

# Engineering Research & Design

Northview High School  
Room 790

Cornelius Ejimofor

## Engineers Make Things Work!

Whether its cell phones, digital cameras, DVDs, giant buildings, massive bridges or facial recognition devices, engineers are behind today's innovative technology; designing, manufacturing and building products society depends on every day.

### COURSE DESCRIPTION

Engineering Research & Design is the fourth level engineering course at Northview HS. This advanced course of study in the engineering field is only available for 12<sup>th</sup> grade students. Students conduct research and/or design an engineering project. Students sharpen their aptitude and expand their interest through experiences in the field of engineering. The course enables them to make an informed career choice through the study, application and practice of mechanical, electrical and other engineering systems. Projects will reinforce the application of communication, mathematics and science. Computer programs will be used extensively in this course to enable students to visualize, solve and report on complex design problems.

### MATERIALS & TEXTBOOKS:

**A suggested lab fee donation of \$35 is requested to help cover the cost of some of the materials for this course.**

Students may need to obtain some additional materials. Students are required to bring their own writing materials (pen/pencil and paper) to class every day.

The course textbook is **Engineering Your Future** by Gomez; replacement cost is \$68.50.

### Georgia State Career Pathways Standards "ENGINEERING RESEARCH & DESIGN"

- **ENGR-RDPM1** – Students will become proficient in the formal research techniques necessary to understand a technical problem.
- **ENGR-RDPM2** – Students will use research techniques to develop a design solution for to a technological problem.
- **ENGR-RDPM3** – Students will utilize research techniques to test and evaluate designed prototypes.
- **ENGR-RDPM4** – Students will effectively communicate research findings

### CLASS RULES AND EXPECTATIONS:

Students are expected to follow the rules and regulations that are stated in the Northview High School Student Handbook. Much of what we do in this class will emulate the real world engineering environment. This is designed to help prepare you to be a more productive, trusted and valuable employee. Participation and a good attitude are expected! Independence and on task behavior is expected. Teamwork and group cooperation is a necessity. Trust will be an important factor. Failure to act responsibly can result in class failure and possible expulsion from the lab. Mature, responsible adult behavior is expected in the classroom at all times. Be respectful of oneself and others as well as all equipment and materials.

### GRADING

• Class Participation / Ethics	10%
• Journal/Notebook	10%
• Quizzes	15%
• Tests	20%
• Class Assignments/Projects	30%
• Final Exam	15%
	100%

The Fulton County Academic Grading Scale will be used:

A	90 and above	C	70-79
B	80-89	F	69 and below

**WORK READY ASSESSMENT TEST:** The Georgia Department of Education has made available an assessment to ascertain the competence of our students. The Work-Ready Assessment measures the skills of Georgia's workers, determines valuable job training opportunities, and assures companies that the state can provide a long-term, qualified labor supply, and is a requirement for some Georgia jobs. The Work Ready Assessment will be administered to all seniors enrolled in a Career Technology course. The assessment will be administered in April. More information will be provided at the time.

**HONOR CODE:**

Cheating has been defined as giving or receiving information relating to a gradable experience including the use of sources other than those specifically approved by the teacher. Plagiarism and the related act of allowing another student to use one's work are not to be considered inconsequential pranks. Such acts involve serious moral implications; they constitute lying and stealing. They are unjust to teachers who spend valuable time evaluating the paper. They are ultimately harmful to the student committing the act, who is deliberately undermining his/her integrity, destroying his/her reputation, and breaking the trust that must exist between a student and teacher. An honor code violation results in a zero on the assignment, no opportunity to make up the work, and disciplinary action. **For the complete honor code policy, visit the Student Handbook on [www.northviewhigh.com](http://www.northviewhigh.com).**

**Provision for Improving Grades (formerly known as the "recovery" policy) – Updated from Board Policy Docs – Aug 2011**

Opportunities designed to allow students to recover from a low or failing cumulative grade will be allowed when all work required to date has been completed and the student has demonstrated a legitimate effort to meet all course requirements including attendance. Students should contact the teacher concerning recovery opportunities. Teachers are expected to establish a reasonable time period for recovery work to be completed during the semester. All recovery work must be directly related to course objectives and must be completed ten school days prior to the end of the semester.

**ATTENDANCE AND MAKE-UP:** Students are expected to be present. As outlined in the student handbook, students may request missed assignments for excused absences. A parent or doctor note must be presented to the attendance office within three days of the absence. Make-up work must be completed within the designated time period as outlined in the student handbook.

**EXTRA HELP:** Help sessions may be scheduled before school. Students must request help sessions twenty-four hours in advance from 7:50 to 8:20 a.m.

**PARENT/TEACHER COMMUNICATION:** Communication with parents about academic progress, behavior and/or attendance is welcomed and will be handled by phone, mail, conference, or a combination of these as the need arises. Home Access Center (HAC) is available for the use of all parents in monitoring a student's academic progress, attendance, or behavior. Please call the main office (770-497-3828) for more information.

It is my sincere hope that my students learn life long lessons from this class. We also encourage you to communicate with your student as we study the curriculum objectives.

Detach and return to the teacher with a \$35 materials donation

---



**Engineering Research & Design**

**A \$35 lab fee donation is requested to cover some of the cost for materials in this course.** Please enclose cash or a check (to NHS) for this amount and return with this signed form to Cornelius Ejimofor.

I have read and understand the course syllabus for Foundations of Engineering and Technology. I also agree to abide by the behavior expectations & safety rules at all times.

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Period

I have read the Engineering research & Design syllabus and my \$35 materials donation is attached. I understand my child will be using tools and machines and, after proper safety instruction, I give my permission to do so:

\_\_\_\_\_  
Parent Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Email Address

**Northview High School 2014-2015 Syllabus Signature Sheet**

Student Name \_\_\_\_\_

**(Printed)**

Teacher: \_\_\_\_\_

Date \_\_\_\_\_

Subject: \_\_\_\_\_

**Please read the teacher's full-length syllabus. Log on to [www.northviewhigh.com](http://www.northviewhigh.com) then click on the syllabus link to locate the teacher's name. Sign below if you have read the online syllabus.**

Student Signature \_\_\_\_\_

Parent Signature \_\_\_\_\_

Parent Email Address (PLEASE PRINT CLEARLY) \_\_\_\_\_

**Recovery Policy**

1. Recovery is for students who, despite a conscientious effort and communication with their teachers, have failed to demonstrate satisfactory understanding of course standards. It is not for the student who has been failing for many weeks and then wishes to recover during the final days of the course. Opportunities for students to recover from a 74 or below *cumulative* average will be provided when all work required to date has been completed and the student has demonstrated a legitimate effort to meet all course requirements. *Students who have not attempted to complete all course requirements are not eligible for recovery.*
2. Students may initiate recovery on major assessments starting with the second major assessment of the semester as long as they have made a legitimate effort to meet all course requirements including attendance. Unexcused absences may prevent this opportunity.
3. So that students stay focused on the content at hand and don't become overwhelmed and fall too far behind, they must initiate recovery on a major assessment within five school days of being informed of the grade on that assessment. Recovery work must be completed within ten school days prior to the end of the semester. The nature and type of recovery assignment is given at the discretion of the teacher.

**\*Grading guidelines for recovery assignments will vary by department. It is the responsibility of the student to fully understand the grading guidelines/highest possible score for completed recovery work.\***

**Sign below if you understand the recovery policy.**

Student Signature \_\_\_\_\_ Parent Signature \_\_\_\_\_

HONOR CODE: Cheating has been defined as giving or receiving information relating to a gradable experience including the use of sources other than those specifically approved by the teacher. Plagiarism and the related act of allowing another student to use one's work are not to be considered inconsequential pranks. Such acts involve serious moral implications; they constitute lying and stealing. They are unjust to teachers who spend valuable time evaluating the paper. They are ultimately harmful to the student committing the act, who is deliberately undermining his/her integrity, destroying his/her reputation, and breaking the trust that must exist between a student and teacher. An honor code violation results in a zero on the assignment, no opportunity to make up the work, and disciplinary action. For the complete honor code policy, visit the Student Handbook on [www.northviewhigh.com](http://www.northviewhigh.com).

**Sign below if you understand the consequences of cheating at Northview High School.**

Student Signature \_\_\_\_\_

Parent Signature \_\_\_\_\_

TECHNOLOGY POLICY: Northview computers are only for school research and projects. The Internet may not be used for personal reasons. Any unauthorized use of the internet will be grounds for disciplinary and/or legal action as well as loss of Internet privileges. Attempts to log into the internet using another person's password, falsely posing as a school system administrator, or other security violations are

grounds for termination of privileges and disciplinary measures. Computer vandalism (including food/drink in a lab) is prohibited and will result in immediate termination of Internet and computer access as well as appropriate disciplinary action.

***Violators are subject to criminal prosecution. For the complete technology policy, visit Student Handbook on [www.northviewhigh.com](http://www.northviewhigh.com).***

It is a violation of the above policy:

- 
- to download or install any executable programs (such as games, MP3 players, video players, chat programs, FTP programs, music or video sharing programs, etc.) to a school computer, or on to any student's share folder (Z drive).
  - to store any files (documents, pictures, videos, etc.) on any student's share folder (Z drive) that are not directly used in an assignment or teacher directed work; no personal documents, pictures, music videos or other files.
  - to use the school computers and internet connection to access email, games, chat rooms, sharing sites, ecommerce sites, etc, unless specifically directed by the teacher.

**If this form is not signed by the student and a parent or guardian by Monday, September 15, the student's computer account will be disabled until the form is signed. Sign below if you understand the Northview technology policy.**

Student Signature \_\_\_\_\_

Parent Signature \_\_\_\_\_

**Please review BOTH sides of the Syllabus Signature Sheet. Verify that you have signed your understanding of the three policies listed: Recovery, Honor Code, and Technology.**