Approved Program of Study for Undergraduate Minors
Georgia Institute of Technology
Office of the Registrar
2014-2015
Minor in Energy Systems
(Track for Mechanical Engineering Students)

Please type or print in ink:

<table>
<thead>
<tr>
<th>Name (first/last):</th>
<th>GT Student ID Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT Email Address:</td>
<td>Daytime Phone:</td>
</tr>
<tr>
<td>Major:</td>
<td>Anticipated Graduation Date:</td>
</tr>
</tbody>
</table>

In addition to the guidelines listed below, you are responsible for reviewing and following the general guidelines for minors: [http://www.catalog.gatech.edu/academics/minorguide.php](http://www.catalog.gatech.edu/academics/minorguide.php)

The minor includes requirements for courses which cut across disciplines. These courses are intended to add breadth of knowledge in areas outside the student’s major but important to energy systems. A terminal “capstone” or project course provides an opportunity for students from multiple disciplines to work together in multidisciplinary teams on a significant project in the energy area.

The breadth courses and the capstone project course, courses taken by all students completing the minor, require one or more pre-requisites; specifically, basic economics, mathematics, and lab science courses. List of required prerequisites and curriculum requirements and options for this minor are on the following pages. All courses in the minor also must be 3000 level and above.

It is the major advisor’s responsibility to verify that students are not using any courses required by name and number for their major, that they are not using any core area A-E courses (including humanities and social sciences), and that they are not using any courses for more than one minor or certificate. Free electives and technical electives may be used towards minors.

List the courses completed for the requested minor:

<table>
<thead>
<tr>
<th>Course and Section</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Grade</th>
<th>Semester Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 3700</td>
<td>The Science of Alternative Energy</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GT 4813</td>
<td>Project in Energy Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Student Signature:

Major School Signature:

Minor School Signature:
Prerequisite Courses
The prerequisites needed for one or more of the courses required for the minor (breadth courses and the capstone project course) are (all existing courses):

- a) Mathematics (MATH 1501, 1502, 2401)
- b) Physics (PHYS 2211, 2212)
- c) Chemistry (CHEM 1310 or 1211)
- d) Economics ECON 2100 or 2101 or (2105 and 2106)

Students ordinarily pursue the minor upon completion of the needed prerequisites. However, the depth course requirements (see below) may be taken as soon as students have met the relevant prerequisites.

Depth Courses
The minor requires **six hours of depth courses** related to energy systems. A list of acceptable courses which meet the depth requirement is provided by each major approving the minor. Depth courses may be taken in the student’s major to ensure the depth in that major needed to peruse a multidisciplinary minor. All acceptable depth courses must be consistent with the goals of the minor. Examples of acceptable courses include engineering courses covering a specific energy technology like solar or relevant engineering science.

Menus of Depth Courses
The Depth Courses below may have additional prerequisites; please check [http://www.catalog.gatech.edu/courses/index.php](http://www.catalog.gatech.edu/courses/index.php) to view the current prerequisites.

Depth courses for Mechanical Engineering students
- ME 4011 Internal Combustion Engines
- ME 4315 Energy Systems Analysis and Design (if not used as Design Elective)
- ME 4325 Fuel Cells
- ME 4321 Refrigeration and Air Conditioning
- ME 4823 Mechatronic Systems in Hybrid-Electric Powertrains
- ME 4823 Renewable Energy Systems
- ME 4171 Environmental Design and Manufacturing
- ME 4172 Sustainable Energy Systems Design
- ME 4701 Wind Engineering
- ECE 3071 Modern Electric Energy Systems
- NRE 3208 Nuclear Reactor Physics I
- NRE 4214 Reactor Engineering
- NRE 4610 Intro to Plasma Physics and Fusion Engineering

Breadth Courses
The minor requires **six hours of breadth courses** (two courses). Students should strive to complete the necessary prerequisites and the depth courses prior to enrolling in the breadth courses. However, depth courses may be taken concurrently with the courses taken to meet the breadth requirement.

Required course:
- CHEM 3700 The Science of Alternative Energy

Optional Course (select one):
- ECON 3300 Economics of International Energy Markets
- PUBP 3350 Energy Policy
Breadth courses may ordinarily serve as technical or free electives in the student’s program of study. However, courses required by name and number and/or used to satisfy Core Areas A through E cannot be used to satisfy the requirements of a minor. All courses in the minor also must be 3000 level and above.

**Capstone Course**
- GT 4813 Project in Energy Systems

Ordinarily, students must complete all minor requirements before they can register for the Project in Energy Systems course.