



CLARK ATLANTA UNIVERSITY

**INTRO TO ENGINEERING**  
**Course Syllabus**

**Course Description:**

Introduction to engineering disciplines and their sub-fields, basic tools used in engineering practice, hands-on engineering projects.

**Course Objectives:**

The course objective is to briefly trace the development of engineering from earliest recorded time to the present day. The course familiarizes students with field of engineering in general and the individual disciplines within engineering in particular. At the end of the course students are expected to be cognizant of the role of an engineer in society and are thus able to make an informed selection of a field within engineering as their major.

**Learning Outcomes:**

This course exposes the students to issues related to engineering practice, such as working in teams, learning and creative thought, scheduling, evaluating risk and making ethical decisions. would help engineering students to be. At the completion of the course students will have gained the following knowledge and skills:

- General understanding of each engineering discipline, appreciation of the breadth of the field, and the ability to make intelligent choice of major
- Preliminary knowledge of engineering tools, such as AUTOCAD, MATLAB, and LABVIEW, used in common engineering applications
- Ability to work in multi-disciplinary teams and carry out a basic design project

**Teaching/Learning Methods:**

Problem-solving exercises apply fundamental concepts from these subfields of engineering to integrate the steps of analysis, synthesis, and evaluation through individual homework assignments and group projects that require attention to a broad range of issues. In addition to regular lectures and project exercises, the course includes guest speakers and class demonstrations.

**Grading and other policies and expectations:**

1. Attendance to lecture and lab is required.
2. Always bring the following materials: Pencil; Eraser, and 8 ½" X 11" white Paper or Engineering Paper.
3. Always be prepared for class (i.e., quizzes are not announced). No make-up quizzes will be given.
4. Turn in all homework by the end of your schedule lecture/lab section.
5. The letter grades for home works, quizzes and exams will be based on the following scale:  
90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D and 59 and below = F.

Estimated ABET category content: Engineering Design: 67.7%; Engineering Science: 33.3%. Prepared by:  
O.A. Olatidoye (404) 880-6940, CAU, Atlanta, GA.

**Required Readings:**

Introduction to Engineering by Paul H. Wright, Wiley, 3<sup>rd</sup> Edition  
MathCAD – A Tool For Engineering Problem Solving, 2<sup>nd</sup> Edition

**Supplemental Readings/Additional Bibliography:**

**Blacks in Science** by Ivan Van Sertima.

**Carriers in Engineering and Technology**, by George C. Beakley, Donovan L. Evans,  
Deloss H. Bowers, Macmillan,

**Introduction to Engineering Design and Problem Solving**, by M. David Burghardt.

**Course Outline and Schedule:**LECTURE SCHEDULE

<b>Sections</b>	<b>Topics</b>	<b>Reading Assignment</b>
1.	Introduction: History of Engineering	Chap. 1
2.	Definition of Engineering	[Exer 1.2 - Due] Chap.
3.	Construction of Engineering Projects	
4.	Learning and Creative Thought	[Exer 4.4] Chap. 4
5.	Engineering Approach: Identifying Problems,	[Pg.93-100] Gathering Data
6.	Search for Creative Solutions, Modeling	[pg 100-108]
7.	Design; Learning from Mistakes	[Handouts]
8.	Evaluation of Engineering Projects	[pg 108-120]
9.	Exam No. 1	
10.	Research and Investigations	[Handouts]
11.	Engineering Calculations: Numbers,	[p151-170] Dimensions, Unit
12.	Material, Physical, Environmental Tools of Engineering	[Prob.8.6,8.7]Chap. 8
13.	Statistical Analysis of Data	[pg 170-175]
14.	Graphical Analysis	[pg175-192,Prob.7.4,7.5]
15.	Report Writing and Oral Communications	Chap. 6
16.	Computer Applications in Engineering	Chap. 10
17.	Exam No. 2	
18.	Legal Matters, Ethics	[pg 58-68 Exer 3.4a-d]
19.	Registration, Accreditation, Engineering	Chap. 3 Societies
20.	Case Study - The Space Shuttle Challenger	Handouts/Accident Film Show
21.	Final Exam	





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**GRADING SYSTEM**

<u>Item</u>	<u>Est. Quant.</u>	<u>% of Grade</u>
HMWK Lecture, Summary Reports	5	15
Exam/Quiz	2	50
Final Exam / Project	1	30
Extra WK		5

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**Supplemental Readings/Additional Bibliography:**

James A. Leach., AutoCAD 2014 Companion, McGraw Hill. (Latest Edition)  
Engineering Computation with MATLAB by David M. Smith, 3<sup>rd</sup> Edition

**Course Outline and Schedule:**

LAB SCHEDULE

<b>Lab No.</b>	<b>Activity</b>
1.	Library Assignment
2.	Tour of Engineering Laboratory at CAU.
3.	Problem Solving*
4.	Problem Solving*
5.	Problem Solving*
6.	Case Study - Introduction & Film
6.	Field Trip.
7.	Case Study (cont.)
8.	Oral Reports for Groups 1, 2, 3
9.	Oral Reports for Groups 4, 5, 6, and 7 Written Reports Due

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**\* COMPUTER APPLICATIONS**

- Word-processing
- Electronic Spreadsheet
- Computer Graphics
- Data Base Management

