

COLLEGE: Montgomery College

HIGH SCHOOLS: Bethesda-Chevy Chase, Blair, Blake, Churchill, Clarksburg,

CLUSTER: Engineering, Scientific Research, & Manufacturing Technologies

Damascus, Johnson, Kennedy, Northwest, Northwood,

MCPS PROGRAM: Pre-Engineering

Quince Orchard, Seneca Valley, Sherwood, Springbrook,

MC PROGRAM: Engineering Science A.S.

Wootton

The Pre-Engineering career pathway program provides a foundation for students interested in a technical career or a career in the field of engineering. Students learn to apply theories and principles of math and science to research and develop economical solutions to technical problems.

STUDENT ENTRY POINTS

GRADE	ENGLISH	MATH	SCIENCE	SOCIAL STUDIES	REQUIRED COURSES					
					RECOMMENDED ELECTIVE COURSES	OTHER ELECTIVE COURSES	CAREER AND TECHNICAL EDUCATION COURSES			
SECONDARY	9	English	Algebra I or Geometry	Matter & Energy	US History A/B	Foreign Language	Physical Education	Foundations of Technology		
	Foundations of Technology and AP Science and Math courses are highly recommended.									
	10	English	Geometry or Algebra 2	Biology	NSL	Foreign Language	Health (.5) Elective (.5)	Creative Engineering A/B <i>or</i> Pre-Engineering A/B * & **		
	11	English	Algebra 2 or Precalculus	Chemistry	Modern World History A/B	Fine Arts	Elective	Choose 2: Systems & Cycles A/B <i>or</i> Engineering Applications A/B <i>or</i> Communications Systems Tech A/B** <i>or</i> Technological Innovations A/B* & **		
	An internship in engineering is required.									
12	English	Precalculus or Calculus	Science Elective Physics	Elective	Engineering Science A/B	Engineering Technology Internship				
An articulation agreement with Montgomery College is being developed.										
POSTSECONDARY	Year 1 1st Semester	EN 101 Techniques of Reading & Writing I	MA 181 Calculus I	CH 102 Principles of Chemistry II		ES 100 Introduction to Engineering Design	Humanities Distribution			
	Year 1 2nd Semester	EN 102 Techniques of Reading & Writing II	MA 182 Calculus II	PH 161 General Physics I	Behavioral & Social Sciences Distribution	EE or ES Elective				
	Year 2 1st Semester		MA 280 Multivariable Calculus	PH 262 General Physics II	Behavioral & Social Sciences Distribution	EE or ES Elective	Health Foundation			
	Year 2 2nd Semester		MA 282 Differential Equations	PH 263 General Physics III		EE or ES Electives (6 credits)	Arts Distribution			

* Basic Technology Education Credit for Class of 2010 and 2011

** Advanced Technology Education Credit for class of 2010 and 2011



This MCPS CTE program is approved by the Maryland State Department of Education for graduates in 2012.

Required Courses
Recommended Elective Courses
Career and Technical Education Courses
Credit-Based Transition Programs (e.g. Dual/Concurrent Enrollment, Articulated Courses)
(◆=High School to Com. College)(●=Com. College to 4-Yr Institution)(■=Opportunity to test out)
Mandatory Assessments, Advising, and Additional Preparation



Engineering, Scientific Research, and Manufacturing Technologies

2009–2010

Pre-Engineering (OASIS Code = ET) CIP 15.1101.4			
Requirements for Program Completion (1 credit A) + (2 credits B) + (1 credit C)			
Code	Course #	Course Title	Credit
A	4257/4258	Creative Engineering A/B	1.0
	4210/4211	Pre-Engineering A/B (Tech Ed and Advanced Tech Ed Credit)	1.0
B	5502/5503	Systems and Cycles A/B	1.0
	5504/5505	Engineering Applications A/B	1.0
	4208/4209	Communications Systems Technology A/B (Advanced Tech Ed Credit)	1.0
	5506/5507 4212/4213	Technological Innovations A/B (Tech Ed Credit) Technological Innovations A/B (Tech Ed Credit and Advanced Tech Ed Credit)	1.0
C	3609/3610	Engineering Science A/B	1.0
	5709	Engineering Technology Internship (Unlimited Repeats)	.5
	TBD	College Engineering (ES100) A/B	1.0

NOTE: Courses indicated above meet Technology Education Credit or Advanced Technology Education Credit for class of 2010 and 2011 **only**.

The only courses that meet the Technology Education credit for the class of 2012 are:

- TBD FY 2010 Designed Technology Solutions A/B (Advanced Level credit)
- 5161/5162 Foundations of Technology A/B
- 5150/5151 Principles of Engineering A/B (Honors Level)
- 5152/5153 Introduction to Engineering Design A/B

For more information, go to:

<http://www.montgomeryschoolsmd.org/departments/cte/toolkit/ClusterInfo/Engineering/index.shtm>.