

Applied Engineering Technology

Program Syllabus - Instructor: Richard Platt

Applied Engineering Program of Study The Applied Engineering Program of Study is a 3-year program and this Syllabus covers the three years of the program course of study. Upon the completion of the 3rd year of the program of the Applied Engineering Program of Study, students will have earned the coveted Vocational Gold Seal honor designation, which entitles the student to financial college assistance through the Florida State College System. Additionally, with industry certifications, students earn college credit towards an Associates degree through the Florida State College system.

Program of Study Courses (check your enrolled course):

- Applied Engineering Technology 1** - 8401110
- Applied Engineering Technology 2** - 8401120
- Applied Engineering Technology 3** - 8401130
- Advanced Technical Applications** - 8601900

Successful completion of the 3 year Applied Engineering Technology and an additional 4th year course, the Advanced Technical Applications course, students will be work and college ready. The Advanced Technical Applications course is a student and instructor designed course to complete the engineering portfolio binder and their web site portfolio in their areas of applied engineering and manufacturing study. Work ready, is the ability, with supporting collateral's, engineering portfolio binder and web site portfolio.

Important Consideration The Southeast Engineering Program courses of study purpose, is to expose students to the technical world they live. The field of engineering is vast and unlimited. This course can lead to students to a variety of career options not limited to becoming, specifically an engineer. The student will be exposed to the processes of design, manufacturing, marketing and sales and will learn how these aspects are vital to our economy and their future success. Please read the State of Florida Career Framework for this course.

Purpose The purpose of this program is to provide students with a foundation of knowledge and technically oriented experiences in the study of applied engineering and its effect upon our lives and the choosing of an occupation. The content and activities will also include the study of entrepreneurship, safety, and leadership skills. This program focuses on transferable skills to industry and stresses understanding and demonstration of the technological tools, machines, instruments, materials, processes and systems in business and industry. The content includes but is not limited to study in mechanical, electrical, civil, and environmental engineering disciplines.

Certifications & Work Ready The Applied Engineering is an Adult Career TechEd (ACT) program of study is structured for students to achieve industry certifications and prove they are work ready. Students will earn industry certifications and those certifications will be accompanied with an engineering portfolio binder, physical (products designed and manufactured) and digital web site portfolio they can use to attain employment and strengthen their college applications. The

Applied Engineering Technology

Program Syllabus - Instructor: Richard Platt

certifications a student earn will enable them to become work ready and greatly assist them in earning a self-supporting income by validating their skill sets.

Supplies

Students will need the following supplies for this course:

1. For Class Binder - A white with transparency cover three ring (2") Binder.
2. For Class Binder - A Package of Sheet Protectors
3. For Class Binder - Notebook Section Dividers
4. For Class Binder - Spiral Ring Note Book – For note taking
5. For Class Binder - Package of Copy Paper – For engineering drawings and sketches
6. Technical pencils, .07 mm graphite leaded pencils.
7. White eraser. Non-marking technical eraser.
8. Standard 12" Ruler with English and Metric Measurements for Drafting and manufacturing projects. Box of tissues or Roll of paper towels.
9. Package of copy paper for class projects. Used for drafting and printing designs.
10. Package of Color Pencils – for renderings and concept drawings.

Various supplies needed for completion of student projects. As needed, students may need to acquire various materials to complete projects, such as wood glue, paint, and sand paper. We strive for donations of materials and any donations are sincerely appreciated.

- If acquiring these materials are difficult, please contact Mr. Platt in private.

Project Base Instruction All technology and engineering principals taught in the Applied Engineering program are taught as project in creating products and solutions plus teaching the major principals of engineering. These projects/products will be used to support the student achieving industry certification(s) and to have physical samples of their work for their portfolios. Additionally, students will learn how to conduct market research, industry trends and profit models for creating profitable projects to learn entrepreneurial concepts.

ALL WORK WILL BE TURNED IN, USING ENGINEERING PORTFOLIO BINDER AND OR ON THE STUDENTS WEB SITE.

Milestones and Applications of Study Digital & Physical Portfolio – Students will learn how to construct a Web Site that displays all, of their class and competition work. The student web site portfolio is vital and validates the student's skills and the certifications they have earned. Their portfolio is critical in the college application process and attaining a self-supporting income and paying for college. This effort will achieve an industry certification for Adobe Dreamweaver.

Manual Drafting Projects Students will learn manual drafting techniques for producing orthographic and isometric drawings that will included in their portfolio. For industry, students must understand how to produce simple dimension-ed Orthographic and isometric drawings.

Applied Engineering Technology

Program Syllabus - Instructor: Richard Platt

2D CAD Drafting & Design -

Students will learn the highly valuable skill of 2D computer aided drafting using AutoCAD from AutoDESK corporation. They will learn how to use this powerful and world wide accepted standard in 2D CAD Drafting and design. Additionally, students will apply their designs using Computer Numerical Control (CNC) mills, routers and laser cutting and engraving machines for advanced manufacturing.

3D CAD Solid Modeling Students will be trained to use SolidWorks for 3D CAD design and later tested for industry certification. This application is critical for design, manufacturing and creating real world products and producing computer animations. Many well know company and governmental agencies use SolidWorks, such as automotive/industrial manufacturers, defense contractors and NASA as examples.

Computer Automated Manufacturing Students will learn how use take 2D drawings and 3D models and create tool paths using CAMWorks and or VetricCNC Aspire for learning how to use Computer Numerical Control CNC Router machines to mill out products they design. Additionally, students will learn how to use a CNC Plasma machine for precision manufacturing of metal parts. Experience in CAM/CNC is a vital and highly valued skill in industry and give this country tremendous global competitiveness. Additionally, valuable skills, such as welding and angle grinding to produce metal products will be taught with all required safety skills.

Other Skills and Applications Students will learn how to use Adobe Photoshop, Adobe Premiere and Adobe Illustrator in support of brochure creation, 3D renderings, 3D animation editing and motion graphics for their web sites. All these will enable them to achieve certifications in subsequent years and build upon a powerful work ready physical engineering portfolio binder and portfolio web site.

INTENDED OUTCOME The intended outcome of the Applied Engineering program is to train students to be **work ready and capable of earning a self-supporting income** in the engineering, research and manufacturing industry. Additionally, this program will allow students to perform at the highest level in the most desirable colleges they try attend, with earned college credit through industry certifications. Please confirm your understanding after you have read this document, as a means, to acknowledgment of this syllabus.

Sincerely, Richard Platt – Engineering Teachers – Southeast High School

Student Name: _____ Date: _____

Parent/Guardian: _____ Date: _____