Information Technology Systems Endorsement

Specifications, Competencies & Requirements

PURPOSE

This endorsement is meant for certified teachers interested in teaching **Information Technology Systems** courses. It is attached to a current Utah Educator License with a concentration in **Secondary** and **CTE** Education.

Upon attachment of this endorsement to a Utah educator license, educators will be approved to teach the following USBE courses:

Computer Systems 1
Computer Systems 2
A/R V/R
Computer Programming 1
Cloud Computing 1
Cloud Computing 2
Computer Science Principles
Cyber Defense and Ethics
Database Development
3D Print Technology
Digital Literacy
Exploring Computer Science
Computer Science Investigations
Introduction to Information Technology
Linux Fundamentals
Network Fundamentals
Introduction to GIS
GIS Remote Sensing

ENDORSEMENT TYPES

Prerequisite

Demonstrate an understanding of Career and Technical Education (CTE) basics.

CTE Knowledge

Associate Level Requirements

Applicants must complete **THREE** of the following competency requirements. The associate level endorsement is valid for up to three school years before it expires. Associate-level endorsements are non-renewable.

Programming for Information Systems & Information Technology
Computer Hardware & Troubleshooting
Networking
Databases & Cloud Computing
Geographical Information Systems
Digital Literacy
CTSO Knowledge

Professional Level Requirements

The applicant must meet **ALL** the competency areas listed above.

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Utah State Board of Education

COMPETENCY DETAILS & DESCRIPTIONS

Prerequisite

1. CTE Knowledge

Demonstrate an understanding of CTE basics:

- Explain how CTE links learning to specific Utah industries and what its main goals are.
- Know the licenses and endorsements needed to teach specific CTE courses.
- Describe how CTE is organized into clusters and pathways at the state, district (LEA), and school levels, and how this helps students succeed after graduation.
- Locate and use the state's strands and standards in lesson plans.
- Explore CTE student organizations (CTSOs) and professional groups and explain how they support students and teachers.
- Explain how advisory boards, with industry members, make sure programs meet job market needs and maintain safe learning environments.
- Understand the basics of securing funding, planning for the future of the program, and participating in the state Program of Quality Review (PQR) to ensure program excellence.

*Select **one** of the following options:*

- **USBE Course:** CTE Orientation
- **Complete THREE years of full-time CTE Teaching in Utah**
- **Currently hold a professional-level CTE endorsement**

Endorsement Competencies

2. Programming for Information Systems & Information Technology

Demonstrate understanding of information technology basic standards in relation to the technical support of industry. This includes knowledge of:

- Operating systems & operational procedures
- Mobile Devices - hardware, accessories, network, and troubleshooting
- Networking - protocols, SOHO networks, networking tools
- Hardware - installation, cables, connectors, peripheral devices, motherboards, troubleshooting
- Visualization - concepts and cloud models

*Select **one** of the following options:*

- **Bachelor's Degree or higher in Information Technology or Networking:**
  Examples:
  Utah Tech University: Information Technology BS
  Utah Valley University: Information Technology BS
- **University Course**: Credit from an accredited university, passing with a C or higher grade in a course similar to UVU - INFO 1200 - Computer Programming I for IST.
- **Industry Certification**: Take and pass the TestOut IT Fundamentals Pro Industry Exam

3. Computer Hardware & Troubleshooting

Demonstrate understanding of computer hardware in relation to information technology standards. This includes knowledge of:

- Component installation: setting up RAM, CPUs, and storage devices.
- Cables and connectors: working with HDMI, Ethernet, and USB cables.
- Peripheral devices: installing and maintaining printers, scanners, and other peripherals.
- Motherboards and power: configuring motherboards, power supplies, and cooling solutions
- Diagnosing issues: identifying and fixing hardware, network, and connectivity problems.
- Troubleshooting tools: using multimeters, cable testers, and loopback plugs.

*Select **one** of the following options:*

- **Bachelor's Degree or higher in Information Technology:**
  Examples:
  Utah Tech University: Information Technology BS
  Utah Valley University: Information Technology BS
- **University Course**: Credit from an accredited university, passing with a C or higher grade in a course similar to UVU - INFO 1600 - Computer Architecture and Systems Software or UTU - IT 1200 - A+ Computer Hardware/Windows OS
- **Industry Certification**: (choose one)
  - ☐ CompTiA A+
  - ☐ TestOut PC Pro Industry Exam

4. Networking

Demonstrate understanding of networking infrastructure in relation to information technology standards. This includes client operating systems, networks, security applications, firewalls, devices, security, secure computing, and network ports.

*Select **one** of the following options:*

- **Bachelor's Degree or higher in Information Technology:** Examples:
  Utah Tech University: Information Technology BS
  Utah Valley University: Information Technology BS
- **University Course**: Credit from an accredited university, passing with a C or higher grade in a course similar to UVU - INFO 2600 - Data Communication Fundamentals or UTU - IT 2400 - Introduction to Networking.
- **Industry Certification**: (choose one)
  - ☐ Certiport ITS Networking OR
  - ☐ CompTIA Network + Industry Exam

5. Databases & Cloud Computing

Demonstrate understanding of databases & cloud computing in relation to information technology standards.

Databases include introductory knowledge of how to design, create, and query relational databases, such as MySQL, Microsoft SQL Server, or Oracle. Understanding database design, object management, and data retrieval.
Cloud Computing encompasses the advantages of cloud concepts and solutions, including cloud architecture, the cloud development life cycle, deployment applications, and cloud governance.

*Select **one** of the following options:*

- **Bachelor's Degree or higher in Information Technology:** Examples:
  Utah Tech University: Information Technology BS
  Utah Valley University: Information Technology BS
- **University Course**: Credit from an accredited university, passing with a C or higher grade in a course similar to UVU - INFO 2410 - Database Fundamentals or UTU - IT 2300 - Database Design and Management.
- **Industry Certification**: (choose one)
  Certiport ITS Cloud Computing OR
  Certiport ITS Databases Industry Exam

6. Geographical Information Systems

Demonstrate understanding of Geographical Information Systems in relation to information technology standards. Show basic understanding of geographic mapping and analysis software used to collect, display, analyze, and communicate information and stories tied to specific locations.

*Select **one** of the following options:*

- **GIS Training:** Intro to GIS in K12 CTE
- **University Course**: Credit from an accredited university, passing with a C or higher grade in a course similar to USU - GEOG2800 - Introduction to Geographic Information Sciences or SLCC - GEOG 2500 - Introduction to Geographic Information Systems.

7. Digital Literacy

Demonstrate knowledge of the information processing cycle, digital communication, digital citizenship, and digital tools/media.

*Select **one** of the following options:*

- **USBE Digital Literacy Methods Workshop:** Typically held in the summer. Visit the USBE CTE Calendar for more information.
- **IC3 Digital Literacy Certifications:** Successful completion of the most current version of the IC3 certification from the date of application. Certifications can be found at Certiport.com.

8. CTSO Knowledge

Demonstrate Career and Technical Student Organization (CTSO) knowledge:

- **Help students lead:** Give students opportunities to build their leadership abilities and take charge.
- **Mentor students:** Offer guidance to help students set goals and overcome difficulties as they grow.

- **Manage the organization:** Coordinate meetings, events, and budgets, and handle administrative tasks smoothly.
- **Create helpful programs:** Develop activities that match the C O's goals of building leadership, exploring careers, and developing skills.
- **Communicate effectively:** Clearly talk with students, school leaders, and community members, and promote the CTSO.
- **Work with others:** Partner with teachers, businesses, and other organizations to create opportunities like internships and community service.
- **Advocate for CTE:** Promote Career and Technical Education and work to get the resources and recognition it needs.
- **Keep learning:** Stay up-to-date on CTSO management and trends in CTE.
- **Focus on student success:** Support students' interests and celebrate their accomplishments.

*Select **one** of the following options:*

- **Attend a CTSO Fall Leadership Conference**. Reflected on MIDAS transcript.
- **USBE Microcredential**: Career & Technical Student Organizations.