# Georgia Perimeter College
## Common Course Course Outline

<table>
<thead>
<tr>
<th>Course Abbreviation &amp; Number:</th>
<th>ENGR 1603</th>
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<tbody>
<tr>
<td><strong>Course Title:</strong></td>
<td>Introduction to Engineering</td>
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<tr>
<td><strong>Credit Hours:</strong></td>
<td>3</td>
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| **Prerequisites:**            | MATH 1113 with a C or better |
| **Co-requisites:**            | None |

### Course Description:

The course provides students with an overview of various engineering disciplines to assist them in making well-informed career choices in the profession. Key topics include exploring the nature of the field and career opportunities in civil, chemical, electrical, mechanical and other major disciplines; tools of technical communication; recording and analyzing data; dimensional analysis; computational techniques of approximate solutions; and basic statistical tools for quality control.

### Expected Educational Results:

As a result of completing this course, the student will be able to do the following:

1. Distinguish between major fields of the Engineering profession and identify various career possibilities within any given field.
2. Describe the general structure of the four-year Engineering curriculum.
3. Describe objectives of various professional societies and the advantages of membership.
4. Get a better understanding of values (ethics) and responsibilities of an engineer.
5. Describe and use the US Customary and SI systems of units, converting various physical quantities from one system to the other.
6. Verify dimensional consistency of a relationship among physical quantities.
7. State and compute various types of errors and check their
8. Collect and record technical data, using different graph scales and coordinates to represent data and establish empirical relationships.

9. Define basic statistical terms as they are applied in quality control, computing by least squares the best fit for the data and determining the correlation coefficient.

10. Describe and use basic terms in engineering economics viz. present worth, depreciation, annual rate of return, etc.

11. Distinguish approximate and exact solutions to equations and find roots of equations in one variable by interval methods.

**Course Content:**

1. Discussion about various fields of engineering, with particular attention to opportunities in each field. Ethics and professional responsibility. (13%)

2. Familiarity with engineering language and its terminology. (10%)

3. Basic methods and techniques of engineering - recording, analyzing and solving problems. (12%)

4. Engineering estimation/approximation, dimensional analysis, units of measurement, significant figures, scientific notation. (20%)

5. Basic understanding of computational techniques, computer analysis and applications. (22%)

6. Representation of engineering data using statistical techniques, evaluating for accuracy by error analysis. (15%)

7. Engineering economics - Annual rate of return, present worth, depreciation, etc. (8%)

**Assessment of Outcome Objectives**

**Course Grade:**

The course grade is to be determined by the individual instructor by a variety of evaluation techniques consistent with the overall college policy, including class attendance. The procedure should include:

- at least three in-class assessments (tests or quizzes) – 40%
- class/homework – 30%
- a comprehensive final exam - 30%.

One or more term papers or projects may also be assigned, by adjusting the above suggested weights accordingly.

**Course Assessment:**

Assessment of the expected educational results of this course will be conducted every year. The assessment instrument will be selected
<table>
<thead>
<tr>
<th>questions on the final examination covering a majority of the topics in the course content section.</th>
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<tbody>
<tr>
<td><strong>Use of Assessment Findings:</strong></td>
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<tr>
<td>The Engineering committee will evaluate the findings and determine the level of success in expected educational results and consider recommending to the Discipline Academic Group executive committee, any changes in the curriculum after careful review of curricula of transfer institutions.</td>
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<tr>
<td><strong>Last Revised:</strong></td>
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<td>September 2011 Edited February 2014 Reviewed April 2015</td>
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