



Aerospace + Engineering

A Pre-Engineering Program

at Olathe Northwest High School

Class of 2014 or beyond

Endorsement Requirements

Tracking Form

			Proficient	Highly Proficient	Highly Proficient with Honors
A+E Pre-ENGINEERING COURSEWORK	9	A+E Introduction to Engineering (1 credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	9	Honors Biology (Engineering Focus) (1 credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	10	A+E Chemistry (1 Science credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	10	A+E Pre-Engineering CAD 1 (.5 credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	10	A+E Pre-Engineering CAD 2 (.5 credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11	AP/College Physics I (1 Science credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11	A+E Engineering Design & Robotics (1 credit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11/12	Fundamental programming class (.5 credit)	*	Select one <input checked="" type="checkbox"/>	Select two <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	11/12	Materials Science (.5 credit)	*		
	11/12	A+E Adv-Engineering CAD 3 (.5 credit)	*		
	12	Senior Experiences see below for Requirements	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SCIENCE	9	Science Course - Honors Biology	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	10 & 11	Taken in program – A+E Chemistry & AP/Coll Physics I	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	12	Advance science course - Senior year must take a college or honors level science course	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MATH	9 - 12	Continuous enrollment in math – ALL 4 years	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ENGLISH	9 - 12	Continuous enrollment in English – ALL 4 years	<input checked="" type="checkbox"/>	Honors course at least 2 of the 4 years	Honors course 10 th , 11 th , 12 th
No History Requirement					
A+E SENIOR YEAR EXPERIENCES	A+E Program Requirements for Senior/Capstone Experience				
	Proficient must complete at least one of the following ✦ Select 2 of 3 courses*: Programming class or Materials Science or A+E Pre-Engineering CAD 3 (.5 credit each = 1 credit total) ✦ Capstone Project (1 credit): Battlebots, Electrathon, FIRST leadership or etc. ✦ Senior Internship (minimum 180 hour)		<input checked="" type="checkbox"/>		
	Highly Proficient must complete at least one of the following ✦ Capstone Project (1 credit): Battlebots, Electrathon, FIRST leadership or etc. ✦ Senior Internship (minimum 200 hour)			<input checked="" type="checkbox"/>	
Highly Proficient with Honors must complete at least one of the following ✦ Capstone Project (1 credit): Battlebots, Electrathon, FIRST leadership or etc. ✦ Senior Internship (minimum 200 hour)				<input checked="" type="checkbox"/>	
GPA	A+E Program Requirements for GPA				
	Overall weighted GPA Requirements A minimum GPA of 2.75 needs to be maintained to continue enrollment in the program		3.0 or higher	3.25 or higher	3.50 or higher

e-hours	A+E Program enhancement hours "e-hours"				
	Minimum hours	Average Hours per Year – <i>this is for a guide only</i>	10	20	40
		Total Hours for Endorsement	40	80	160
	Program Portfolio <i>see below for details</i>		☑	☑	☑

Enhancement Experiences

Enhancement Experiences provide opportunities to explore the world of engineering through exciting activities like being a member of our FIRST Robotics, participating in our ACE (Architecture-Construction-Engineering) Mentors, and/or TSA (Technology Student Association) to name a few. Enhancement Experiences take place **outside of the regular school day**. One of the most enjoyable components of these experiences is working with your A+E community. Enhancement Experiences in the Aerospace + Engineering (A+E) Program encourage exploration and personal development with a pre-engineer focus on math, science, technology and professional skills.

- **Extension Hours** *A+E Program Instructor guided/approved*

Extension hours are volunteered and/or program time put in **outside of the regular school day** related to the A+E Pre-Engineering focus of math, science, and technology. These activities include but are not limited to: community service with STEM focus (helping elementary students prep for science and math assessments, Lego League, Olathe Science Fair, A+E Open House, etc), ACE Mentors meetings, etc. *For e-hours credit to be applied to your endorsement, students will need to submit the online "A&E Program's eHour Entry Form". Students can access this form on the department website: <http://onwengineering.com/>*

- **STEM related competition** *program approved*

Exploring Science, Technology, Engineering, and Math is an overall goal of A+E Pre-Engineering Program, and participating in a competition with these focuses is a great way to grow and test your skills in these areas. These activities include but are not limited to: ACE Mentors Design Competition, FIRST Robotics *including Cow Town Throw Down Robotic Competition*, National Combat Robotic Competition, TSA Competition, etc.

We want you to have variety of experiences, so there is a 100 e-hour credit max for prep and participation from a single type of competition (if competition is attend). If competition is not attended there is a 50 e-hour credit max for prep and participation from a single type of competition. For e-hour credits to be applied to your endorsement, students will need to submit the online "A&E Program's eHour Entry Form". Students can access this form on the department website: <http://onwengineering.com/>

- **Pre-Engineering Professional Experience** *A+E Program Instructor guided/approved*

The goal for A+E's Professional Experiences is for students to gain insight into the engineering community. Students will gain first-hand knowledge of engineering careers including the companies where engineers work, what type of work they do daily, work-place expectations, needed educational level, skill sets, and licenses and/or certificates in order to be qualified for a professional career in the field of engineering. These activities include but are not limited to: a job shadow of a professional in the field of engineering, attending A+E Speaker Bureau with guests from the engineering professional community, attending Black & Veatch Explorer Post meetings, or Internships (*this experience counts toward A+E Senior Experience, a 100 e-hour credit max can be applied*). *For e-hour credits to be applied to your endorsement, students will need to submit the online "A&E Program's eHour Entry Form". Students can access this form on the department website: <http://onwengineering.com/>*

- **Program Portfolio will include:**

Resume (1 page Resume with 3 references on separate page)

– Due by Spring Break your junior year

Post-Secondary Education Search: Universities, Colleges and/or Technical Schools

– Due by end May 1st of your junior year

Career Cruising is a great tool for getting started on the above two objectives. <http://www.careercruising.com/>. Each secondary student has an account login. Please see your counselor for this information.

ACT/SAT/Compass Test – Due by June 15th following junior year

Digital Portfolio – these items will be assigned by A+E Program instructor