

## *Advanced Engineering Sample Course Schedule*

Grade 9	Grade 10
English	English
Math	Math
Science	Science
Social Studies	Social Studies
Foreign Language	Foreign Language
Physical Education (1 credit required)	Health (.5 credit required)
Introduction to Engineering Design (1 credit)	Principles of Engineering (1 credit)
Elective	Fine Arts (1 credit required)

Grade 11	Grade 12
English	English
Math	Math
Science	Science
Social Studies	Social Studies
Foreign Language	Foreign Language
Digital Electronics (1 credit)	Engineering Design and Development (1 credit)
Civil Engineering and Architecture (1 credit)	Elective
Elective	Elective

## *Enrollment Process*

Students may apply through the open-enrollment process for admission into the program. Applications and recommendation forms may be obtained from the guidance departments of Poolesville High School or John Poole Middle School or at the Poolesville High School web site at

<http://www.montgomeryschoolsmd.org/schools/poolesvillehs/>



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**2008-2009  
Advanced  
Engineering  
Academy**



For more information contact:

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Visit the Poolesville High School web site at  
<http://www.montgomeryschoolsmd.org/schools/poolesvillehs/>

or the PLTW web site at  
[www.pltw.org](http://www.pltw.org)

# Poolsville: Advanced Engineering

## Program Goals

- To attract students to the field of engineering and allow students, while still in high school, to determine if engineering is the career they desire.
- To better prepare students to enter college engineering programs.
- To expose students to the fundamental underlying principles involved in engineering problem-solving activities.
- To develop skills involving the application of math and science concepts in conjunction with current technological practices in order to solve problems representing real-world situations.
- To teach students how to work successfully in groups to obtain an efficient and effective solution to given problems.



An operable Fischertechnik project which simulates a drill press in a manufacturing process.

## Course of Studies

### Introduction to Engineering Design

This course develops knowledge and experience in the application of problem-solving skills and the engineering design development process. Models of product solutions are created, analyzed, and communicated, using solid modeling computer design software. (Grade 9)

### Principles of Engineering

Explores various technology systems and manufacturing processes that help students learn how engineers and technicians use math, science, and technology in an engineering problem-solving process to benefit people. The course also includes concerns about social and political consequences of technological change. (Grade 10)

Engineering projects provides opportunities for students to combine science, mathematics, technology, and engineering concepts to produce successful solutions to problems.



### Digital Electronics

This course in applied logic encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. (Grade 11)

### Civil Engineering and Architecture

This course provides an overview of the fields of Civil Engineering and Architecture, while emphasizing the interrelationship and dependence of both fields on each other. Students use state of the art software to solve real world problems and communicate solutions to hands-on projects and activities. This course covers topics such as: The Roles of Civil Engineers and Architects, Project Planning, Site Planning, Building Design, Project Documentation and Presentation. (Grade 11)

### Engineering Design and Development

This is an engineering research course in which students work in teams to research, design, and construct solutions to open-ended engineering problems. Students apply principles developed in the four preceding courses and are guided by a community mentor. They will present progress reports, submit a final written report, and defend their solutions to a panel of outside reviewers at the end of the school year. (Grade 12)

## Benefits to Students

The Advanced Engineering courses are affiliated with Project Lead the Way, a national Pre-Engineering curriculum recognized by several esteemed universities. Further information regarding Project Lead the Way may be obtained at [www.pltw.org](http://www.pltw.org). **Project Lead the Way allows students the opportunity to earn college credits during high school** if they maintain an 85% average in each course, pass the final exam, and register for the credit.