ENGL 1101 (3 hrs)	History ¹ (3 hrs) – Select one: HIST 2111, HIST 2112, INTA 1200, POL 1101, PUBP 3000
ENGL 1102 (3 hrs)	Economics ² (3 hrs) – Select one: ECON 2100, ECON 2105, ECON 2106
Humanities Elective ^{3,4} (3 hrs)	Social Science Elective ^{3,4} (3 hrs)
Humanities Elective ³ (3 hrs)	Social Science Elective ³ (3 hrs)

Notes

¹If you select POL 1101 or INTA 1200 for your history requirement, the other course may not be taken as a Social Science Elective. Credit is only given for POL 1101 or INTA 1200 since the courses have duplicate material.

² Students can receive credit for either ECON 2100 or ECON 2101, or for ECON 2105/2106. Students can not receive credit for ECON 2100 and ECON 2101 or for ECON 2100 and ECON 2105/2106 or for ECON 2101 and ECON 2105/2106.

³Approved social science and humanities electives can be found at

www.catalog.gatech.edu/students/ugrad/core/corec.php
www.catalog.gatech.edu/students/ugrad/core/coree.php

⁴One Social Science or Humanities elective must be an ethics class. Ethics must be selected from the following:

HTS 2084 (Social Science)	PST 3109 (Humanities)
INTA 2030 (Social Science)	PST 3127 (Humanities)
PST 3105 (Humanities)	PST 4176 (Humanities)

Undergraduate Research/Special Problems Courses

Several options are available for a Special Problems course or an Undergraduate Research course as shown in the accompanying chart. NRE 4903 is a non-research special problem. NRE 4903 is usually a design course and may be combined with the NRE design class to work on a two-semester design problem. NRE 4699 and NRE 2699 are undergraduate research courses. NRE 4699 is for juniors and seniors and will qualify as a technical elective for NRE majors. NRE 4698 and NRE 2698 are research internships. Students are paid for working on a project and the class will be on your transcript as an audit class.

Undergraduate research with NRE faculty mentors typically begins in the junior year. Students begin with undergraduate research for course credit by finding a faculty research mentor and signing up for NRE 4699, Undergraduate Research in NRE. The most effective method of finding a willing faculty member is to approach those who work in a field that interests you and let them know that you are interested. All courses are nominally three credit hours and class registration requires a permit. Once you have found an interested faculty sponsor, you must fill out an Undergraduate Research/Special Problems Course Form. This can be found at

www.me.gatech.edu/docs/special_problem_form.pdf

Each special problem and research course must culminate in a written final report, which is to be submitted to the faculty advisor for grading and forwarded to the Office of Student Services at the end of the semester. All special problems taken for credit are given a letter grade. For more information on undergraduate research, see

www.undergradresearch.gatech.edu

In the following semester, the successful student should apply for the President's Undergraduate Research Awards (up to \$1,500 for student salary, up to \$1,000 for student travel to professional meetings) or NRE's new Undergraduate Research Scholar's Program (up to \$1,000 for student salary). The NRE program requires a GPA of 3.3 or higher to apply. Applications for the NRE program are available from Dr. Nolan Hertel. Other opportunities for paid undergraduate research opportunities can be found at

www.undergradresearch.gatech.edu/institute-wide.php

Successful seniors who plan to continue their research can apply to the faculty research mentor for continued salary support.

Undergraduate Research Courses								
Course Number	Standard Credit Hrs ⁽¹⁾	Hours Count for Degree per Institute?	Hours Count for Degree per ME?	Used As	For Pay?	Grading	New Description	Eligible
NRE 4903	3	Yes	Yes	Technical Elective	No	A - F	Non-Research Special Problem ^(4,6)	Juniors, Seniors
NRE 4699	3	Yes	Yes	Technical Elective	No	A - F	Research Special Problem ^(4, 6)	Juniors, Seniors
NRE 2699	3	Yes	No ⁽³⁾	Free Elective	No	A - F	Research Special Problem ⁽⁴⁾	Freshmen, Sophomores
NRE 4698	3	No	No	Transcript Entry Only	Yes	Audit	Undergraduate Research – Pay ⁽⁵⁾	Juniors, Seniors
NRE 2698	3	No	No	Transcript Entry Only	Yes	Audit	Undergraduate Research – Pay ⁽⁵⁾	Freshmen, Sophomores

Notes:

1. The courses are not strictly limited to 3 credit hours.
2. Three credit hours would typically require 9 research hours work per week (14 during the summer term)
3. The NRE curriculum does not have free electives and this course does not qualify as a technical elective.
4. Requires a written statement of work and deliverables. Must be signed by student and advisor to obtain a registration permit.
5. Requires completion of a form detailing hours to be worked and pay rate. Must be signed by student and advisor to obtain a registration permit.
6. NRE students can satisfy up to of 4 hours of technical elective credit with 4699 and 4903 as long as the class is from the college of science, college of engineering or college of computing.

Nuclear and Radiological Engineering Scholarships

Unique scholarship opportunities exist for Georgia Tech NRE students. In addition to national NRE scholarships sponsored by the National Academy for Nuclear Training, the U. S. Department of Energy, and some professional societies, Georgia Tech offers scholarships sponsored by local industry as well as the prestigious George W. Woodruff NRE Scholarship. Students who are eligible for these scholarships will be contacted by the department.

Academic Common Market (ACM)

The ACM provides an exciting opportunity for students from the southeast whose state universities do not offer a B.S.N.R.E. degree. Students from those states who are accepted to the NRE program at Georgia Tech pay (Georgia) in-state tuition and must maintain ACM status. **The ACM is ending in Spring 2011; students entering Georgia Tech Summer 2011 and later will not be eligible for this program.** For more information, view

www.admission.gatech.edu/acm/

Financial Aid Sources

If you need to take out a loan, U. S. (Stafford) and State Government loans are available to American citizens and permanent residents only; they require advance planning. For more information contact the Office of Student Financial Planning and Services at (404) 894-4160 or at

www.finaid.gatech.edu

REGISTRATION

For instructions about registration, go to

www.registrar.gatech.edu/registration/index.php

and

www.me.gatech.edu/undergraduate/registration.shtml

OSCAR

For the listing of all classes to be offered each semester, complete registration information, and times and meeting places of classes, go to the On-Line Student Computer Assisted Registration (OSCAR). OSCAR also has instructions, class schedules, and calendar information. To access OSCAR, log into Buzzport, www.buzzport.gatech.edu, and select Secured Access (OSCAR).

Holds

If your personal registration shows a **hold**, the department placing the hold is the only one that can remove the hold. For an ME or NRE hold, you must visit your academic advisor. Holds can be viewed using the instructions at

www.registrar.gatech.edu/registration/holds.php

Cross Registration

If you would like to take courses not offered at Georgia Tech, you might be qualified to do so through the cross-registration program administered through the University Center in Georgia. View the Registrar's web site for the rules and regulations at

www.registrar.gatech.edu/registration/cross.php

Bring the completed form to the Office of Student Services to obtain a signature of your academic advisor before turning it into the Registrar's Office.

Overrides

Often students will encounter various problems when registering for classes. In order to fix the registration problem, students may need to request an override for a particular class. Such override types include Restricted Class Permit Overrides, Overload Overrides, Pre-Requisite Overrides, and Duplicate Overrides. Each department has different policies about issuing Overrides to students. More information about how to request overrides for different departments, see

www.me.gatech.edu/undergraduate/registration.shtml

Restricted or Graduate Courses

To register for restricted or graduate courses, the appropriate department must give their permission. The Woodruff School requires a 3.2 overall GPA and the permission from the professor teaching the class to register for a graduate class. The procedure to register for the class is found at:

www.me.gatech.edu/undergraduate/registration.shtml#level_restr

RULES AND REGULATIONS

Academic Classification

The classification for students and the required GPA for good standing are as follows:

<u>Classification</u>	<u>Credit Hours</u>	<u>Minimum GPA for Good Standing</u>
Freshman	0-29	1.70
Sophomore	30-59	1.80
Junior	60-69	1.95
Senior	90+	2.00

Academic Load

The maximum academic loads are listed in the table. However, course loads of more than 18 hours are not advisable except for exceptionally talented students.

Academic Status	Maximum Load (Credit Hours) Fall & Spring	Maximum Load (Credit Hours) Summer
Good	21	16
Warning	16	14
Probation	14	12
Dismissal	N/A	N/A

Academic Standing

The assignment of academic standing is based on both the student's most recent term and the overall grade point average.

Good Standing

Students on good standing or academic warning are considered in good standing by the Institute. The minimum GPA requirements for good standing are in the table.

Academic Warning

Academic warning is a subcategory of good academic standing, differing only in the maximum allowable schedule load. A student who has an overall academic average below the minimum satisfactory scholarship requirement, or whose academic average for work taken during any term is below this requirement, shall be placed on academic warning.

Academic Probation

A student on academic warning whose academic average is below the minimum satisfactory scholarship requirement for any term shall be placed on academic probation. Also, an undergraduate student in good academic standing whose academic average for any term is 1.00 or below, based on at least six credit hours, shall be placed on academic probation.

Academic Dismissal

The Institute may drop from the rolls at any time a student whose record in scholarship is unsatisfactory. A student on academic probation whose scholastic average for the term of probation is below the minimum satisfactory scholarship requirement and whose overall academic average is below the minimum satisfactory scholarship requirement shall be dropped from the rolls for unsatisfactory scholarship. Also, an undergraduate student on academic warning whose academic average for any term is 1.00 or below, based on at least six credit hours, shall be dropped from the rolls for unsatisfactory scholarship.

Academic Review

A student who normally would be dropped from the rolls for academic deficiencies but appears from the record not to have completed the term may be placed on academic review. This is a temporary standing that makes the student ineligible for registration. If no acceptable explanation is given within a reasonable time, the standing is changed to drop.

Change of Major

Undergraduate students, by filing the required form, will be permitted one unrestricted transfer between majors (including undecided) until they have accumulated credit for 60 hours. After 60 hours, upon subsequent request for transfer, the transfer will be permitted at the discretion of the school that the student is seeking to enter. Transfer students are not eligible for the one unrestricted change of major.

To change from ME or NRE to another major, check with the other school or department for their requirements. The requirements to transfer into ME or NRE after the unrestricted transfer are:

- Overall GPA must be 2.6 or greater;
- No D's or F's are allowed in MATH, CHEM or PHYS classes.

For a student to change their major, a **Change of Major** form must be filled out. The form must be signed by the new major, signed by the old major, and turned into the Registrar's Office in the Tech Tower.

www.registrar.gatech.edu/students/formlanding/forms_records.php

Dropped for Unsatisfactory Scholarship

If you have been dropped for unsatisfactory scholarship you may attempt readmission, although readmission is not guaranteed. If you seek readmission, you must petition the Institute Undergraduate Curriculum Committee. If you are readmitted into the Woodruff School you must demonstrate the potential for greatly improved academic performance. You will be required to sit out between 2-3 semesters, depending on your academic status at the time of the drop. The summer term qualifies as a semester off. An academic review with the Undergraduate Academic Advisor is required before you can seek readmission.

If readmission is recommended, you will be required to sign a contract which will include a program of study and a requirement for a minimum term GPA for each term covered by the contract. Contracts typically run for two or three semesters and require that you are in good standing at the end of the contract. Each term, students must enroll in the courses specified in the contract. If a course cannot be scheduled, an amended contract must be signed and approved. Courses may not be dropped without the approval of the academic advisor.

Failure to meet any part of the contract will result in your dismissal from the Institute with the understanding that no attempt will be made to seek further readmission to the Woodruff School of Mechanical Engineering. Section VIII, B.6 of the Student Rules and Regulations states: "A student who is dropped a second time for unsatisfactory scholarship will not be readmitted to the Institute."

Exam Policy

The Woodruff School adheres to the guidelines on quizzes and final exams set by the Academic Senate of the Institute as follows:

- Students should receive some performance evaluation before the published drop deadline.
- In general, quizzes are not to be given during the week preceding final examination. All quizzes are to be graded and returned on or before the last day of class preceding final exam week.
- Each regularly scheduled lecture course shall have a final exam, and it shall be administered at the time specified in the official final exam schedule as distributed by the Registrar.
- A request for a change in the final exam period for an individual student will not ordinarily be granted. The request must be justified in writing and submitted to the instructor at least a week before the scheduled exam period.
- A request for a change in the final exam period for a class must have the approval from the instructor and unanimous approval of the class as determined by secret ballot. The request must be submitted to the Associate Chair for Undergraduate Studies for his approval at least a week before the beginning of final exams.
- In the event a student has two examinations scheduled for the same period, it is the obligation of the instructor of the lower numbered course to resolve the conflict by giving a final exam to that student at a mutually satisfactory alternate time.
- In the event a student is scheduled to take three exams in the same day, it is the obligation of the instructor of the class scheduled for the middle exam period to give a final exam to that student at a mutually satisfactory alternate time.

Specific rules about final exams and the week preceding final exams are at:

www.catalog.gatech.edu/rules/12c.php
www.catalog.gatech.edu/rules/12d.php

Grade Substitution Policy (Freshmen Starting Fall 2005 and Later)

A semester in which a student is not taking any classes is not considered in residence.

First-time freshman students who receive a grade of D or F in a course within their first two terms in residence (first three terms for those who begin in the Freshman Summer Session) are eligible to repeat the course and have the original grade excluded from the computation of the academic average. Grade substitution may be used only once per course, with a maximum of two courses total.

The course must be repeated at Georgia Tech within the student's first four terms in residence (first five terms for those who begin in the Freshman Summer Session). The application for grade substitution must be filed with the Registrar's Office no later than the deadline for withdrawing from a course during the student's next term in residence after the course is repeated.

The original course and grade will continue to appear on the student's transcript, with a notation that the course was repeated and that the original grade is not included in computation of the academic average. Credit for the course will be counted only once.

be completed. Please note that the Woodruff School can only **recommend** a course of action; the final decision is made by the Registrar's Office. For further information, view

www.registrar.gatech.edu/students/readmission.php

Repeating Courses

Courses that are passed with a grade of C or better normally may **not** be repeated. Consult with the academic advisor if you are considering retaking a non-math course in which you received a grade of D. Except for math, a grade of D or better is considered passing.

Classes taken at Georgia Tech cannot be taken at another school. No credit will be awarded if the class is repeated at another school.

Ten-Year Rule

Courses completed more than ten years prior to your graduation must be validated by either a special examination or an approved petition to the faculty. Contact your academic advisor if you have questions about this.

Thirty-Six-Hour Rule

The final 36 hours earned for a degree must be taken in residence at Georgia Tech.

Transfer Credit

Course work taken at another institution may be considered for transfer credit if it was passed with a grade of C or better, and it is not a substitute for a course previously taken at Georgia Tech. Transfer credit is granted by one of two means.

For most lower division courses the Admissions Office or the Office of the Registrar will review a transcript and automatically give credit, based on a table of equivalency, for courses taken at other institutions. See

www.registrar.gatech.edu/students/transfercredit.php

Otherwise, you must present evidence to the appropriate department at Georgia Tech that the nonresident course is equivalent to a course here. Bring all relevant materials (syllabus, textbook information, copies of exams, homework, etc.) to the department at Georgia Tech offering the course, and ask the department to evaluate the course for transfer credit. You should check back with the department if you do not hear from them in a timely manner.

APPLYING FOR MENRE TRANSFER CREDIT*

NOTE: MENRE TRANSFER CREDIT IS UNDESIRABLE BECAUSE IT IS NOT RECOMMENDED BY THE REGISTRAR. ONLY COMPLETELY ACCURATE INFORMATION WILL BE ACCEPTED FOR THE PROCESSING OF YOUR REQUEST.

In order to receive transfer credit from another college or university, you **MUST** provide, for each course:

1. A copy of the syllabus including a list of topics covered and reading assignments.
2. A copy of the transcript from the school where you took the course, including the name and address of the school, the grade you received and an indication as to whether it is a quarter or semester grade.
3. The name of the receiving school.
4. Please fill in the following table:

Course Number	Course Name	Where Taken	When Taken	Grade	Request Credit For

REQUESTS FOR TRANSFER CREDIT WHICH DO NOT HAVE ALL OF THE ABOVE WILL BE RETURNED TO THE STUDENT.

6. Your name: _____
 Student Number: _____ Telephone Number: _____
 E-mail address: _____ Campus P.O.: _____

*After you have received ALL of this information, clip this sheet to the material being submitted and have it with the Material Transfer Form. This will allow the receiving school to determine whether you request the MENRE transfer credit. Please do not clip this sheet to the School of Industrial Engineering (SIE) Academic Office, Room 1110, 770 North Ave. NE, Atlanta, GA 30303-0110.

**The official transfer credit form is found on the OSCAR site: <http://www.gatech.edu/oscar/transfer/>

For ME and NRE students seeking transfer credit for courses in these disciplines, the **Transfer Credit** form can be found at:

www.me.gatech.edu/docs/transfer_credit_form_menre.pdf

For COE class credit, the **Transfer Credit** form can be found at:

www.me.gatech.edu/docs/transfer_credit_form_coe.pdf

For ME and NRE class transfer credit, complete the form and leave copies (not originals) of the requested information as it will **not** be returned. Take materials and the completed form to the Office of Student Services. You will be notified of the outcome of your request by an e-mail from Dr. Al Ferri, Associate Chair for Undergraduate Studies.

Transfer credit appears as the initial entry on a transcript. Where credit is granted for a course that has content identical to a Georgia Tech course, the Georgia Tech course number will be listed. If the credit is for a course that does not exactly match a Georgia Tech course in content or hours, the listing will be in a generic form, such as Math 3xxx.

Voluntary Withdrawal With All W Grades

If you drop all classes during a semester and receive all **W** grades, you must petition the faculty to be readmitted the following semester. The petition must include the reason for your withdrawal. If medical issues were the reason for your withdrawal, you must also turn in a release from your doctor stating that you are ready to come back to school.

Withdrawal From a Course

You may withdraw from a course on-line without penalty any time before fifty percent of the term has been completed, as specified by the official calendar. The exact date of the last day that withdrawals can be accepted is published online at

www.registrar.gatech.edu/home/calendar.php

Dropping a course is a very serious decision. Numerous W's on a transcript are an indication of poor planning, ineffective time management and/or study skills, or lack of ability to complete assigned tasks. Prospective employers and graduate schools will not look favorably upon a record with a pattern of frequent withdrawals. As a practical matter, withdrawal from a course can jeopardize your ability to complete the degree program as scheduled.

GRADUATION

Degree Petitions

To graduate, you must petition for a degree. The degree petition must be completed and turned in with your CAPP report the semester preceding the semester of your graduation per the dates below. If the due date falls on a weekend, then degree petitions are due the Monday after the deadline.

Spring Graduation – Due September 15

Summer Graduation – Due February 1

Fall Graduation – Due June 1

All degree petitions along with your CAPP report and minor form (if applicable) must be turned into the Office of Student Services (MRDC 3112). Information about CAPP reports is found in the next section. Degree petitions are available in the Office or Student Services or on-line at

www.registrar.gatech.edu/docs/pdf/UGRAD_PETITION_FOR_DEGREE.pdf

If you **do not** graduate in the semester for which you petitioned, you will need to reactivate your degree petition when you are ready to graduate. The reactivated degree petition may be submitted to the Office of Student Services for review and forwarded to the Registrar's Office no later than the end of the first week of classes of your final semester.

For additional information about degree petitions and graduation, see

www.me.gatech.edu/undergraduate/degrees_petitioning.shtml

and

www.registrar.gatech.edu/students/degcanfaq.php

Curriculum Advising and Program Planning (CAPP)

CAPP stands for Curriculum Advising and Program Planning. The Registrar's Office uses this report to verify that all requirements have been met for graduation. The CAPP report will tell you how far along you are in the curriculum and will identify the required classes that you are missing. For instructions to view your CAPP report, go to

www.me.gatech.edu/undergraduate/degrees_petitioning.shtml#step5

Graduation with Academic Distinction

For graduation with highest honors, the minimum scholastic average is 3.55, for graduation with high honor, the minimum scholastic average is 3.35, and for graduation with honor, the minimum scholastic average is 3.15. Honors apply only to undergraduates who have

completed at least 60 semester hours in residence at Georgia Tech. For additional information, please refer to

[**www.catalog.gatech.edu/rules/13e.php**](http://www.catalog.gatech.edu/rules/13e.php)

SPECIAL PROGRAMS

The Undergraduate Professional Internship Program

The Georgia Tech Internship Program Program is geared toward those students who did not participate in the cooperative program, but want some career-related experience before graduation. The program is open to all majors at Georgia Tech, and is aimed mainly at rising juniors and seniors. An internship is a single semester major-related work experience, which can be done during any semester. For more information and application instructions, view

www.gtip.gatech.edu

The BS/MS Program

There is a BS/MS Program for outstanding Woodruff School students who want to obtain a graduate degree in Mechanical Engineering (ME), Nuclear Engineering (NRE), Medical Physics (MP), or Bioengineering (BioE). To learn more about this individualized program, view

www.me.gatech.edu/undergraduate/degrees_bsms.shtml

To be eligible for the program you should have completed 30 semester credit hours at Georgia Tech, which is typically at the end of your freshman year; shown appropriate progress in your degree program; and obtained a grade point average of 3.5 or higher. You must apply to the program before you complete 75 semester credit hours, including transfer and advanced placement credits. Transfer students are welcome to apply, but this must be done after completing 12 credit hours in residence at Georgia Tech. Only the student's Georgia Tech GPA will be evaluated for admission to the BS/MS Program.

Students who are accepted to the BS/MS program, can use six hours of approved electives at the undergraduate level toward both your B.S. and M.S. degrees. A maximum of six additional hours taken at the bachelor's level, but not counted toward your B.S. degree, may be used toward your master's degree. BS/MS students must complete the requirements for the bachelor's degree, be awarded the bachelor's degree, and then immediately continue with the master's degree program (excluding summer semester). There is no need to take the Graduate Record Exam (GRE) for admission to the master's program through the BS/MS program.

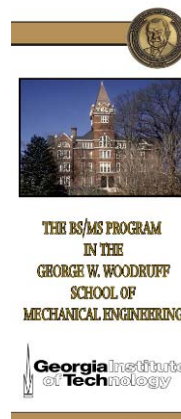
Studying Abroad

Woodruff School students participate in a number of study-abroad programs. These programs usually offer courses taught by Georgia Tech faculty. In 1997, the Institute began managing reciprocal exchange programs that allow students to attend foreign universities for a portion of their academic program. For more information about these opportunities, see

www.oie.gatech.edu/sa/

For information about the program in France offered by the Woodruff School, see

www.georgiatech-metz.fr



A Second Undergraduate Degree

A second undergraduate degree option is available for those who have received an undergraduate degree in another discipline at Georgia Tech or from some other school. To earn a B.S.M.E. or B.S.N.R.E. degree, you must satisfy all the requirements of either the Mechanical Engineering or the Nuclear and Radiological Engineering program including a minimum of 36 semester hours in excess of the requirements for the first degree. Students must declare both majors using a Change of Major form which can be found at

www.registrar.gatech.edu/students/formlanding/changemajor.php

The Frank K. Webb Program in Professional Communication

The Frank K. Webb Professional Communication Program provides classroom instruction, evaluation guidelines, and models of good presentations for students who are learning how to prepare written and oral technical reports. Dr. Jeffrey Donnell participates in the Woodruff School's design and laboratory courses; he explains how technical reports work; and he grades many written and oral presentations.



As you prepare to graduate from Georgia Tech, Dr. Donnell can help you develop career-related documents, including:

- Lectures on the graduate application process;
- Provides model graduate fellowship application essays;
- Reviews student application essays, résumés, and cover letters; and
- Reviews reports prepared for independent research projects.

Academic Assistance

Woodruff School students serve as tutors for many required courses in mechanical engineering as part of our Academic Assistance Program. For a list of specific courses and details about times, locations and availability of tutors, see the Advisement page at

www.me.gatech.edu/undergraduate/advisement_support.shtml

There are a number of other study programs at the Institute. For details about these programs, view

<http://successprograms.gatech.edu/>

Fundamentals of Engineering Exam

The Georgia State Board of Registration offers Georgia Tech students the opportunity to take the Fundamentals of Engineering (FE) exam before they graduate, a privilege not normally afforded to the general public. You are encouraged to take this exam in your senior year. Check the Woodruff School bulletin boards and e-mail messages for information and instructions on this test. The exam is given twice a year, usually in April and October. Students who are within two semesters of graduation and want to take the exam must fill out the application before the deadlines established by the Georgia State Board. More information and the link to the application can be found at

www.me.gatech.edu/undergraduate/advisement_faqs.shtml#fe_eit

Certificate Program and Minor in Nuclear and Radiological Engineering

The Nuclear and Radiological Engineering/Medical Physics Program in the Woodruff School offers a certificate and a minor in Nuclear and Radiological Engineering to non-NRE engineering students. The requirements include the following courses:

NRE 3301	Radiation Physics (3-0-3)
NRE 3208	Nuclear Reactor Physics I (3-0-3)
NRE 3316	Radiation Protection Engineering (3-0-3)

Additional courses are required from the list below for a total of at least 12 credit hours for the Certificate Program and 15 credit hours for the Minor Program.

NRE 2110	Introduction to Nuclear and Radiological Engineering (2-0-2)
NRE 4206	Radiation Physics Laboratory (1-3-2)
NRE 4208	Nuclear Reactor Physics II (4-0-4)
NRE 4214	Reactor Engineering (3-0-3)
NRE 4232	Nuclear Radiological Engineering Design (1-9-4)
NRE 4234	Nuclear Criticality Safety Engineering (2-3-3)
NRE 4266	Light Water Reactor Technology (3-0-3)
NRE 4328	Radiation Sources and Applications (3-0-3)
NRE/MP 4775	Radiation Imaging (3-0-3)
NRE 4404	Radiological Assessment and Waste Management (3-0-3)
NRE 4610	Introduction to Plasma Physics and Fusion Engineering (3-0-3)
NRE 4770	Nuclear Chemical Engineering (3-0-3) (Crosslisted with ChE 4770)

Students who have completed the minor must fill out the program of study for the minor and turn it in with their degree petition. The minor form can be found at:

www.catalog.gatech.edu/academics/minors.php

Students who have completed the certificate must fill out Application for Certificate in NRE and submit it to the Office of Student Services in MRDC room 3112. This is due by the week preceding final exams during your last semester.

Minor in Technology and Management (also known as Engineering and Management)

The Colleges of Management and Engineering at Georgia Tech are working to meet the need for graduates who can succeed on the interdisciplinary teams that are now standard in industry. Companies need engineers who understand market forces and can anticipate the financial impact of technology investments. They also need managers who understand the technical aspects of new process and product development, as well as the capabilities and constraints within the engineering disciplines.

The Technology and Management Certificate Program will enable undergraduate engineering and management students to learn one another's language through coursework in their respective fields and teamwork to solve real-world problems with the help and support of Corporate Affiliates. Additional details about the application process and the courses required can be found at:

<http://mgt.gatech.edu/programs/under/tm/index.html>

FACILITIES

We believe the Woodruff School has the finest mechanical engineering facilities in the United States. Most of the Woodruff School is housed in a three-building complex, all built after 1990, with classroom, laboratory, and research space.

The Manufacturing Related Disciplines Complex (MRDC) houses the Administrative Office, the Finance Office, and the Office of Student Services, many undergraduate laboratories, and some classrooms.



The J. Erskine Love Jr. Manufacturing Building houses state-of-the-art research laboratories, classrooms, offices, and study space in the atrium of the building.

The Manufacturing Research Center (MARC) houses a high-bay area with an anechoic (echo-free) chamber and other research equipment and office space.



Our bioengineering faculty are located in the Parker H. Petit Institute for Bioengineering and Bioscience, and the nuclear and radiological engineering faculty are in the Boggs Building.



Computers

Shortly after you enter Georgia Tech, the Office of Information Technology (OIT) will create a user ID account and password, usually referred to as a GT account, for the campus mainframe computer, a Sun Sparc Center 2000, usually referred to as "acme." These accounts provide a UNIX programming environment, an e-mail account, home page location, and other services. The GT account is the official Georgia Tech e-mail account used for students.

Computer Clusters

The Woodruff School maintains three computer clusters for student use. The **General Use Computing Cluster** is in Room 2104 of MRDC. This cluster is accessible with your buzz card 24/7. Staffed hours are posted outside the door. All Woodruff School students should be programmed for access. If you are not, send an e-mail to facilities@me.gatech.edu. A list of the software available in the computer lab can be found at:

www.me.gatech.edu/support/computer/cluster.html

The **Computer Aided Engineering (CAE) Laboratory** is in Room 2105 of MRDC. The cluster remains locked 24 hours a day with access via buzz cards only to authorized students. You must be in a class that needs these software packages or have special approval from a faculty member to use the lab. Requests to use the CAE lab can be made to

www2.me.gatech.edu/caecluster/cae_request.asp

The **Nuclear and Radiological Engineering Computer Cluster** houses PC-compatible computers and printers. Some of the computers in this cluster are available for general use by NRE students. The rest of the computers are reserved for NRE classes requiring nuclear engineering specific codes. Instructions for use of the facility are posted on the door.

Using the School's Computers

Computer facilities are available only to serve needs directly related to class assignments and academic research. **The facilities are not for personal use.** Use of computer resources to prepare personal letters, print résumés, play games, consulting activities, or for other commercial uses is a violation of Institute policy. Anyone caught not doing legitimate work may be asked by a user assistant to relinquish his or her seat in the cluster.

Wireless/Walkup Network (LAWN)

The purpose of the Georgia Tech Wireless/Walkup Network (LAWN) is to connect in common areas of the buildings where there is normally no access. OIT supports the LAWN from 8 a.m. to 5 p.m. Monday through Friday. There are instructions to connect to the LAWN in the lobbies of the Love and MRDC buildings and online. System requirements and instructions also can be found online at

www.me.gatech.edu/support/computer/LAWN/lawnpage.html

For additional assistance on connecting to the wireless or walkup network, please contact the help desk at 404-894-7193, computer.support@me.gatech.edu, or go to MRDC, Room 2103.

Woodruff School Cyber Station

E-mail and web access are available at the Woodruff School Cyber Station, located on the 2nd floor of MRDC. The workstation may be used by Woodruff School students and guests of the School, and accesses Internet-based e-mail, general web browsing, and secure telnet messages. While you can use the Cyber Station as often as you like, it is intended for short-term use. Please be aware of others who are waiting to use the terminal and limit your activity accordingly. For complete instructions, view



www.me.gatech.edu/support/computer/kiosk.shtml

Copy and Fax Machines

A copy machine and a FAX machine, both reserved for student use, are located in the second floor lobby of the MRDC Building. The fax number is 404-385-2604.

STUDENT ORGANIZATIONS

There are a number of groups for you to join in the Woodruff School. These organizations offer a unique opportunity to learn about the many facets of mechanical engineering and nuclear and radiological engineering, let you meet practicing professionals, and provide valuable service to the School. You are strongly encouraged to participate in one or more of these groups. For general information, view

www.me.gatech.edu/undergraduate/student_groups.shtml

Honor Society

Pi Tau Sigma

Professional Societies

Acoustical Society of America

American Nuclear Society

American Society of Heating, Refrigerating, and Air Conditioning Engineers

American Society of Mechanical Engineers

SAE International

Society of Manufacturing Engineers

Student Competition Groups

gt motorsports

GT Off-Road

GT Robojackets

Wreck Racing

The CanSat Club

Solar Jackets

Umbrella Groups

Woodruff School Student Advisory Committee (WSSAC)

Nuclear and Radiological Engineering Student Advisory Group

WOODRUFF SCHOOL FACULTY

Your interaction with faculty, both in and out of the classroom, is an important part of your education. You are strongly encouraged to take advantage of the opportunities to meet with the faculty, just as faculty members are encouraged to include students to the maximum extent possible in research and other learning experiences. View individual faculty information in the Woodruff School's Research Brochure and its Addendum, or on the web at

www.me.gatech.edu/research/index.shtml

Appendix

R3
6/21/10**ME Undergraduate Curriculum (Catalog: 2010 - 2011)**

Freshman	Fall	CHEM 1310 General Chemistry (See Note 4) 3-3-4	MATH 1501 Calculus 1 (Minimum Grade C) 4-0-4	HISTORY HIST 2111, HIST 2112, POL 1101, INTA 1200, or PUBP 3000 (Social Sci, See back page) 3-0-3	HPS 1040 Wellness 2-0-2	ENGL 1101 English Composition 1 [Humanities] 3-0-3	= 16 hours
	Spring	PHYS 2211 Physics 1 3-3-4 MATH 1501	MATH 1502 Calculus 2 (Minimum Grade C) 4-0-4 MATH 1501	CS 1371 Introduction to Computing 3-0-3	ME/CEE 1770 Engineering Graphics (See Note 6, No W's) 2-3-3	ENGL 1102 English Composition 2 [Humanities] 3-0-3 ENGL 1101	
Sophomore	Fall	PHYS 2212 Physics 2 3-3-4 PHYS 2211	MATH 2401 Calculus 3 (Minimum Grade C) 4-0-4 MATH 1502	ME 2110 Creative Decisions and Design (See Note 6, No W's) 2-3-3 ME/CEE 1770, COE 2001*	MSE 2001 Engineering Materials 3-0-3 CHEM 1310	COE 2001 Statics 2-0-2 MATH 1502, PHYS 2211	= 16 hours
	Spring	ECE 3710 Circuits & Electronics 2-0-2 PHYS 2212	MATH 2403 Differential Equations (Minimum Grade C) 4-0-4 MATH 1502	ME 2202 Dynamics of Rigid Bodies 3-0-3 COE 2001	ME 2016 Computing Techniques 3-0-3 CS 1371, MATH 1502, MATH 2403*	Science Elect. CHEM 1311, PHYS 2213, BIOL 1510, BIOL 1520, EAS 1600 or EAS 1601 (See Note 4) X-X-3	= 15 hours
							= 16 hours
Junior	Fall	ECE 3741 Instrument & Electronics Lab 0-3-1 ECE 3710	COE 3001 Mechanics of Deformable Bodies 3-0-3 COE 2001, MATH 2403*	ME 3322 Thermodynamics 3-0-3 PHYS 2211, MATH 2403	ME 3340 Fluid Mechanics 3-0-3 ME 2202, ME 3322*, MATH 2403	Economics ECON 2100, 2101, 2105, or 2106 [Social Science] (See Note 5) 3-0-3	Social Science Elective 3-0-3
	Spring	ME 3015 System Dynamics & Control 4-0-4 ME 2202, ME 2016, MATH 2403, ECE 3710	ME 3345 Heat Transfer 3-0-3 ME 3322, ME 3340, MATH 2403	MATH/ISYE 3770 Statistics 3-0-3 MATH 2401	ISYE 3025 Engineering Economics 1-0-1 (ECON 2100, 2101, 2105 or 2106)	Ethics HTS 2084, INTA 2030, PST 3105, PST 3109, PST 3127 or PST 4176 (See Notes 1 & 3) 3-0-3	Humanities Elective 3-0-3
Senior	Fall	Design Elective ME 3180 or ME 4315 (3180: Machine Design, 4315: Energy Sys Dsgn) 3-0-3 ME 2110, ME 3345 (for ME 4315 only), COE 3001 (for ME 3180 only)	ME 4210 Manufacturing Processes & Engineering 3-0-3 COE 3001, ME 3345, MATH/ISYE 3770	ME 3057 Experimental Methods Lab (See Note 6, No W's) 2-3-3 COE 3001, ME 3015, ME 3340, ME 3345*, MATH/ISYE 3770*	ME Elective 3000 Level or Above ME Class (See Notes 2, 7 & back page) 3-0-3	Free Elective 2000 Level or Above (See Note 7) 3-0-3	= 17 hours
	Spring	ME 4053 ME Systems Lab (See Note 6, No W's) 1-2-2 ME 3057, ME 3345, MATH/ISYE 3770	ME 4182 Capstone Design (See Note 6, No W's) 1-6-3 ME 2110, ME 4210*, (ME 3180 or ME 4315)	ME Elective 3000 Level or Above ME Class (See Notes 2, 7 & back page) 3-0-3	Social Science or Humanities Elective (See Note 3) 3-0-3	Free Elective 2000 Level or Above (See Note 7) 3-0-3	= 15 hours
							= 14 hours

NOTES:

- Ethics - PST 3105, 3109, 3127 & 4176 are humanities (HUM). HTS 2084 & INTA 2030 are social sciences (SS).
 - ME Electives are any 3000 level ME class or above, excluding ME 3141, 3720, 3743, 3744, 3753, 4741, 4742 & 4753. Students may take both design electives (ME 3180 & ME 4315); one class will be the design elective and one an ME Elective. See backside for more information about ME electives.
 - If Ethics is humanities, social science elective is required for the **Social Science or Humanities Elective**. If Ethics is social science, humanities elective is required for the **Social Science or Humanities Elective**.
 - CHEM 1211K can substitute for CHEM 1310. CHEM 1211K & 1212K are recommended for pre-health students. CHEM 1212K can substitute for the Science Elective for students who take CHEM 1211K in place of CHEM 1310.
 - Credit is awarded for only ECON 2100 or ECON 2101 or (ECON 2105 and/or ECON 2106).
 - ME 1770, 2110, 3057, 4053 & 4182 cannot be dropped after registration without documented medical reasons.
 - Free Electives & ME Electives may not duplicate any other material used for your BSME.
- * Class co-requisites have an asterisk (*) after the class. These classes can be taken at the same time.

126 Total Hours**General Requirements**

- All classes must be taken LETTER GRADE.
- Minimum grade of D required for each class, except as noted.
- Overall GPA must be greater than 2.00 at graduation.
- ME GPA (includes all ME and COE classes) must be greater than 2.00 at graduation.

Undergraduate Curriculum Sheet Explanation											
Understanding the Curriculum Guide		Core Classes									
<p>Class Number → ME 2110</p> <p>Notes about Class → Creative Decisions and Design (See Note 6, No W's)</p> <p>Lecture Hours (per week) → 2-3-3</p> <p>Pre-Requisites & Co-Requisites* → ME/CEE 1770 COE 2001*</p> <p>Class Description</p> <p>Lab Hours (per week)</p> <p>Total Credit Hours</p> <p>Pre-requisites: These classes must be completed before you can take the class.</p> <p>*Co-requisites: These classes can be taken at the same time or before the class. You must register for the co-req first to avoid registration errors.</p>		<p>Humanities Electives (12 hours total) ENGL 1101 (3 hrs) ENGL 1102 (3 hrs) Humanities Elective (3 hrs) * Humanities Elective (3 hrs)</p> <p>Social Science Electives (12 hours total) Economics (3 hrs) - ECON 2100, ECON 2105 or ECON 2106 History (3 hrs) - HIST 2111, HIST 2112, **POL 1101, **INTA 1200 or PUBP 3000 Social Science Elective (3 hrs) * Social Science Elective (3 hrs)</p> <p>* Note - One humanities or social science elective must be ethics. Ethics must be selected from: PST 3105 (Humanities) PST 4176 (Humanities) PST 3109 (Humanities) INTA 2030 (Social Science) PST 3127 (Humanities) HTS 2084 (Social Science)</p> <p>** Note - Credit is only awarded for one of INTA 1200 and POL 1101, not both. Classes are exactly the same.</p> <p>Electives: Classes that satisfy social science electives and humanities electives can be found at: http://www.catalog.gatech.edu/students/ugrad/core/core.php</p>									
ME Electives											
<ol style="list-style-type: none"> ME Electives: A list of ME Electives (including their pre-reqs) offered each semester can be found here. ME 3141, 3720, 3743, 3744, 3753, 4741, 4742 & 4753 are NOT allowed to be used for ME electives. Design Elective (ME 3180 / ME 4315): Students may take both design electives, ME 3180 & ME 4315. One class will satisfy the design elective and the other class satisfies an ME Elective. Research: Students may use up to 4 hours of ME 4699/4903 for ME elective credit. In addition, up to 6 hours of 2699/4699/4903 from any department may be used as free elective credit. More information about research is at: http://www.me.gatech.edu/docs/special_problem_form.pdf Minors: Students who successfully complete a Ga. Tech minor approved by the ME department are allowed to substitute courses required for the minor for up to six hours of ME elective credit. If a student does not complete the minor, then this substitution is disallowed and the student must complete six hours of ME elective credit. 											
<p>ME Approved Minors:</p> <table> <tr> <td>Aerospace Engineering</td><td>Biomedical Engineering</td><td>Materials Science and Engineering</td></tr> <tr> <td>Biology</td><td>Computing Science</td><td>Mathematics</td></tr> <tr> <td></td><td>Earth and Atmospheric Sciences</td><td>Nuclear and Radiological Engineering</td></tr> </table>			Aerospace Engineering	Biomedical Engineering	Materials Science and Engineering	Biology	Computing Science	Mathematics		Earth and Atmospheric Sciences	Nuclear and Radiological Engineering
Aerospace Engineering	Biomedical Engineering	Materials Science and Engineering									
Biology	Computing Science	Mathematics									
	Earth and Atmospheric Sciences	Nuclear and Radiological Engineering									
Pre-Requisites											
<ol style="list-style-type: none"> The ME curriculum has a 7 or 8 semester pre-requisite chain, depending on the design class selected. Students can select either ME 3180 or ME 4315 for the design elective. More students select ME 3180. Pre-reqs are strictly enforced in ME. Carefully plan your schedule and have it check by an advisor. 											
Upon completion of these classes, you will have a minimum of (...) semesters remaining until graduation.											
Machine Design (ME 3180) for the Design Elective	Minimum # of Semesters	Energy Systems Design (ME 4315) for the Design Elective									
	7	MATH 1501									
MATH 1501	6	MATH 1502, PHYS 2211									
MATH 1502, PHYS 2211	5	COE 2001									
COE 2001, PHYS 2212, CS 1371	4	ME 2202, MATH 2403, CS 1371, PHYS 2212									
MATH 2403, ME 1770, ME 2016, ME 2202, ECE 3710	3	ECE 3710, ME 1770, ME 2016, ME 3322, ME 3340									
ME 2110, ME 3015, ME 3322, ME 3340, COE 3001, MATH 2401	2	COE 3001, MATH 2401, ME 2110, ME 3015, ME 3345,									
ME 3180 **, ME 3057, ME 3345, CHEM 1310, MATH/ISYE 3770	1	ME 4315 **, ME 3057, MATH/ISYE 3770, CHEM 1310									
ME Elect, ME 4182, ME 4053, ME 4210 ECE 3741, ISYE 3025, MSE 2001	0	ME Electives, ME 4182, ME 4053, ME 4210, ECE 3741, ISYE 3025, MSE 2001									

R3
8/21/10**ME International Plan (IP) Undergraduate Curriculum (Catalog: 2010-11)**

Freshman	Fall	CHEM 1310 General Chemistry (See Note 5) 3-3-4	MATH 1501 Calculus 1 (Minimum Grade C) 4-0-4	CS 1371 Introduction to Computing 3-0-3	ENGL 1101 English Composition 1 [Humanities] 3-0-3	Humanities Elective IP Optional Language Class 3-0-3	= 17 hours
	Spring	PHYS 2211 Physics 1 3-3-4 MATH 1501	MATH 1502 Calculus 2 (Minimum Grade C) 4-0-4 MATH 1501	ME/CEE 1770 Engineering Graphics (See Note 1, No W's) 2-3-3	ENGL 1102 English Composition 2 [Humanities] 3-0-3 ENGL 1101	Humanities Elective IP Optional Language Class 3-0-3	= 17 hours
Sophomore	Fall	PHYS 2212 Physics 2 3-3-4 PHYS 2211	MATH 2401 Calculus 3 (Minimum Grade C) 4-0-4 MATH 1502	ME 2110 Creative Decisions and Design (See Note 1, No W's) 2-3-3 ME/CEE 1770, COE 2001*	COE 2001 Statics 2-0-2 MATH 1502, PHYS 2211	Free Elective IP Optional Language Class (See Note 4) 3-0-3	= 16 hours
	Spring	ECE 3710 Circuits & Electronics 2-0-2 PHYS 2212	MATH 2403 Differential Equations (Minimum Grade C) 4-0-4 MATH 1502	ME 2202 Dynamics of Rigid Bodies 3-0-3 COE 2001	ME 2016 Computing Techniques 3-0-3 CS 1371, MATH 1502, MATH 2403*	MSE 2001 Engineering Materials 3-0-3 CHEM 1310	= 15 hours
Junior - ABROAD	Fall	COE 3001 Mechanics of Deformable Bodies 3-0-3 COE 2001, MSE 2001*, MATH 2403*	ME 3322 Thermodynamics 3-0-3 PHYS 2211, MATH 2403	ME 3340 Fluid Mechanics 3-0-3 ME 2202, ME 3322*, MATH 2403	Free Elective IP Regional or Country Elective (See Notes 2, 4 & 7) 3-0-3	Economics IP Global Economics (See Notes 2 & 7) 3-0-3	= 15 hours
	Spring	ME 3015 System Dynamics & Control 4-0-4 ME 2202, ME 2016, MATH 2403, ECE 3710	ME 3345 Heat Transfer 3-0-3 ME 3322, ME 3340, MATH 2403	MATH/ISYE 3770 Statistics 3-0-3 MATH 2401	Ethics INTA 2030 or HTS 2084 (See Note 8) 3-0-3	Social Science IP International Relations Elective (See Note 2) 3-0-3	= 16 hours
Senior	Fall	Design Elective ME 3180 or ME 4315 3180: Machine Design 4315: Energy Sys Design 3-0-3 ME 2110, ME 3345 (for ME 4315 only), COE 3001 (for ME 3180 only)	ME 4210 Manufacturing Processes & Engineering 3-0-3 COE 3001, ME 3345, MATH/ISYE 3770	ME 3057 Experimental Methods Lab (See Note 1, No W's) 2-3-3 COE 3001, ME 3015, ME 3340, ME 3345*, MATH/ISYE 3770*	ISYE 3025 Engineering Economics 1-0-1 (ECON 2100, 2101, 2105 or 2106)	HISTORY HIST 2111, HIST 2112, POL 1101, INTA 1200, or PUBP 3000 (Soc Sci, See back page) 3-0-3	HPS 1040 Wellness 2-0-2
	Spring	ME 4053 ME Systems Lab (See Note 1, No W's) 1-2-2 ME 3057, ME 3345, MATH/ISYE 3770	ME 4182 IP Capstone Design (See Note 1, No W's) 1-6-3 ME 2110, ME 4210*, (ME 3180 or ME 4315)	ME Elective 3000 Level or Above ME Class (See Note 3 & back) 3-0-3	ME Elective 3000 Level or Above ME Class (See Note 3 & back) 3-0-3	Science Elect. CHEM 1311, PHYS 2213, BIOL 1510, BIOL 1520, EAS 1600 or EAS 1601 (See Note 5) X-X-3	ECE 3741 Instrument & Electronics Lab 0-3-1 ECE 3710

NOTES:

- ME 1770, 2110, 3057, 4053 & 4182 cannot be dropped after registration without documented medical reasons.
 - Classes that satisfy the international plan (IP) requirements and additional IP rules are <http://www.internationalplan.gatech.edu/students/requirements.html>
 - ME Electives** are any 3000 level ME class or above, excluding ME 3141, 3720, 3743, 3744, 3753, 4741, 4742 & 4753. Students may take both design electives (ME 3180 & ME 4315); one class will be the design elective and one an ME Elective. See backside for more information about ME electives.
 - Free Electives must be 2000 level or above and may not duplicate any other material used for your BSME.
 - CHEM 1211K can substitute for CHEM 1310. CHEM 1211K & 1212K are recommended for pre-health students. CHEM 1212K can substitute for the Science Elective if CHEM 1211K is taken in place of CHEM 1310.
 - Credit is awarded for Econ 2100, Econ 2101 or (Econ 2105 and/or Econ 2106).
 - Either Global Economics or Country/Regional Elective must be a social science.
 - If Global Economics and Country/Regional Elective are both social sciences, then ethics can be selected from: **Ethics** - PST 3105, 3109, 3127 & 4176 (humanities); HTS 2084 & INTA 2030 (social sciences).
- * Class co-requisites have an asterisk (*) after the class. These classes can be taken at the same time.

126 Total Hours**General Requirements**

- All classes must be taken LETTER GRADE.
- Minimum grade of D required for each class, except as noted.
- Overall GPA must be greater than 2.00 to graduate.
- ME GPA (includes all ME and COE classes)

Undergraduate Curriculum Sheet Explanation											
Understanding the Curriculum Guide		Core Classes									
<p>Class Number → ME 2110</p> <p>Notes about Class → Creative Decisions and Design (See Note 1, No W's)</p> <p>Lecture Hours (per week) → 2-3-3</p> <p>Pre-Requisites & Co-Requisites* → ME/CEE 1770 COE 2001*</p> <p>Class Description</p> <p>Lab Hours (per week)</p> <p>Total Credit Hours</p> <p>Pre-requisites: These classes must be completed before you can take the class.</p> <p>*Co-requisites: These classes can be taken at the same time or before the class. You must register for the co-req first to avoid registration errors.</p>		<p>Humanities Electives (12 hours total) ENGL 1101 (3 hrs) ENGL 1102 (3 hrs) Humanities Elective (3 hrs) * Humanities Elective (3 hrs)</p> <p>Social Science Electives (12 hours total) Economics (3 hrs) - ECON 2100, ECON 2105 or ECON 2106 History (3 hrs) - HIST 2111, HIST 2112, **POL 1101, **INTA 1200 or PUBP 3000 Social Science Elective (3 hrs) * Social Science Elective (3 hrs)</p> <p>* Note - One humanities or social science elective must be ethics. Ethics must be selected from: PST 3105 (Humanities) PST 4176 (Humanities) PST 3109 (Humanities) INTA 2030 (Social Science) PST 3127 (Humanities) HTS 2084 (Social Science)</p> <p>** Note - Credit is only awarded for one of INTA 1200 and POL 1101, not both. Classes are exactly the same.</p> <p>Electives: Classes that satisfy social science electives and humanities electives can be found at: http://www.catalog.gatech.edu/students/ugrad/core/core.php.</p>									
ME Electives											
<ol style="list-style-type: none"> ME Electives: A list of ME Electives (including their pre-reqs) offered each semester can be found here. ME 3141, 3720, 3743, 3744, 3753, 4741, 4742 & 4753 are NOT allowed to be used for ME electives. Design Elective (ME 3180 / ME 4315): Students may take both design electives, ME 3180 (Machine Design) & ME 4315 (Energy System Design). One class will satisfy the design elective and the other an ME Elective. Research: Students may use up to 4 hours of ME 4699/4903 for ME elective credit. In addition, up to 6 hours of 2699/4699/4903 from any department may be used as free elective credit. More information about research is at: http://www.me.gatech.edu/docs/special_problem_form.pdf. Minors: Students who successfully complete a Ga. Tech minor approved by the ME department are allowed to substitute courses required for the minor for up to six hours of ME elective credit. If a student does not complete the minor, then this substitution is disallowed and the student must complete six hours of ME elective credit. 											
<p>ME Approved Minors:</p> <table> <tr> <td>Aerospace Engineering</td><td>Biomedical Engineering</td><td>Materials Science and Engineering</td></tr> <tr> <td>Biology</td><td>Computing Science</td><td>Mathematics</td></tr> <tr> <td></td><td>Earth and Atmospheric Sciences</td><td>Nuclear and Radiological Engineering</td></tr> </table>			Aerospace Engineering	Biomedical Engineering	Materials Science and Engineering	Biology	Computing Science	Mathematics		Earth and Atmospheric Sciences	Nuclear and Radiological Engineering
Aerospace Engineering	Biomedical Engineering	Materials Science and Engineering									
Biology	Computing Science	Mathematics									
	Earth and Atmospheric Sciences	Nuclear and Radiological Engineering									
Pre-Requisites											
<ol style="list-style-type: none"> The ME curriculum has a 7 or 8 semester pre-requisite chain, depending on the design class selected. Students can select either ME 3180 or ME 4315 for the design elective. More students select ME 3180. Pre-reqs are strictly enforced in ME. Carefully plan your schedule and have it check by an advisor. 											
Upon completion of these classes, you will have a minimum of (...) semesters remaining until graduation.											
Machine Design (ME 3180) for the Design Elective	Minimum # of Semesters	Energy Systems Design (ME 4315) for the Design Elective									
	7	MATH 1501									
MATH 1501	6	MATH 1502, PHYS 2211									
MATH 1502, PHYS 2211	5	COE 2001									
COE 2001, PHYS 2212, CS 1371	4	ME 2202, MATH 2403, CS 1371, PHYS 2212									
MATH 2403, ME 1770, ME 2016, ME 2202, ECE 3710	3	ECE 3710, ME 1770, ME 2016, ME 3322, ME 3340									
ME 2110, ME 3015, ME 3322, ME 3340, COE 3001, MATH 2401	2	COE 3001, MATH 2401, ME 2110, ME 3015, ME 3345,									
MATH/ISYE 3770, CHEM 1310, Econ, ME 3180 **, ME 3057, ME 3345	1	ME 4315 **, ME 3057, MATH/ISYE 3770, CHEM 1310, Economics									
ME Elect, ME 4182, ME 4053, ME 4210 ECE 3741, ISYE 3025, MSE 2001	0	ME Electives, ME 4182, ME 4053, ME 4210, ECE 3741, ISYE 3025, MSE 2001									

R1
6/8/10**NRE Undergraduate Curriculum (Catalog: 2010 - 2011)**

Freshman	Fall	CHEM 1310 General Chemistry (See Note 4) 3-3-4	MATH 1501 Calculus 1 (Minimum Grade C) 4-0-4	HISTORY HIST 2111, HIST 2112, POL 1101, INTA 1200, or PUBP 3000 (Social Sci. See back page) 3-0-3	HPS 1040 Wellness 2-0-2	ENGL 1101 English Composition 1 [Humanities] 3-0-3	= 16 hours
	Spring	PHYS 2211 Physics 1 3-3-4 MATH 1501	MATH 1502 Calculus 2 (Minimum Grade C) 4-0-4 MATH 1501	CS 1371 Introduction to Computing 3-0-3	NRE 2110 Introduction to Nuclear & Rad. Engineering 2-0-2	ENGL 1102 English Composition 2 [Humanities] 3-0-3 ENGL 1101	
Sophomore	Fall	PHYS 2212 Physics 2 3-3-4 PHYS 2211	MATH 2401 Calculus 3 (Minimum Grade C) 4-0-4 MATH 1502	COE 2001 Statics 2-0-2 MATH 1502, PHYS 2211	Economics ECON 2100, ECON 2105 or ECON 2106 [Social Science] (See Note 5) 3-0-3	Humanities Elective 3-0-3	= 16 hours
	Spring	PHYS 2213 Introduction to Modern Physics 3-0-3 PHYS 2212	MATH 2403 Differential Equations (Minimum Grade C) 4-0-4 MATH 1502	NRE 3301 Radiation Physics 3-0-3 MATH 1502, PHYS 2211	MSE 2001 Engineering Materials 3-0-3 CHEM 1310	ECE 3710 Circuits & Electronics 2-0-2 PHYS 2212	= 15 hours
							= 16 hours
Junior	Fall	NRE 3112 Nuc. Radiation Detection (See Note 6, No W's) 2-3-3 NRE 3301	ME 3322 Thermodynamics 3-0-3 PHYS 2211, MATH 2403	ME 3340 Fluid Mechanics (See Note 7) 3-0-3 COE 2001, MATH 2403, ME 2202 (See Note 7), ME 3322*	ECE 3025 Electromagnetics 3-0-3 ECE 3710, MATH 2401 MATH 2403, NRE 2110	ECE 3741 Instrument & Electronics Lab 0-3-1 ECE 3710	Social Science Elective 3-0-3
	Spring	NRE 3208 Nuclear Reactor Physics I 3-0-3 NRE 3301, MATH 2403	NRE 3316 Radiation Protection Engineering 3-0-3 NRE 3301, MATH 2403	COE 3001 Mechanics of Deformable Bodies 3-0-3 COE 2001, MATH 2403*	ME 3345 Heat Transfer 3-0-3 ME 3322, ME 3340, MATH 2403	ISYE 3025 Engineering Economics 1-0-1 (ECON 2100, 2105 or 2106)	MATH/ISYE 3770 Statistics (Minimum Grade C) 3-0-3 MATH 2401
Senior	Fall	NRE 4208 Nuclear Reactor Physics II 4-0-4 NRE 3208, MATH 2403	NRE 4214 Reactor Engineering 3-0-3 ME 3322, ME 3340, ME 3345	NRE 4328 Radiation Sources & Applications 3-0-3 NRE 3301, NRE 3316	Technical Elective (See Note 2) 3-0-3	Ethics HTS 2084, INTA 2030, PST 3105, PST 3109, PST 3127 or PST 4176 (See Notes 1 & 3) 3-0-3	= 16 hours
	Spring	NRE 4206 Radiation Physics Lab (See Note 6, No W's) 1-3-2 NRE 3112, NRE 4208	NRE 4232 NRE Design (See Note 6, No W's) 1-9-4 NRE 4328, NRE 4208	Technical Elective (See Note 2) 3-0-3	Technical Elective (See Note 2) 3-0-3	Social Science or Humanities Elective (See Note 3) 3-0-3	= 15 hours

NOTES:

- Ethics - PST 3105, 3109, 3127 & 4176 are humanities (HUM). HTS 2084 & INTA 2030 are social sciences (SS).
 - Technical Electives may be selected from any course offered in the College of Engineering, Science or Computing at the 3000 level or above, excluding Psychology (PSYC) and Applied Physiology (APPH). This course cannot overlap any course used for your BSNRE. See backside for rules about using research for TE's.
 - If Ethics is humanities, social science elective is required for the Social Science or Humanities Elective. If Ethics is social science, humanities elective is required for the Social Science or Humanities Elective.
 - CHEM 1211K can substitute for CHEM 1310. CHEM 1211K & 1212K are recommended for pre-health students.
 - Credit is awarded for only Econ 2100 or Econ 2101 or (Econ 2105 and/or Econ 2106).
 - NRE 3112, 4206 & 4232 cannot be dropped after registration ends without documented medical reasons.
 - NRE students do not take ME 2202, so NRE 3301 or NRE 2110 will satisfy the pre-req for registration.
- * Class co-requisites have an asterisk (*) after the class. Pre-reqs do not have an asterisk behind the class.

126 Total Hours**General Requirements**

- All classes must be taken LETTER GRADE.
- Minimum grade of D required for each class, except as noted.
- Overall GPA must be greater than 2.00 at graduation.
- NRE GPA (including all NRE classes) must be greater than 2.00 at graduation.



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