PARKLAND COMMUNITY ADVISORY COUNCIL

Date: 12/13/18 6pm at PHS

CO-PRESIDENTS	VICE PRESIDENT/MEMBERSHIP	SECRETARY
Melanie St. Hill Ann Segan	Michelle Wahlmark	Andrea Scott

ATTENDEES: Mary Braccili, Ben Gulledge, Jen Jones, Anita Kapour, Lisa Petrocelli, Andrea Scott, Ann Segan, Melanie St. Hill

EXCUSED: Michelle Wahlmark, Nicole Mandry, Nancy Trach, Natalie St. Hill, Desiree Pascal, Mary Ost

STUDENT REPRESENTATIVES: Ben Dobbs, Seth Fine

SCHOOL BOARD REPRESENTATIVES: Linda Perlman-McKenna

ADMINISTRATION: Dr. Rodney Troutman

CALL TO ORDER: The meeting was called to order by Melanie St. Hill at 6:03 pm

APPROVAL OF MINUTES: The motion to approve the minutes from Oct. 18, 2018 passed unanimously.

PRESENTATION: James Kester, Bruce Lubak and Christopher Gahman from the Parkland Technology and Engineering Department spoke about the classes available to PHS students, including The Project Lead-the-Way Engineering (www.pltw.org)! The Technology and Engineering Department also has clubs and participates in competitions locally and nationally.

The Technology and Engineering Department consists of three labs: the Design Lab, the Production Lab and the Transportation and Energy Lab. Eighteen courses, some full and some half year, are taught as either General or Honors Electives.

All students are required to take the half year Intro to Drafting, Design and CADD elective in the design lab as a prerequisite to all other electives. Also in the Design Lab, students can use architectural, 3-D design and animation software. Also available is a 3D printer!

In the Production Lab, students learn production materials and processes, manufacturing systems, electricity and electronics. Students have projects and build with circuits, programmable logic devices, alternative energies, Arduino, and even build a working electric guitar with the 3-D printer!

In the Transportation and Energy Lab, the process of engineering through two general and three Project Lead the Way courses are taught. The design process- research, design, (prototype) production, testing and evaluating- is explored. The engineer's notebook, sketching techniques, CAD applications, equipment for processing assembly and testing and analytical resources are used while completing projects in the lab. Dorney Park's Talon Rollercoaster, a bobsled and an escalator were all projects students worked on to make true to scale working replicas. The live demonstrations of these projects were amazing!

Project Lead the Way Pre-Engineering Sequence, developed by Rochester Institute of Technology (RIT), is available as Honors Level Electives. Specialty courses in digital

electronics, computer integrated manufacturing, and environmental, aerospace, civil and architectural engineering are offered.

The main focus of all coursework, both general and honors level, is on brainstorming and how to effectively choose and communicate ideas when presenting to peers and future clients. The tools, skills and competencies of the design process is applied not just to courses offered in the technology and engineering department but throughout each student's life.

SCHOOL BOARD REPORT: none

STUDENT REPORT:

Arts

- Concert season is in full swing – Chorus 12/6, Chorale 12/9, Band 12/13, Orchestra 12/20, PHS Holiday in-school concert Orchestra and Chorale Concert 12/20.
- Students' rank for Districts: 29 for Chorus, 12 students for Band, 7 Band and 27 String and Orchestra.
- Tickets for this year's show, Curtains, are on sale online! The show is April 10-14.
- Parkland students attended the international thespian society conference from 11/29 - 12/1 and performed 26 Pebbles on Main Stage. Six Parkland students ranked nationally with their monologues, musical theatre selections, and stage management. They will be attending the National Conference in Nebraska in the summer. In the tech challenges, parkland had two teams receive first and second place. Parkland teams won challenges in costuming, stage-craft, and scenery. Two parkland students were recognized and awarded for scholarship money.
- Performing Arts Club will have its annual Children's Workshop on January 5th and 6th. Children grades K-5 will attend the high school each day for a few hours and learn a vocal selection, dance routine, and acting monologue along with fun games!

General/Academic

- Last week the Key Club hosted their annual Minute to Win It Competition, won by the LEO Club.
- Mr. Parkland Auditions are taking place next Monday – Wednesday.
- Students' winter break will last from December 22nd - January 1st.
- Winter Biology and Algebra Keystones will be administered from January 8th -11th.

Sports

- Baseball pre-workouts start next week.
- Wrestlers beat Dieruff last night 61-7. A final lightweight to complete their varsity lineup is needed.
- The Swimming & Diving teams are currently competing against Nazareth in the pool.
- Boys and Girls basketball started their seasons last week. The boys are away at Emmaus tonight and the girls are at home. Both games start at 7.

OLD BUSINESS: none

NEW BUSINESS: CAC members are eligible for one complimentary ticket to the PHS Spring Musical, Curtains, on Thursday, April 11th at 7:30pm. Ticket reservation forms were available at the meeting and due back by 1/17/19 to be included in the CAC seat block.

ROUNDTABLE: none

MOTION TO ADJOURN: At 7:15 pm, Dr. Rodney Troutman adjourned the meeting.

Respectfully submitted,
Andrea Scott

Parkland Technology and Engineering Department

Generating Innovation for the Future

Use Your Knowledge to Engineer and Design Things

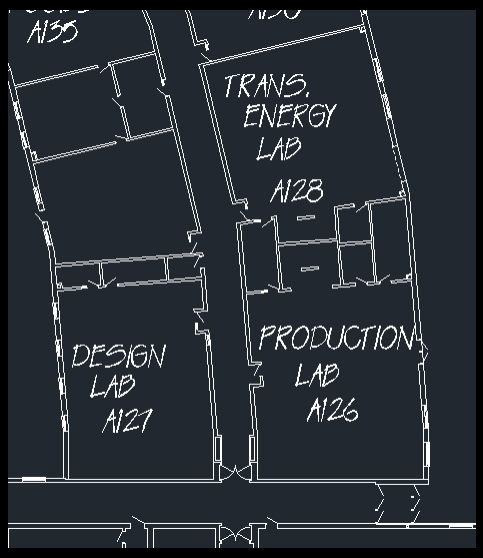
Parkland Technology and Engineering Department

Instructors:

- Christopher Gahman
- James Kester
- Bruce Lubak
- Robert Yocum

Technology and Engineering

3 Labs
18 courses
full and half year
Honors and general Elective

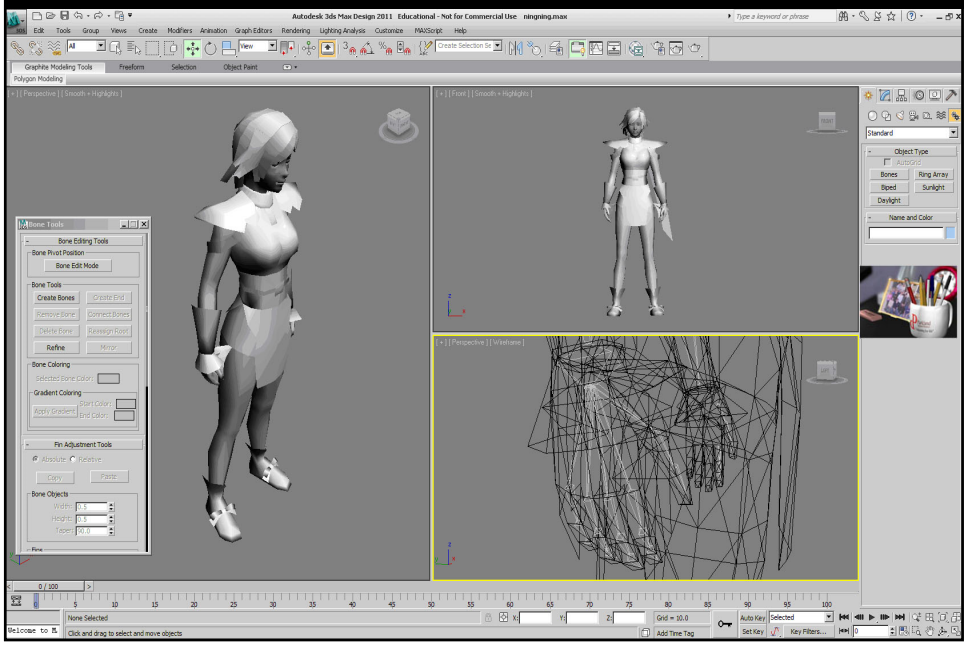


Parkland Technology and Engineering Department

Design Lab

901 **Introduction to Drafting, Design and CADD**
902 Residential Architecture
903 Advanced Architecture
AND….. 2 Honors Level PLTW Courses

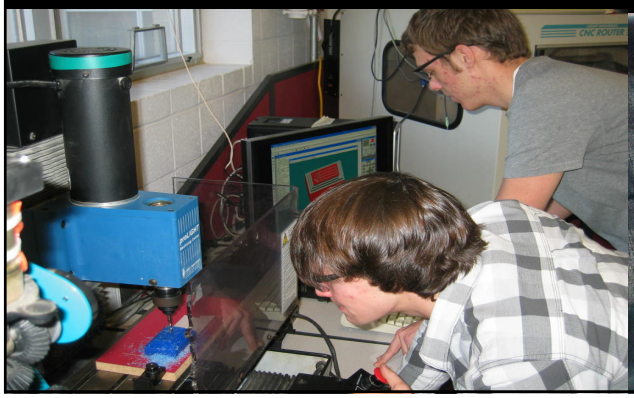
906 3-D Computer Design & Animation



Parkland Technology and Engineering Department

Production and Manufacturing

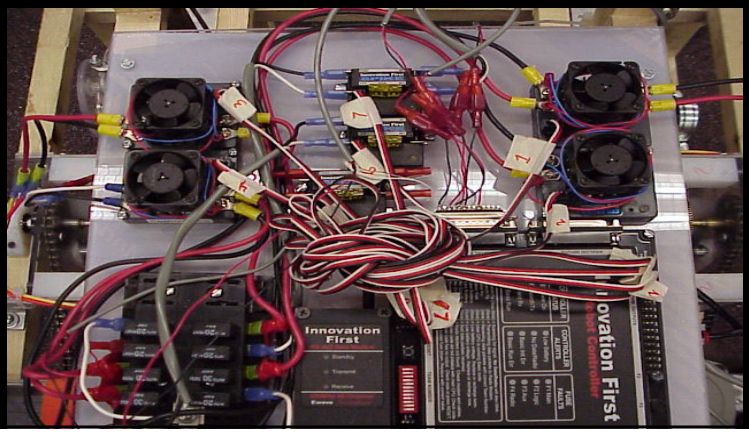
901 Introduction to Drafting, Design and CADD
911 Production Materials and Processes
913 Manufacturing Systems
AND….. 3 Honors Level PLTW Courses



Parkland Technology and Engineering Department

Electronics

916 Electricity & Electronics in our World



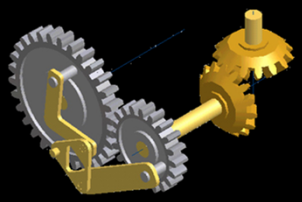
Parkland Technology and Engineering Department

Transportation / Energy

901 **Introduction to Drafting, Design and CADD**
918 Transportation and Energy Technology
909 Innovation and Invention
AND….. 3 Honors Level PLTW Courses

Project Lead The Way

Pre-Engineering Sequence



991 Intro to Engineering Design
992 Principles of Engineering
Specialty Courses
- 994 Digital Electronics
- 993 Computer Integrated Manufacturing
- 996 Environmental Engineering
- 997 Aerospace Engineering
- 998 Civil and Architectural Engineering

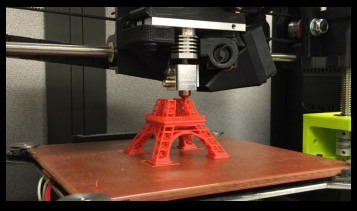
995 Engineering Design and Development

www.pltw.org

FULL YEAR, WEIGHTED COURSES

Technology and Engineering Clubs and Competitions

Maker Club

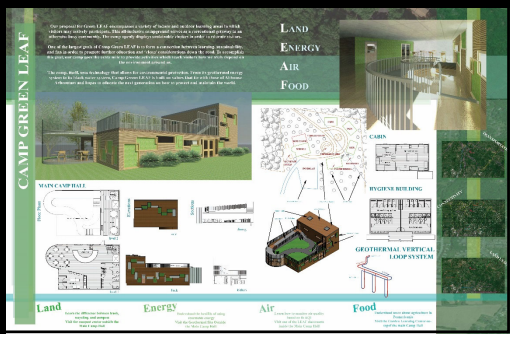


Robotics Club

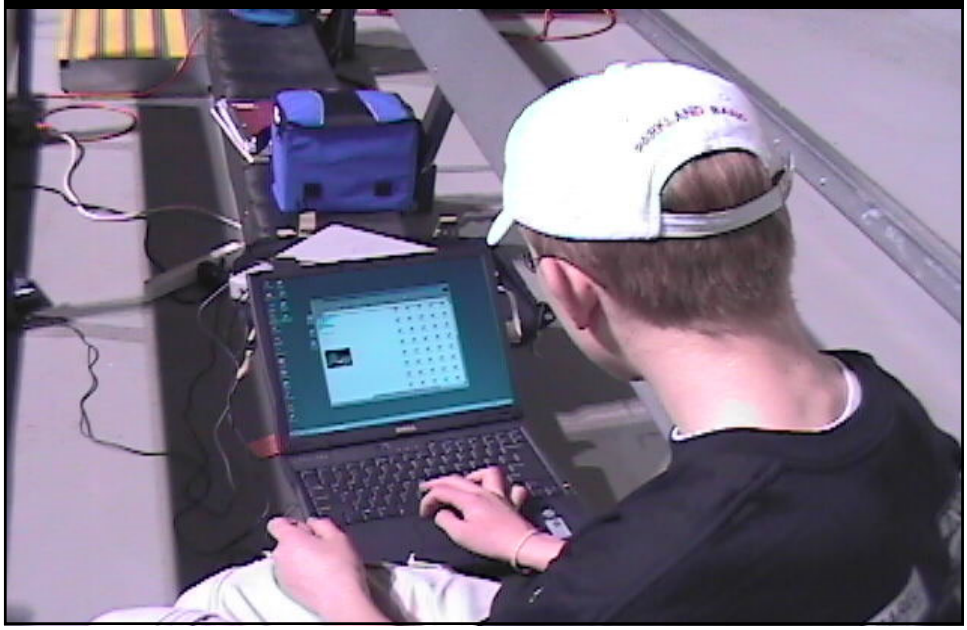
Technology and Engineering Clubs and Competitions

STEM Competition

Philadelphia University Architectural Design



Questions about Courses?

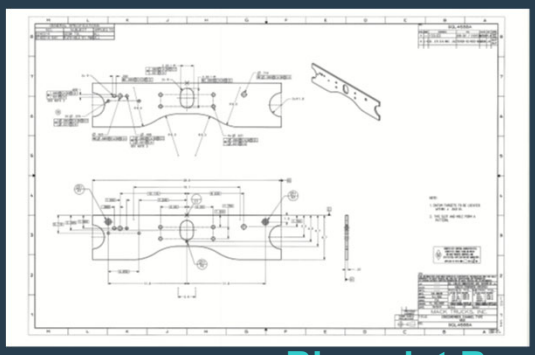


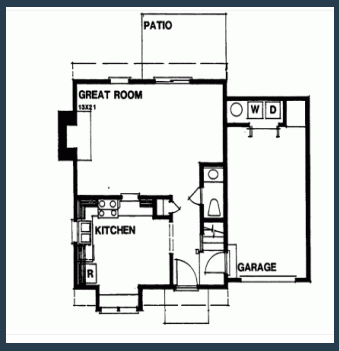
The 3 Technology and Engineering Labs

THE DESIGN LAB

Sketching Skills

THE DESIGN LAB



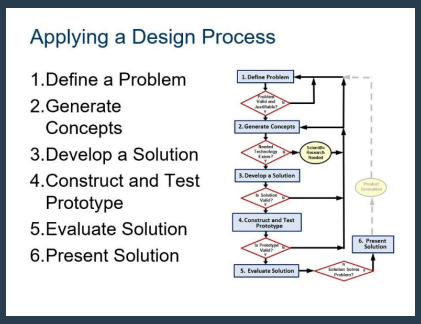


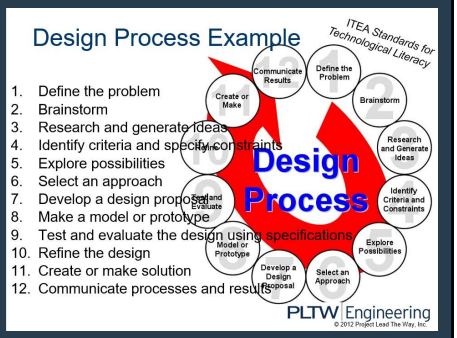
Blueprint Reading

THE DESIGN LAB

Architectural Design

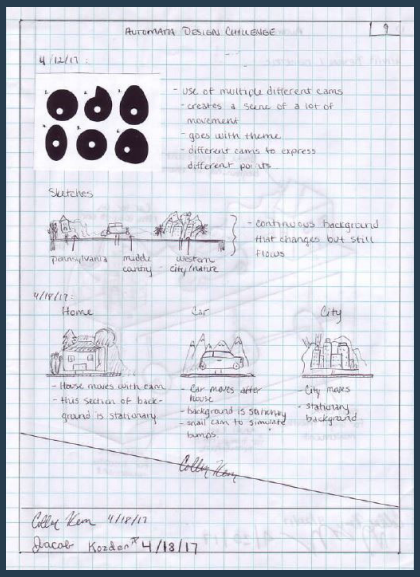
THE DESIGN LAB





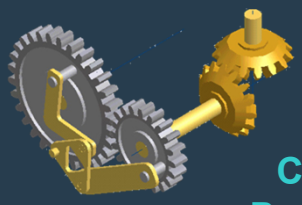
Design Process and Brainstorming Techniques

THE DESIGN LAB

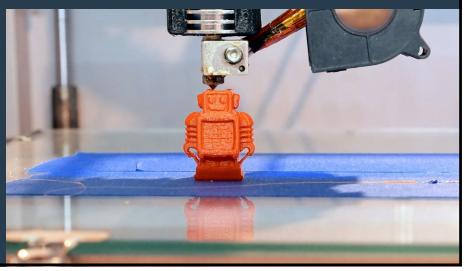


Documentation – Engineer's Notebook

THE DESIGN LAB



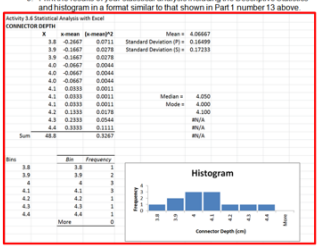
CADD for Design Purposes……
……..and
3D Printing



THE DESIGN LAB

STATISTICAL ANALYSIS
USING EXCEL

9. Print the results of your statistical analysis including the Descriptive Statistics and histogram in a format similar to that shown in Part 1 number 13 above.



Activity 3.6 Statistical Analysis with Excel

CONNECTOR DEPTH

X	x-mean	(x-mean)^2		
3.8	-0.1667	0.0711	Standard Deviation (P) =	0.16499
3.9	-0.1667	0.0278	Standard Deviation (S) =	0.17233
3.9	-0.1667	0.0278		
4.0	-0.0667	0.0044		
4.0	-0.0667	0.0044		
4.0	-0.0667	0.0044		
4.1	0.0333	0.0011		
4.1	0.0333	0.0011	Median =	4.050
4.1	0.0333	0.0011	Mode =	4.000
4.2	0.1333	0.0178		4.100
4.3	0.2333	0.0544		#N/A
4.4	0.3333	0.1111		#N/A
Sum	48.8	0.3267		#N/A

Bins	Bin	Frequency
3.8	3.8	1
3.9	3.9	2
4	4	3
4.1	4.1	3
4.2	4.2	1
4.3	4.3	1
4.4	4.4	1
More	More	0

Histogram

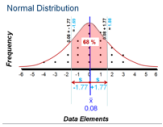
Frequency

Connector Depth (cm)

Part 3 (Optional). Revisit Activity 3.6 Instant Challenge: Fling Machine. Use Excel to verify your answers to Conclusion question number 1.
Answers will vary, but students should compare results to the results of other students on their Instant Challenge team.

ACCURACY vs.
PRECISION

MATHEMATICAL QUANTIFICATION USING THE EMPIRICAL RULE



a. View The Empirical Rule presentation. Then answer each of the following.

- Use the standard deviation to make a statement about the actual length of the credit card at the 68% confidence level using Student A's data. Give your answer in both plusminus notation and using a compound inequality.
  true value = mean ± 1 standard deviation
  = 85.10 mm ± 0.08 mm [65% confidence]
  OR
  85.02 mm ≤ true value ≤ 85.18 mm [68% confidence]

- Use the standard deviation to make a statement about the true length of the credit card at the 95% confidence level using Student A's data. Give your answer in both plusminus notation and using a compound inequality.
  true value = mean ± 2 standard deviation [95% confidence]
  = 85.10mm ± 2(0.08) mm [95% confidence]
  = 85.10mm ± 0.16 mm [95% confidence]
  OR
  84.94 mm ≤ true value ≤ 85.26 mm[95% confidence]

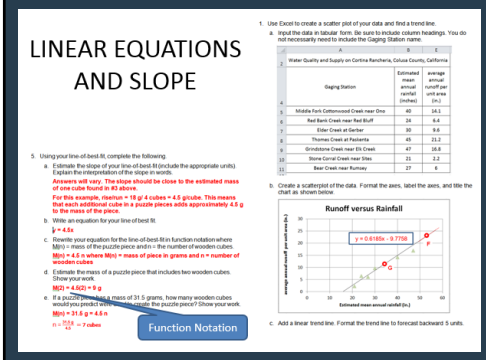
- Use the standard deviation to indicate the precision of Student B's measurement data at the 68% and 95% confidence levels.
  true value = mean ± 1 standard deviation
  = 85.2998 mm ± 0.0013 mm [60% confidence]
  OR
  85.2983 mm ≤ true value ≤ 85.3013 mm [68% confidence]

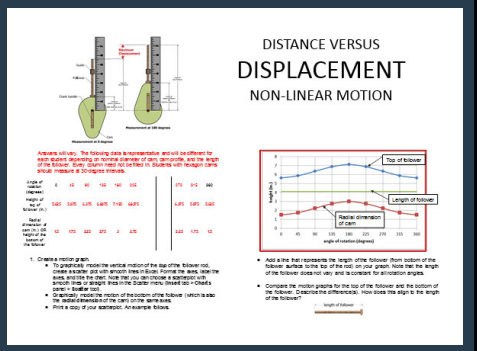
  true value = mean ± 2 standard deviation [95% confidence]
  = 85.2998 mm ± 2(0.0015) mm [95% confidence]
  = 85.2998 mm ± 0.0030 mm [95% confidence]
  OR
  85.2998 mm ≤ true value ≤ 85.3028 mm[95% confidence]

- How do the standard deviation values calculated for each student's data support or refute your answers to parts a and/or b above?
  The standard deviation of Student B's data is much smaller than the standard deviation of Student A's data. This evidence supports the claim that student B's instrument is more precise than Student A's instrument.

Statistics and Excel

THE DESIGN LAB





Engineering Applications for Algebra I and II

Production Lab Next