

Elective Course Description

Course Name	Programming and Software Development Entrepreneurship
Course Number	TBD
Length of Course	One Semester
Grade Level	6-12
Credit Type	0.5 Elective Per Semester
Grading Scale	A-F
Course Prerequisite	N/A
Course Summary	<p>Programming and Software Development: This course will benefit students who wish to have programming and software development related careers. Software Development involves IT programming and maintaining IT systems. Careers in Programming and Software Development involve the design, development, implementation, and maintenance of computer systems. Students will learn the information to solve problems requiring knowledge of computer operating systems, programming languages and software development. People with expertise in programming and software development work with cutting-edge technologies. While many of the career opportunities in this area are in software companies, large organizations of other types of business, like Financial Services and Business also offer many opportunities. People with expertise in programming and software development are in high demand, doing work such as creating the software that launches and runs NASA space shuttles.</p>

<p>Primary Materials</p>	<p>Computer, Internet, Coding software, instructional materials (books, videos, online mini-classes).</p> <p>Development Tools</p> <ul style="list-style-type: none"> ● Compilers ● Linkers ● Assemblers ● Debuggers ● Performance Analysis Tools <p>Coding languages:</p> <ul style="list-style-type: none"> ● Python <ul style="list-style-type: none"> ○ making websites ● Scala ● Java script <ul style="list-style-type: none"> ○ making web-like apps ● C, C+, and C++ <ul style="list-style-type: none"> ○ making video games
<p>Standards</p>	<p>ITCo2.01 Develop positive customer relations to build and maintain a customer base in the IT industry.</p> <p>ITC 10.02 Perform scheduling functions to meet customer needs.</p> <p>ITC02.02 Use product/service design processes and guidelines to produce a quality IT product/service.</p> <p>ITC03.01 Implement problem-solving processes to evaluate and verify the nature of problems in the IT industry and the nature of problems in the IT industry.</p>

ITC03 02 Employ organization and design principles to sort and group information used in the IT industry.

ITC03.03 Implement cross-functional teams to achieve IT project goals.

ITC 05.02 Employ project management knowledge to oversee IT projects.

ITC 05.03 Apply standard practices and behaviors that meet legal and ethical responsibilities and exhibit positive cyber-citizenry to understand legal issues faced by IT professionals.

ITC 08.01 Identify and explain the implications IT has on business transformation and development to demonstrate an understanding of the impact on business.

ITC09.01 1 Compare classes of software associated with the development and maintenance information systems to develop software and maintain computer systems

ITC 10.02 Identify and compare new IT trends and technologies to build an understanding of their potential influence on IT practices.

ITC10.04 Summarize basic data communications components and trends to maintain and maintain and update IT systems.

ITC10.05 Demonstrate technical knowledge of the Internet to develop and maintain IT systems.

ITC 10.06 Access and use Internet services when completing IT related tasks to service and update IT systems.

ITC 10.07 Install and configure software programs to maintain and update IT systems.

ITC10.11 Recognize and analyze potential IT security threats to develop and maintain security requirements.

ITC10.08 Demonstrate knowledge of Web page basics to build an understanding of Web page design and functioning.

ITC10.09 8 Employ IT knowledge and procedures when configuring or modifying an operating system to ensure optimal system functioning.

ITC10.13 Provide IT support and training to maintain proper network functioning.

ITC10.12 Maintain computer systems to ensure optimal IT system functioning.

ITC10.10 Perform standard computer backup procedures to protect IT information.

ITC10.15 Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.

ITC 10.14 Identify and describe quality assurance concepts to develop an understanding of the requirements for quality IT products/services.

ITP 01.01 Identify and analyze customer software needs and requirements to guide programming and software development.

ITP 01.03 Identify and analyze system and software requirements to ensure maximum operating efficiency.

ITP 01.02 Create and use IT-based strategies and project plans when solving specific problems to deliver a product that meets customer specifications.

ITPD01.04 Demonstrate the effective use of tools for software development and to develop software applications.

ITP 01.05 Design a software application using the software development process to deliver a product to the customer.

ITP 01.06 Produce (code) a computer application to demonstrate proficiency in developing an application using the appropriate programming language.

ITPD01.04 Demonstrate the effective use of tools for software development to develop software applications. This is a copy

ITPD01.07 Implement software testing procedures to ensure quality products.

ITPD01.08 Perform quality assurance tasks to produce quality products.

ITP 01.09 Perform maintenance and customer support functions to maintain software applications.

ITPD01.10 Develop and maintain a database to store information.

Assessment**Skills Based Projects****Software Development**

Students will show mastery in the software development industry by employing IT knowledge to their applications. Installing software programs to their applications. Performing a computer backup procedure to ensure no file corruption. Maintaining a computer system to keep their applications. Analyzing potential IT threats in their software. Creating cross-functional teams to complete their project and employing project management to themselves during their time understanding the basics of artificial intelligence and software development.

Cyber Business

Students will show mastery in online business by applying legal and ethical practices to their actions. Performing standard computer backups to ensure no file corruptions. Using forensics to prevent security breaches in their business, and analyzing potential IT threats in their business. Overall, understanding how to create and use a business online.

Website Creation:

Students will show mastery of website creation by demonstrating internet knowledge of website coding by coding their website. Modifying and configuring operating systems to allow and align with certain applications. Providing IT support to maintain a network function. Installing software to update their IT systems and applications. Performing standard computer backups to ensure no file corruptions. Maintaining computer systems and recognizing IT security threats to prevent breaches and virus takeovers. And, using computer forensics to prevent security breaches. These will help them create, keep, and secure their website on the world wide web.

Game Development:

Students will show mastery of game development by installing software programs to help them develop their game. Using internet services to complete IT related tasks involving their game development. Maintain network functions and network connections. And, maintaining proper computer functions to help them develop a 2d game, AKA a two dimensional game.

Knowledge Based Assessments:

Students will use guided notes, short answer responses, and reflections to gain knowledge on the following topics.

- Recognize and analyze potential IT security threats to develop and maintain security requirements.
- Compare classes of software associated with the development and maintenance information systems to develop software and maintain computer systems
- Identify and describe quality assurance concepts to develop an understanding of the requirements for quality IT products/services.
- Identify and analyze system and software requirements to ensure maximum operating systems.
- Develop positive customer relations to build and maintain a customer base in the IT industry.
- Perform scheduling functions to meet customer needs.
- Use product/service design processes and guidelines to produce a quality IT product/service.
- Employ organization and design principles to sort and group information used in the IT industry.

Activities

Activities	
Week 1	<p>Activities are based off of standards</p> <ul style="list-style-type: none">● Implement cross-functional teams to achieve IT project goals.● Employ project management knowledge to oversee IT projects.
Week 2	<ul style="list-style-type: none">● Access and use Internet services when completing IT related tasks to service and update IT systems.● Install and configure software programs to maintain and update IT systems.
Week 3	<ul style="list-style-type: none">● Recognize and analyze potential IT security threats to develop and maintain security requirements.● Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
Week 4	<ul style="list-style-type: none">● Demonstrate the effective use of tools for software development and to develop software applications.● Design a software application using the software development process to deliver a product to the customer.● Produce (code) a computer application to demonstrate proficiency in developing an application using the appropriate programming language.
Week 5	<ul style="list-style-type: none">● Identify and analyze system and software requirements to ensure maximum operating efficiency.● Perform standard computer backup procedures to protect IT information.
Week 6	<ul style="list-style-type: none">● Implement problem-solving processes to evaluate and verify the nature of problems in the IT industry and the nature of problems in the IT industry.

	<ul style="list-style-type: none"> • Employ organization and design principles to sort and group information used in the IT industry.
Week 7	<ul style="list-style-type: none"> • Identify and compare new IT trends and technologies to build an understanding of their potential influence on IT practices.
Week 8	<ul style="list-style-type: none"> • Provide IT support and training to maintain proper network functioning. • Maintain computer systems to ensure optimal IT system functioning. • Perform maintenance and customer support functions to maintain software applications.
Week 9	<ul style="list-style-type: none"> • Implement software testing procedures to ensure quality products. • Perform quality assurance tasks to produce quality products. • Identify and describe quality assurance concepts to develop an understanding of the requirements for quality IT products/services.
Week 10	<ul style="list-style-type: none"> • Summarize basic data communications components and trends to maintain and update IT systems. • Demonstrate technical knowledge of the Internet to develop and maintain IT systems. • Perform maintenance and customer support functions to maintain software applications. • Develop and maintain a database to store information.
Week 11	<ul style="list-style-type: none"> • Compare classes of software associated with the development and maintenance of information systems to develop software and maintain computer systems. • Use product/service design processes and guidelines to produce a quality IT product/service.

<p>Week 12</p>	<ul style="list-style-type: none"> ● Create and use IT-based strategies and project plans when solving specific problems to deliver a product that meets customer specifications. ● Identify and analyze customer software needs and requirements to guide programming and software development.
<p>Week 13</p>	<ul style="list-style-type: none"> ● Apply standard practices and behaviors that meet legal and ethical responsibilities and exhibit positive cyber-citizenry to understand legal issues faced by IT professionals.
<p>Week 14</p>	<ul style="list-style-type: none"> ● Identify and explain the implications IT has on business transformation and development to demonstrate an understanding of the impact on business.
<p>Week 15</p>	<ul style="list-style-type: none"> ● Develop positive customer relations to build and maintain a customer base in the IT industry. ● Perform scheduling functions to meet customer needs.
<p>Week 16</p>	<ul style="list-style-type: none"> ● Demonstrate knowledge of Web page basics to build an understanding of Web page design and functioning. ● Employ IT knowledge and procedures when configuring or modifying an operating system to ensure optimal system functioning.