Course Description
An introductory course focused on digital technologies and what it means to be living in a digital world. Students will gain an understanding of how digital technologies impacts the environment, society, and the economy. Students will develop a foundation in essential abilities and attitudes that will in turn expand their opportunities in the world of information and communications.

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<td>Prerequisite</td>
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<td>Skill Certification Test Number</td>
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<td>Introduction to Information Technology</td>
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STRAND 1
Students will follow safety practices.

Standard 1
Identify potential safety hazards and follow general laboratory safety practices.
- Assess workplace conditions regarding safety and health.
- Identify potential safety issues and align with relevant safety standards to ensure a safe workplace/jobsite.
- Locate and understand the use of shop safety equipment.
- Select appropriate personal protective equipment.

Standard 2
Use safe work practices.
- Use personal protective equipment according to manufacturer rules and regulations.
- Follow correct procedures when using any hand or power tools.

Standard 3
Complete a basic safety test without errors (100%) before using any tools or shop equipment.

STRAND 2
Students are introduced to the history, application and safe use of communications technology. They will also explore how we have moved from an analog to a digital world.

Standard 1
Analyze the historical impacts of communications technology and compare with contemporary applications.
- Define Communications Technology.
- Create an outline of the history of communications and make inferences to the future.
  - Identify five historical figures, places and major historical events in communication history.
  - Explain the impact that a specific event, person, or communications technology has had on society, either locally, nationally, or globally.
  - Compare and contrast the history of communications with current events.
- Explore the impact on society and world.
  - How communication (even entertainment) can shape perceptions of present and past issues.
  - Ways in which communications is used.

Standard 2
Students are introduced to the communications model.
- The Communications Model.
• Message
• Encoder
• Transmitter
• Receiver
• Decoder

(This could also be presented with the Systems Model: input, process, output, feedback)

Standard 3
Students are introduced to the concepts of networks and how they are used to communicate.
• Analog Network Paths - highways, trails
• Network Protocols - Packets
• Internet as a large network
• Text communications - letters, email, SMS (texting), Instant Messaging (IM)
• Voice communications - phone, cell, VoIP
• Video Communications - Skype, Facetime, Google Hangouts, Webinars, etc.
• Cloud Services - data centers, online office suites, cloud drives, etc.

Standard 4
Students are introduced to the safe use of equipment and Internet safety.
• Equipment instruction, demonstration, and rules.
• Internet safety, identity theft, passwords and etiquette.

STRAND 3
Students are introduced to the basic skills of using files and folder management. They will also explore the concepts dealing with intellectual property.

Standard 1
Learn and use basic operating systems functions, the use of files and folders.
• Opening programs and menu structure
• File types and extensions
• Saving files

Standard 2
Learn about copyright and its use.
• Downloading pictures and music
• Understand Fair-Use laws
• Understand plagiarizing literary and artistic work

STRAND 4
Students are introduced to graphic design, measuring, and the production of graphics.

Standard 1
Learn the different measuring systems used in the Graphic Industry.
• Understand the differences between the Metric vs. standard measuring systems.
• Understand the use of scale, pica and points, and resolution.

**Standard 2**
Learn the design process and create different types of graphics.
• Understand the design process.
  • Understand Elements and principles of design.
  • Understand vocabulary of graphic production.
• Create and use different types of digital graphics.
  • Vector and raster graphics.
  • List graphic skills for life.
  • Explore career graphic skills.
• Use graphic design software (emphasis on alternate software to Illustrator or even iPad).

**Standard 3**
Produce a variety of graphics. (Varied by equipment and resource availability)
• Produce graphics in a couple of different ways:
  • Laser engraving
  • Vinyl cutting
  • Screen printing
  • Heat press
  • Package design
  • Button makers

**STRAND 5**
Students are introduced to several ways the communications and art are developed in a digital world.

**Standard 1**
Work with and modify digital sound files.
• Understand the transition from analog sound to digital sound.
• Record sound using a computer, phone or other digital device.
• Edit a digital sound file (Audacity).
• Add effects of sound to produce mood.
• Create original music with software (GarageBand or Acid).
• Editing digital music (Audacity).
• Use digital sound in a project.

**Standard 2**
Work with and modify digital photos.
• Understand the transition from film to digital photograph.
• Take photos with a digital camera or phone.
• Transfer pictures to a computer via USB, SD card, or wirelessly.
• Preform simple photo editing.
  • Selection tools
  • Drawing tools
  • Graphic creation
• Perform complex photo manipulation.
• Print photos compositions.
• Use digital photos in project.

Standard 3
Create different kind of animations.
• Understand the transition from drawing animations to digital animation.
• Give a basic definition of animation and how it works.
• Understand basic animation principles (Simple introduction could be done with Scratch).
• Explore different types of animation.
• Create a stop-motion animation using flipbooks, clay, or Legos.
• Use frame-by-frame animation (Pivot).
• Use keyframe animation (This could be done with Flash, Premiere, AfterEffects, AnimeStudio, Scratch, Wideo, or even PowerPoint.).

Standard 4
Learn the process of video production and the manipulation of digital video.
• Understand the change from film movies to digital video production process.
• Create a storyboard and script for a short video.
• Understand and use camera movement, style, and shots.
• Use a digital video camera, phone, or device to create a digital video.
• Edit the video to include other media (sound, graphics, etc.).
• Publish the video project.

Standard 5
Explore the process of web design and create a basic web site.
• Design a simple website with wireframes or storyboard.
• Understand the basics of HTML in web design.
• Create a simple website or HTML5 app (Weebly, LucidPress, etc.).
• Incorporate other digital components (graphics, sound, photos, video, etc.) in the website.
• Publish the Web/HTML5 project for other to view.

STRAND 6
Students will be introduced to software design, coding structures, and app development.

Standard 1
Explore the concepts of computational thinking, the software design process, programming structures, and programming languages.
• Understand the concepts in computational thinking.
  • Decomposition, algorithms, etc.
• Understand and use the software design process
  • Input, processing, output.
  • User interface design (UI)
  • User experience (UX)
• Understand and use programming structures.
  • Sequence programming
  • Decisions with if – then – else statements
  • Loops – repeat, for, while, etc.
  • Functions, modules, methods
  • Variables
• Understand and explore different programming languages.
  • Block type languages – Scratch, SNAP, Blockly, AppInventor, TouchDevelop, etc.
  • Text based languages – Alice, Processing, Python, Java, Javascript, C#, Bootstrap, etc.
  • Game engines – GameSalad, Game Maker, Gamestar Mechanic, etc.

**Standard 2**
Code a project(s) to create a game, story, application, or app.
• Work with a partner or team for the project.
• Plan and design a computer program or app.
• Choose one of the following categories for your program.
  • Story telling
  • Music and sound
  • Game
  • Simulation
  • Other with approval
• Code the program using an appropriate programming environment.
• Debug the program as needed.
• Publish the program or application that is developed.
• Understand connections to math and science.

**STRAND 7**
Students will explore the collection of data, information, online databases, and mapping.

**Standard 1**
Utilize online databases to explore the collection of data and information.
• Explore online databases.
  • Search engines – Google, Bing, Yahoo, etc.
  • Address books, real estate sales
  • Shopping – Amazon, eBay, etc.
- Weather, news, gossip, etc.
- Language translators, Duolingo, etc
- Use online mapping (Google maps, Google Earth, Bing maps, etc.).
- Understand online data collection.
  - Crowd sourcing -- Gas Buddy, Captcha, Duolingo
  - Wiki – Wikipedia, Commons Wikipedia, etc.
- Collect data using paper and pencil and Google Forms or Microsoft OneDrive Surveys.
- Analysis data geographical data using a program like ArcGIS Online.
- Explore colleges and careers using an online database (UtahFutures, etc.).

**Standard 2**
Explore the uses of bar and QR coding for a different purposes.
- Understand types of bar and QR coding.
- Understand how codes are used to identify data.
- Create and use QR and bar codes.
- Use a QR code and an URL shorteners.
- Participate in a QR or bar code project.

**Standard 3**
Learn what it means to live a citizen in a digital world.
- Understand what it means to be Digital Citizen in a Digital Society.
- Understand proper online ethics and behavior.
- Understand proper use of Social Media: Facebook, Twitter, Pinterest, Snapchat, Instagram, etc.
- Know how to prevent Cyber Bullying.
- Understand the difference between Private and public profiles and presence.
- Understand about online security, virus, threats, hackers, antivirus software, and encryption.
- Understand the proper uses of online media: Videos, YouTube, Vimeo -- Music, iTunes, Podcasts, TED Talks, etc.
- Explore online learning: YouTube, Instructables, MOOCs, iTunes U.

**STRAND 8**
Students will explore the world of how software and hardware interact to create robotics and other usefully functions in society.

**Standard 1**
Explore the use of robotics in society.
- Understand how society is effected by the use of robots and drones.
- Explore the use of robots in your community.
- Explore careers and skilled needed to create and use robotics.
Standard 2
Explore the use of microprocessor and how they can be controlled and interacted with software.
  • Explore uses of Audrinos and Lilypads.
  • Explain how Audrinos are programmed.
  • Explore and list ways a Raspberry Pi’s could be used.
  • Explore how Makey Makey, Picoboard can be controlled.

Standard 3
Explore how all kinds of digital computing devices effect the world we live in.
  • List all the computing devices you might use daily.
  • Understand how phones and tablets are changing computing.
  • List steps that might be used to solve a computer or software problem.

STRAND 9
Students will investigate career opportunities in the information & communications industry.

Standard 1
Identify occupations related to the digital world.

Standard 2
Identify different types of occupational training.