

<b>Introduction to Industrial Technology</b>		<b>Grades 9-12</b>
<b>Standards</b>	<b>Benchmarks</b>	<b>Activities/Examples</b>
1. Students will develop an understanding of the characteristics and scope of technology.	J The nature and development of technological knowledge and processes are functions of the setting.	Introduction to technology, all of the Bemidji High School classes overviewed and examples of projects will be shown. A poster colleague will be made by the student to show their knowledge of technology.
3. Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.	G Technology transfer occurs when a new user applies an existing innovation developed for one purpose in a different function.	Students will be introduced to electronics. Students will practice ohm’s law and build an electronic kit.
	J Technological progress promotes the advancement of science and mathematics.	Students will be introduced to electronics. Students will practice ohm’s law and build an electronic kit.
8. Students will develop an understanding of the attributes of design.	H The design process includes defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, developing a design proposal, making a model or prototype, testing and evaluating the design using specifications, refining the design, creating or making it, and communicating processes and results.	Design Process will be demonstrated and students will perform it on each project made in class.
	J Engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.	Students will follow a step by step approach to the study of drafting and design.
9. Students will develop an understanding of engineering design.	I Established design principles are used to evaluate existing designs, to collect data, and to guide the design process.	Students will follow a step by step approach to the study of drafting and design.
	J Engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.	Students will follow a step by step approach to the study of drafting and design.
	K A prototype is a working model used to test a design concept by making actual observations and necessary adjustments.	Students will learn computer aided drafting to make a key chain.
	L The process of engineering design takes into account a number of factors.	Students will follow a step by step approach to the study of drafting and design. Students will learn computer aided drafting to make a key chain.

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11. Students will develop the abilities to apply the design process.	M	Identify the design problem to solve and decide whether or not to address it.	Students will build, program, and present projects from the fischertecniks kits used in the Principles of Engineering class.
	N	Identify criteria and constraints and determine how these will affect the design process.	Students will follow the step by step approach to the study of woodworking. Students will make a CD/DVD rack to hold CD/DVDs’.
	O	Refine a design by using prototypes and modeling to ensure quality, efficiency, and productivity of the final product.	Students create a live TV show, providing information about the Industrial Technology department.
	Q	Develop and produce a product or system using a design process.	Students will build, program, and present projects from the fischertecniks kits used in the Principles of Engineering class.
			Students will follow the step by step approach to the study of woodworking. Students will make a CD/DVD rack to hold CD/DVDs’.
R	Evaluate final solutions and communicate observation, processes, and results of the entire design process, using verbal, graphic, quantitative, virtual, and written means, in addition to three-dimensional models.	Students create a live TV show, providing information about the Industrial Technology department.	
12. Students will develop the abilities to use and maintain technological products and systems.	L	Document processes and procedures and communicate them to different audiences using appropriate oral and written techniques.	Students create a live TV show, providing information about the Industrial Technology department.
	O	Operate systems so that they function in the way they were designed.	Students will build, program, and present projects from the fischertecniks kits used in the Principles of Engineering class.
17. Students will develop an understanding of and be able to select and use information and communication technologies.	Q	Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli.	Students will follow a step by step approach to the study of drafting and design.
19. Students will develop an understanding of and be able to select and use manufacturing technologies.	O	Manufacturing systems may be classified into types, such as customized production, batch production, and continuous production.	Read and discuss manufacturing techniques, and tour Wells Technology.
20. Students will develop and understanding of and be able to select and use construction technologies.	J	Infrastructure is the underlying base or basic framework of a system.	Read and discuss construction techniques, and tour the Bemidji High School construction site.