WICKENBURG HIGH SCHOOL ENGINEERING

Kevin Elinski

EDUCATION

- Marquette University – BS -
- Marquette University - MBA
- Concordia University – Teacher Certification

WORK EXPERIENCE

- Briggs and Stratton/Strattec (1984 - 2000)
  - OEM Vehicle Manufacturer
  - Project Engineer, Sr.
- Rexnord Stearns (2000-2006)
  - Manufacturing
  - Product Manager

TEACHING EXPERIENCE

- Student Teaching (2006-7)
  - Hamilton High School, Kennedy Middle School
    - Geometry
    - Calculus
    - Algebra
- Arizona Certification
  - Math
  - CTE Industrial and Emerging Technologies
  - CTE Business and Marketing
- Wickenburg High School (2007-Present)
  - Construction Technology
  - Engineering

ENGINEERING PROGRAM BACKGROUND

- Program Development Through Collaboration
  - ACTE National Conferences
  - ITEEA National Conferences
    - Engineering by Design (West-MEC)
  - ACTE Summer Conference
  - Arizona ACTE Curricular Consortium

- Program Overview
  - First class offered 2008-9
  - 3 year program
  - Must be in Geometry to enroll.
  - 2 year completers can receive a math credit.

- Average Class Size over program history
  - Year 1: 22 Students (7 years)
  - Year 2: 11 Students (6 Years)
  - Year 3: 7 Students (5 Years)

ENGINEERING PROGRAM BACKGROUND

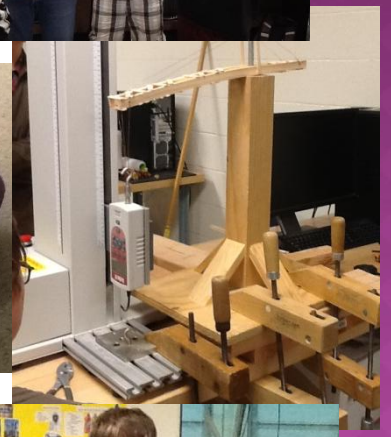
- 50% of completers have moved on to Engineering School:
  - University of Arizona
  - Northern Arizona University
  - Arizona State University (Tempe)
  - Arizona State University Polytechnic
  - University of New Mexico
  - Embry-Riddle University
  - University of Rochester
  - Missouri S & T
  - Brigham Young University
  - Navy Nuclear Program
- SkillsUSA Competitions
  - Engineering Technology/Design
  - Technical Drafting
  - Mobile Robotics

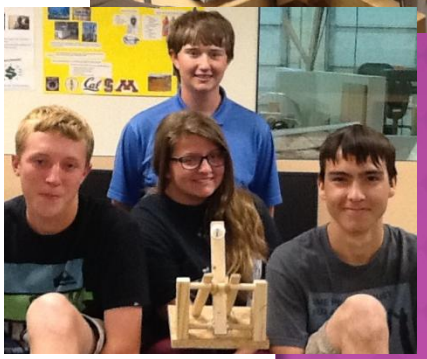
SkillsUSA
Champions at Work®

INTRODUCTION TO ENGINEERING DESIGN

(YEAR 1)
DEVELOP PROBLEM SOLVING AND DESIGN SKILLS CREATING MECHANICAL PRODUCTS

- Based on ITEEA Engineering by Design: Foundations of Engineering
- Apply Engineering Design Process
- Develop CAD Skills: CREO 3 (formerly Pro/Engineer)
- Rapid Prototyping
- 4 Major Projects to Reinforce Skills
  - Spinning Top
  - Crane Boom
  - Mechanical Basketball Player
  - Hydraulic Robot
- Group Projects
- Apply all content Core Courses
  - Engineers need to use all aspects of their education.
    - Apply Math and Science To solve problems
    - Use History and ELA Skills to research problems and communicate results
- Become proficient in MS Office (Word, Excel, Power Point)

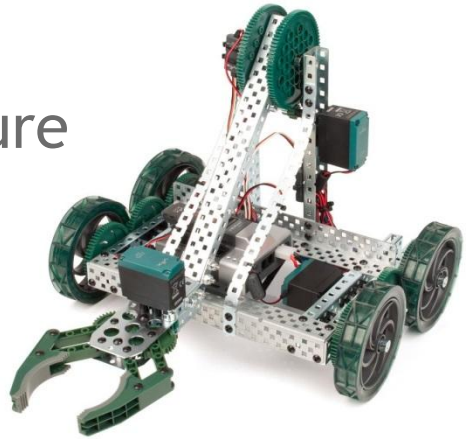




PRINCIPLES OF ENGINEERING (YEAR 2)

CREATE AND PROGRAM ELECTRICAL AND ELECTRO-MECHANICAL PRODUCTS APPLYING PROBLEM SOLVING SKILLS

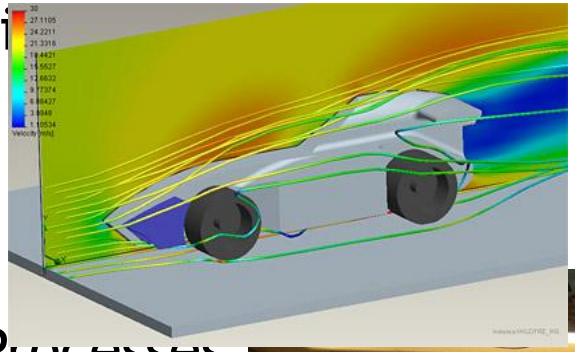
- VEX Robotics
  - Introduction to Program Structure
    - Program Flow
    - C Language Structure
  - Introduction to Sensors
- Arduino Circuit Boards
  - Create Circuit Boards
  - C and C++ Programming



ENGINEERING DESIGN AND DEVELOPMENT (YEAR 3)

INTRODUCTION TO MANUFACTURING LARGE SCALE PROJECTS

- CO_2 Race Car Development (F1 i
  - Advanced CAD Design (CREO 3)
  - Advance Analysis
  - Computer Aided Manufacturing



- Introduction to Manufacturing Processes
  - Research Manufacturing Processes
  - Analyze how a product is put together
  - Determine the process used to make the pa

- Large Scale Design Competition (Real Wo
  or Similar)
  - Students complete a large scale design competition that ties all aspects of Engineering together

CURRENT/FUTURE INITIATIVES

- Dual Enrollment with Estrella Mountain Community College (2015)
- Develop Engineering Curriculum for Arizona CTE Curriculum Consortium