

Swain CORE Semester-Long Curriculum Map for Principles of Technology II - Grades 10-12						
Unit #/Name	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Big Idea	FORCE TRANSFORMER	MOMENTUM	WAVES AND VIBRATIONS	ENERGY CONVERTORS	TRANSDUCERS	RADIATION, LIGHT AND OPTICS AND TIME CONSTANTS
Timeline	19 days	9 days	9 days	16 days	15 days	13 days
State Standards (see below for description)	A.001.00 A.002.00 A.003.00 A.004.00	B.005.00 B.006.00	C.007.00 C.008.00	D.009.00 D.010.00 D.011.00 D.012.00	E.013.00 E.014.00 E.015.00 E.016.00	F.017.00 F.018.00 F.019.00 F.020.00
Related Competencies	A.001.01 A.001.02 A.002.01 A.00.202 A.00.301 A.003.02 A.004.01 A.004.02	B.005.01 B.005.02 B.006.01 B.006.02	C.007.01 C.007.02 C.008.01 C.008.02	D.00901 D.009.02 D.010.01 D.010.02 D.011.01 D.011.02 D.012.01 D.012.02	E.013.01 E.013.02 E.014.01 E.014.02 E.015.01 E.015.02 E.016.01 E.016.02	F.017.01 F.017.02 F.018.01 F.018.02 F.019.01 F.019.02 F.020.01 F.020.02

TECHNOLOGY EDUCATION COURSE BLUEPRINT for 8012 PRINCIPLES OF TECHNOLOGY II (Recommended hours of instruction: 135-180)

A FORCE TRANSFORMER

001.00 Analyze and apply the concept of force transformers in linear mechanical systems.

001.01 Evaluate inputs and outputs of linear mechanical force transformers.

001.02 Use laboratory equipment to solve linear mechanical force transformer problems.

- 002.00 Analyze and apply the concept of force transformer in rotational mechanical systems.
- 002.01 Evaluate inputs and outputs of rotational mechanical force transformers.
- 002.02 Use laboratory equipment to solve rotational mechanical force transformer problems.
- 003.00 Analyze and apply the concept of force transformers in fluid systems.
- 003.01 Evaluate inputs and outputs of fluid force transformers.
- 003.02 Use laboratory equipment to solve fluid force transformer problems.
- 004.00 Analyze and apply the concept of force transformer in electricity systems.
- 004.01 Evaluate inputs and outputs of electrical force transformers.
- 004.02 Use laboratory equipment to solve electrical force transformer problems.

MOMENTUM

- 005.00 Analyze and apply the concept of linear momentum.
- 005.01 Evaluate relationships between linear momentum and impulse.
- 005.02 Use laboratory equipment to solve linear momentum and impulse problems.
- 006.00 Analyze and apply the concept of angular momentum.
- 006.01 Evaluate relationships between angular momentum and impulse.
- 006.02 Use laboratory equipment to solve angular momentum and impulse problems.

WAVES AND VIBRATIONS

- 007.00 Analyze and apply the concept involving the characteristics of waves.
- 007.01 Evaluate waveform characteristics.
- 007.02 Use laboratory equipment to solve wave problems.
- 008.00 Analyze and apply the concept involving the applications of waves and vibrations.
- 008.01 Evaluate the effects of waves and vibrations.
- 008.02 Use laboratory equipment to solve wave application problems.

ENERGY CONVERTORS

- 009.00 Analyze and apply the concepts of energy conversions.
- 009.01 Evaluate mechanical energy conversion.
- 009.02 Use laboratory equipment to solve mechanical energy conversion problems.
- 010.00 Analyze and apply the concepts of energy conversion in fluid energy systems.
- 010.01 Evaluate fluid energy conversion.
- 010.02 Use laboratory equipment to solve fluid energy conversion problems.
- 011.00 Analyze and apply the concept of energy conversion in electrical systems.
- 011.01 Evaluate electrical energy conversion.
- 011.02 Use laboratory equipment to solve electrical energy conversion problems.

- 012.00 Analyze and apply the concepts of energy conversion in thermal energy systems.
- 012.01 Evaluate thermal energy conversion.
- 012.02 Use laboratory equipment to solve thermal energy conversion problems.

TRANSDUCERS

- 013.00 Analyze and apply the concept of transducers in mechanical systems.
- 013.01 Evaluate the application of mechanical transducers.
- 013.02 Use transducers to solve mechanical problems.
- 014.00 Analyze and apply the concept of transducers in fluid systems.
- 014.01 Evaluate fluid transducers.
- 014.02 Use transducers to solve fluid problems.
- 015.00 Analyze and apply the concepts of transducers in electrical systems.
- 015.01 Evaluate electrical transducers.
- 015.02 Use transducers to solve electrical problems.
- 016.00 Analyze and apply the concept of transducers in thermal systems.
- 016.01 Evaluate thermal transducers.
- 016.02 Use transducers to solve thermal problems.

RADIATION, LIGHT AND OPTICS AND TIME CONSTANTS

- 017.00 Analyze and apply the concept of radiation.
- 017.01 Explore the characteristics of electromagnetic radiation.
- 017.02 Explore the characteristics of nuclear radiation.
- 018.00 Analyze and apply the concepts of light and optic systems.
- 018.01 Evaluate light reflection and refraction.
- 018.02 Evaluate interference and diffraction.
- 018.03 Evaluate the effects of laser light.
- 018.04 Evaluate the effects of optical systems.
- 019.00 Analyze and apply the concept of time constants
- 019.01 Explore time constants in the mechanical and fluid energy systems.
- 019.02 Explore time constants in the electrical and thermal energy systems.
- 020.00 Develop presentation on the concepts of radiation, light and optics, or time constants.
- 020.01 Use laboratory equipment to solve problems in radiation, light and optics, or time constants.
- 020.02 Present lecture and demonstration on the concepts of radiation, light and optics, or time constants.