Formal Evaluation and Subject Matter Expert Summary Report

ETC250

Submitted to Maine is IT in fulfillment of the TAACCCT grant requirements

By

Emporia State University

February, 2017

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Developed by Anna J. Catterson, Ph.D., Emporia State University.

EMPORIA STATE UNIVERSITY
INFORMATION TECHNOLOGY

Course Review for: Maine is IT
Course: KVCC ETC250
Reviewed by: Anna J. Catterson, Ph.D
Date: February 14, 2017

Part 1: Course Review

A. Course Review & Introduction (16 points total)		
1.1 Instructions made clear how to get started and where to find various course components.	3	**1**
1.2 Learners are introduced to the purpose and structure of the course.	3	**3**
1.3 Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication are clearly stated.	2	**0**
1.4 Course and or institutional policies with which the learner is expected to comply are clearly stated, or a link to current policies is provided.	2	**2**
1.5 Minimum technology requirements are clearly stated and instructions for use provided.	2	**0**
1.6 Prerequisite knowledge in the discipline and/or any required competencies are clearly stated.	1	**1**
1.7 Minimum technical skills expected of the learner are clearly stated.	1	**0**
1.8 The self-introduction by the instructor is appropriate and is available online.	1	**0**
1.9 Learners are asked to introduce themselves to the class.	1	**0**
Total	7	

Comments:

1.1: A link to the LMS site was not provided. Consider adding instructions on how to access the course in the LMS. Consider adding the link to the actual course.

1.2: The purpose and structure for the course was explained in the syllabus. The course is focused on two Comp TIA A+ exams.

1.3: Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication should be covered. Examples include:

- Be sensitive to the fact that there will be cultural and linguistic backgrounds, as well as different political and religious beliefs, plus just differences in general.
- Use good taste when composing your responses in Discussion Forums. Swearing and profanity is also part of being sensitive to your classmates and should be avoided. Also consider that slang can be misunderstood or misinterpreted.
- Don't use all capital letters when composing your responses as this is considered "shouting" on the Internet and is regarded as impolite or aggressive. It can also be stressful on the eye when trying to read your message.
- Be respectful of your others' views and opinions. Avoid "flaming" (publicly attacking or insulting) them as this can cause hurt feelings and decrease the chances of getting all different types of points of view.
- Be careful when using acronyms. If you use an acronym it is best to spell out its meaning first, then put the acronym in parentheses afterward, for example: Frequently Asked Questions (FAQs). After that you can use the acronym freely throughout your message.
- Use good grammar and spelling, and avoid using text messaging shortcuts.

1.4: Course and institutional policies were covered in the syllabus. Reviewer found that all policies were covered well in the syllabus. Links to student services for each policy could be an additional item added. Some links were broken, please consider fixing. Also, please consider replacing [insert text] with the correct contact information for Students with Disabilities and Instructor contact information. This should be updated.

1.5: Technology requirements were not stated in the course syllabus.

1.6: Prerequisite knowledge of ETC110 listed on the course syllabus.

1.7: Minimum skills were not addressed in the course syllabus.

1.8: Even in a face-to-face course, it is desirable to have an instructor introduction/biography available for students to access online. A short introduction with some personal information will humanize the instructor in an online course and allow students to access the information at any time in a face-to-face course.

1.9: No discussion thread is provided for students to communicate, informally, with each other outside of the class meetings. Even in a face-to-face course, it is desirable to have a means for students to informally communicate with each other to share concerns and ask questions. See note from 1.8.

B. Learning Objectives & Competencies (15 points total)		
2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable	3	**0**
2.2 The module/unit learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies.	3	**0**
2.3 All learning objectives and competencies are stated clearly and written from the learner's perspective.	3	**3**
2.4 The relationship between learning objectives or competencies and course activities is clearly stated.	3	**1**
2.5 The learning objectives or competencies are suited to the level of the course.	3	**3**
Total	7	

Comments:

2.1: The course objectives are not measurable. Course objectives should be clear and direct. They should be measurable. The three course objectives listed are not complete and need to be revised. Reviewer recommends using the same language as the two CompTIA exams. The objectives from those exams should be used on the course syllabus, as they are identical to the course outcomes and also are a direct match to the program goals. Those include:

1.1 Configure and apply BIOS settings.

- Install firmware upgrades—flash BIOS
- BIOS component information
  - RAM
  - Hard drive
  - Optical drive
  - CPU
- BIOS configurations
  - Boot sequence
  - Enabling and disabling devices
  - Date/time
  - Clock speeds
  - Virtualization support
  - BIOS security (passwords, drive encryption: TPM, lo-jack)
- Use built-in diagnostics
- Monitoring
  - Temperature monitoring
  - Fan speeds
  - Intrusion detection/notification
  - Voltage
  - Clock
  - Bus speed

1.2 Differentiate between motherboard components, their purposes, and properties.

- Sizes
  - ATX
  - Micro-ATX

    - ITX
- Expansion slots
    - PCI
    - PCI-X
    - PCIe
    - miniPCI
    - CNR
    - AGP2x, 4x, 8x
- RAM slots
- CPU sockets
- Chipsets
    - North Bridge
    - South Bridge
    - CMOS battery
- Jumpers
- Power connections and types
- Fan connectors
- Front panel connectors
    - USB
    - Audio
    - Power button
    - Power light
    - Drive activity lights
    - Reset button
- Bus speeds

1.3 Compare and contrast RAM types and features.

- Types
    - DDR
    - DDR2
    - DDR3
    - SDRAM
    - SODIMM
    - RAMBUS
    - DIMM
    - Parity vs. non-parity
    - ECC vs. non-ECC
    - RAM configurations
    - Single channel vs. dual channel vs. triple channel
    - Single sided vs. double sided
- RAM compatibility and speed

1.4 Install and configure expansion cards.

- Sound cards
- Video cards
- Network cards
- Serial and parallel cards
- USB cards

- Firewire cards
- Storage cards
- Modem cards
- Wireless/cellular cards
- TV tuner cards
- Video capture cards
- Riser cards

1.5 Install and configure storage devices and use appropriate media.

- Optical drives
  - CD-ROM
  - DVD-ROM
  - Blu-Ray
- Combo drives and burners
  - CD-RW
  - DVD-RW
  - Dual Layer DVD-RW
  - BD-R
  - BD-RE
- Connection types
  - External
  - USB
  - Firewire
  - eSATA
  - Ethernet
  - Internal SATA, IDE and SCSI
  - IDE configuration and setup (Master, Slave, Cable Select)
  - SCSI IDs (0—15)
  - Hot swappable drives
- Hard drives
  - Magnetic
  - 5400 rpm
  - 7200 rpm
  - 10,000 rpm
  - 15,000 rpm
- Solid state/flash drives
  - Compact flash
  - SD
  - Micro-SD
  - Mini-SD
  - xD
  - SSD
- RAID types
  - 0
  - 1
  - 5
  - 10
- Floppy drive
- Tape drive

- Media capacity
  - CD
  - CD-RW
  - DVD-RW
  - DVD
  - Blu-Ray
  - Tape
  - Floppy
  - DL DVD

1.6 Differentiate among various CPU types and features and select the appropriate cooling method.

- Socket types
  - Intel: LGA, 775, 1155, 1156, 1366
  - AMD: 940, AM2, AM2+, AM3, AM3+, FM1, F
- Characteristics
  - Speeds
  - Cores
  - Cache size/type
  - Hyperthreading
  - Virtualization support
  - Architecture (32-bit vs. 64-bit)
  - Integrated GPU
- Cooling
  - Heat sink
  - Fans
  - Thermal paste
  - Liquid-based

1.7 Compare and contrast various connection interfaces and explain their purpose.

- Physical connections
  - USB 1.1 vs. 2.0 vs. 3.0 speed and distance characteristics
  - ♣ Connector types: A, B, mini, micro
  - Firewire 400 vs. Firewire 800 speed and distance characteristics
  - SATA1 vs. SATA2 vs. SATA3, eSATA, IDE speeds
  - Other connector types
    - Serial
    - Parallel
    - VGA
    - HDMI
    - DVI
    - Audio
    - RJ-45
    - RJ-11
  - Analog vs. digital transmission
    - VGA vs. HDMI
  - Speeds, distances and frequencies of wireless device connections
    - Bluetooth
    - IR

        - RF

1.8 Install an appropriate power supply based on a given scenario.

- Connector types and their voltages
    - SATA
    - Molex
    - 4/8-pin 12v
    - PCIe 6/8-pin
    - 20-pin
    - 24-pin
    - Floppy
- Specifications
    - Wattage
    - Size
    - Number of connectors
    - ATX
    - Micro-ATX
    - Dual voltage options

1.9 Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs.

- Graphic / CAD / CAM design workstation
    - Powerful processor
    - High-end video
    - Maximum RAM
- Audio/Video editing workstation
    - Specialized audio and video card
    - Large fast hard drive
    - Dual monitors
- Virtualization workstation
    - Maximum RAM and CPU cores
- Gaming PC
    - Powerful processor
    - High-end video/specialized GPU
    - Better sound card
    - High-end cooling
- Home Theater PC
    - Surround sound audio
    - HDMI output
    - HTPC compact form factor
    - TV tuner
- Standard thick client
    - Desktop applications
    - Meets recommended requirements for running Windows
- Thin client
    - Basic applications
    - Meets minimum requirements for running Windows
- Home Server PC

    - Media streaming
    - File sharing
    - Print sharing
    - Gigabit NIC
    - RAID array

1.10 Given a scenario, evaluate types and features of display devices.

- Types
    - CRT
    - LCD
    - LED
    - Plasma
    - Projector
    - OLED
- Refresh rates
- Resolution
- Native resolution
- Brightness/lumens
- Analog vs. digital
- Privacy/antiglare filters
- Multiple displays

1.11 Identify connector types and associated cables.

- Display connector types
    - DVI-D
    - DVI-I
    - DVI-A
    - Displayport
    - RCA
    - DB-15
    - BNC
    - miniHDMI
    - RJ-45
    - miniDin-6
- Display cable types
    - HDMI
    - DVI
    - VGA
    - Component
    - Composite
    - S-video
    - RGB
    - Coaxial
    - Ethernet
- Device connectors and pin arrangements
    - SATA
    - eSATA
    - PATA

        - IDE
        - EIDE
    - Floppy
    - USB
    - IEEE1394
    - SCSI
    - PS/2
    - Parallel
    - Serial
    - Audio
    - RJ-45
- Device cable types
    - SATA
    - eSATA
    - IDE
    - EIDE
    - Floppy
    - USB
    - IEEE1394
    - SCSI
        - 68pin vs. 50pin vs. 25pin
    - Parallel
    - Serial
    - Ethernet
    - Phone

1.12 Install and configure various peripheral devices.

- Input devices
    - Mouse
    - Keyboard
    - Touch screen
    - Scanner
    - Barcode reader
    - KVM
    - Microphone
    - Biometric devices
    - Game pads
    - Joysticks
    - Digitizer
- Multimedia devices
    - Digital cameras
    - Microphone
    - Webcam
    - Camcorder
    - MIDI enabled devices
- Output devices
    - Printers
    - Speakers

- Display devices

2.0 Networking 27%

2.1 Identify types of network cables and connectors.

- Fiber
  - Connectors: SC, ST and LC
- Twisted Pair
  - Connectors: RJ-11, RJ-45
  - Wiring standards: T568A, T568B
- Coaxial
  - Connectors: BNC, F-connector

2.2 Categorize characteristics of connectors and cabling.

- Fiber
  - Types (single-mode vs. multi-mode)
  - Speed and transmission limitations
- Twisted pair
  - Types: STP, UTP, CAT3, CAT5, CAT5e, CAT6, plenum, PVC
  - Speed and transmission limitations
- Coaxial
  - Types: RG-6, RG-59
  - Speed and transmission limitations

2.3 Explain properties and characteristics of TCP/IP.

- IP class
  - Class A
  - Class B
  - Class C
- IPv4 vs. IPv6
- Public vs. private vs. APIPA
- Static vs. dynamic
- Client-side DNS
- DHCP
- Subnet mask
- Gateway

2.4 Explain common TCP and UDP ports, protocols, and their purpose.

- Ports
  - 21—FTP
  - 23—TELNET
  - 25—SMTP
  - 53—DNS
  - 80—HTTP
  - 110—POP3
  - 143—IMAP
  - 443—HTTPS

    - 3389—RDP
- Protocols
    - DHCP
    - DNS
    - LDAP
    - SNMP
    - SMB
    - SSH
    - SFTP
- TCP vs. UDP

2.5 Compare and contrast wireless networking standards and encryption types.

- Standards
    - 802.11 a/b/g/n
    - Speeds, distances and frequencies
- Encryption types
    - WEP, WPA, WPA2, TKIP, AES

2.6 Install, configure, and deploy a SOHO wireless/wired router using appropriate settings.

- MAC filtering
- Channels (1—11)
- Port forwarding, port triggering
- SSID broadcast (on/off)
- Wireless encryption
- Firewall
- DHCP (on/off)
- DMZ
- NAT
- WPS
- Basic QoS

2.7 Compare and contrast Internet connection types and features.

- Cable
- DSL
- Dial-up
- Fiber
- Satellite
- ISDN
- Cellular (mobile hotspot)
- Line of sight wireless internet service
- WiMAX

2.8 Identify various types of networks.

- LAN
- WAN
- PAN

- MAN
- Topologies
    - Mesh
    - Ring
    - Bus
    - Star
    - Hybrid

2.9 Compare and contrast network devices their functions and features.

- Hub
- Switch
- Router
- Access point
- Bridge
- Modem
- NAS
- Firewall
- VoIP phones
- Internet appliance

2.10 Given a scenario, use appropriate networking tools.

- Crimper
- Multimeter
- Toner probe
- Cable tester
- Loopback plug
- Punchdown tool

3.0 Laptops 11%

3.1 Install and configure laptop hardware and components.

- Expansion options
    - Express card /34
    - Express card /54
    - PCMCIA
    - SODIMM
    - Flash
- Hardware/device replacement
    - Keyboard
    - Hard Drive (2.5 vs. 3.5)
    - Memory
    - Optical drive
    - Wireless card
    - Mini-PCIe
    - screen
    - DC jack
    - Battery
    - Touchpad

    - Plastics
    - Speaker
    - System board
    - CPU

3.2 Compare and contrast the components within the display of a laptop.

- Types
    - LCD
    - LED
    - OLED
    - Plasma
- Wi-Fi antenna connector/placement
- Inverter and its function
- Backlight

3.3 Compare and contrast laptop features.

- Special function keys
    - Dual displays
    - Wireless (on/off)
    - Volume settings
    - Screen brightness
    - Bluetooth (on/off)
    - Keyboard backlight
- Docking station vs. port replicator
- Physical laptop lock and cable lock

4.0 Printers 11%

4.1 Explain the differences between the various printer types and summarize the associated imaging process.

- Laser
    - Imaging drum, fuser assembly, transfer belt, transfer roller, pickup rollers, separate pads, duplexing assembly
    - Imaging process: processing, charging, exposing, developing, transferring, fusing and cleaning
- Inkjet
    - Ink cartridge, print head, roller, feeder, duplexing assembly, carriage and belt
    - Calibration
- Thermal
    - Feed assembly, heating element
    - Special thermal paper
- Impact
    - Print head, ribbon, tractor feed
    - Impact paper

4.2 Given a scenario, install, and configure printers.

- Use appropriate printer drivers for a given operating system
- Print device sharing
    - Wired

        - USB
        - Parallel
        - Serial
        - Ethernet
    - Wireless
        - Bluetooth
        - 802.11x
        - Infrared (IR)
    - Printer hardware print server
- Printer sharing
    - Sharing local/networked printer via Operating System settings

4.3 Given a scenario, perform printer maintenance.

- Laser
    - Replacing toner, applying maintenance kit, calibration, cleaning
- Thermal
    - Replace paper, clean heating element, remove debris
- Impact
    - Replace ribbon, replace print head, replace paper

5.0 Operational Procedures 11%

5.1 Given a scenario, use appropriate safety procedures.

- ESD straps
- ESD mats
- Self-grounding
- Equipment grounding
- Personal safety
    - Disconnect power before repairing PC
    - Remove jewelry
    - Lifting techniques
    - Weight limitations
    - Electrical fire safety
    - CRT safety—proper disposal
    - Cable management
- Compliance with local government regulations

5.2 Explain environmental impacts and the purpose of environmental controls.

- MSDS documentation for handling and disposal
- Temperature, humidity level awareness and proper ventilation
- Power surges, brownouts, blackouts
    - Battery backup
    - Surge suppressor
- Protection from airborne particles
    - Enclosures
    - Air filters
- Dust and debris
    - Compressed air

    - Vacuums
- Component handling and protection
    - Antistatic bags
- Compliance to local government regulations

5.3 Given a scenario, demonstrate proper communication and professionalism.

- Use proper language—avoid jargon, acronyms, slang when applicable
- Maintain a positive attitude
- Listen and do not interrupt the customer
- Be culturally sensitive
- Be on time (if late contact the customer)
- Avoid distractions
    - Personal calls
    - Talking to co-workers while interacting with customers
    - Personal interruptions
- Dealing with difficult customer or situation
    - Avoid arguing with customers and/or being defensive
    - Do not minimize customer's problems
    - Avoid being judgmental
    - Clarify customer statements (ask open ended questions to narrow the scope of the problem, restate the issue or question to verify understanding)
- Set and meet expectations/timeline and communicate status with the customer
    - Offer different repair/replacement options if applicable
    - Provide proper documentation on the services provided
    - Follow up with customer/user at a later date to verify satisfaction
- Deal appropriately with customer's confidential materials
    - Located on a computer, desktop, printer, etc.

5.4 Explain the fundamentals of dealing with prohibited content/activity.

- First response
    - Identify
    - Report through proper channels
    - Data/device preservation
- Use of documentation/documentation changes
- Chain of custody
    - Tracking of evidence/documenting process

2.2: The learning competencies are not measurable and are not complete. Reviewer recommends using the outcomes (above) to reference on the course syllabus.

2.3: The objectives are clearly written from the learner's perspective however are not measurable and not a good representation of the skills students will demonstrate or master.

2.4: The course activities clearly relate to the learning objectives. Reviewer suggests adding a table with activities, assessments and due dates including each of the lab projects that are assigned. Reviewer appreciates the various categories of weighted grades. The variety of the grading groups allows for diverse learning styles and opportunities for students to be successful.
2.5: The objectives are suited to the level of the course.

C. Assessment & Measurement (13 points total)		
3.1 The assessments measure the stated learning objectives or competencies.	3	**3**
3.2 The course grading policy is stated clearly.	3	**2**
3.3 Specific and descriptive criteria are provided for the evaluation of learners' work and are tied to the course grading policy.	3	**1**
3.4 The assessment instruments selected are sequenced, varied, and suited to the learner work being assessed.	2	**0**
3.5 The course provides learners with multiple opportunities to track their learning progress.	2	**0**
Total	6	

Comments:

3.1: The types of assessments provided are clear. One comment; under "Course Activities", it is listed that "Alternative course delivery methods are available upon request." – What does this imply? Is the instructor offering this course as a hybrid, online and face-to-face? Please be clear what this is meant to imply. The other course activities listed give an overview of what instructional methodologies will be present. Links to the TestOUT book and LabSim would be helpful in this section.

3.2: The grading policy is stated in the syllabus.

3.3: How will students be evaluated on this projects? Please include how evaluation will be done and possible links to rubrics from TestOUT.

3.4: Variation in instructional methodologies noted; good variety.

3.5: It is unclear how students will receive feedback; please provide in syllabus.

D. Instructional Materials (13 points total)		
4.1 The instructional materials contribute to the achievement of the stated course and module/unit learning objectives or competencies.	3	**3**
4.2 Both the purpose of instructional materials and how the materials are to be used for learning activities are clearly explained.	3	**3**
4.3 All instructional materials used in the course are appropriately cited.	2	**0**
4.4 The instructional materials are current.	2	**2**
4.5 A variety of instructional materials is used in the course.	2	**2**
4.6 The distinction between required and optional materials is clearly explained.	1	**0**
Total	10	

Comments:

4.1: The instructional materials align with the unit objectives stated in the syllabus. The Course content belongs to CompTIA A+ 801 and 802 exams.

4.2: Instructional materials provided; please ensure there are links to those materials and cited correctly. Links to privacy policies should also be added in the syllabus.

4.3: The reviewer did not locate citations for instructional materials. Reviewer suggests providing a citation list for all external resources; this is good practice.

4.4: The instructional materials are current**.**

4.5: The instructional materials vary; Reviewer appreciates the diversity of learning.

4.6: With the exception of Attendance, there is no mention of optional materials. Students will need additional resources and help guides for the two certification exams. The study guide would be a great optional resource that you could mention in the syllabus.

E. Course Activities and Learner Interaction (11 points total)		
5.1 The learning activities promote the achievement of the stated learning objectives or competencies.	3	**3**
5.2 Learning activities provide opportunities for interaction that support active learning.	3	**3**
5.3 The instructor's plan for classroom response time and feedback on assignments is clearly stated.	3	**0**
5.4 The requirements for learner interaction are clearly stated.	2	**0**
Total	6	

Comments:

5.1: The learning activities directly support the course/unit learning objectives. (This is assumed) – Reviewer could not locate any details from the syllabus, alone. However, this is copyrighted material.

5.2: There are opportunities for interactive and simulated learning.

5.3: The syllabus has no statement as to a timetable for instructor feedback. Try to give students a reasonable timeline to expect feedback on assignments.

5.4: The requirements for class participation are not stated in the course syllabus. Learners should be informed of how they will interact with others in the course, especially if credit is given.

F. Course Technology (10 points total)		
6.1 The tools used in the course support the learning objectives and competencies.	3	**3**
6.2 Course tools promote learner engagement and active learning.	3	**3**
6.3 Technologies required in the course are readily obtainable.	2	**2**
6.4 The course technologies are current.	1	**1**
6.5 Links are provided to privacy policies for all external tools required in the course.	1	**0**
Total	9	

Comments:

6.1: The tools in the course support the unit objectives. The assignments clearly state what tools/applications are needed to successfully complete the work.

6.2: The syllabus does not state any interactive projects.

6.3: The technologies are readily available.

6.4: The course technologies are current and up-to-date for the required work.

6.5: Privacy policies are usually available in the software use agreement. A review of the agreement for each application required in the course will insure that student data required for the use of the software is secure. Linking to the agreements will allow students to easily access the policies.

G. Learner Support (9 points total)		
7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	3	**0**
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	3	**1**
7.3 Course instructions articulate or link to an explanation of how the institution's **academic** support services and resources can help learners succeed in the course and how learners can obtain them.	2	**0**
7.4 Course instructions articulate or link to an explanation of how the institution's **student** support services and resources can help learners succeed in the course and how learners can obtain them.	1	**0**
Total	1	

Comments:

7.1: Providing students access to technology support is very important. Don't assume that students know how to obtain support from the institution. Provide instructions/links for students to access the technology help services available to them.

7.2: The syllabus contains an excerpt from the institution website pertaining to accessibility. Consider providing a link to the site or instructions for students to access the services. Please also include the contact name and not [insert name] and [email] – update to reflect most current information. Links are broken.

7.3: Access to the institutional academic support services is critical. Consider providing instructions/links to tutoring and other academic support services.

7.4: As with academic support, student wellness and support is also critical. Consider providing instructions/links to the institutional student support services.

H. Accessibility and Usability (12 points total)		
8.1 Course navigation facilitates ease of use.	3	**3**
8.2 Information is provided about the accessibility of all technologies required in the course.	3	**3**
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	2	**0**
8.4 The course design facilitates readability.	2	**2**
8.5 Course multimedia facilitate ease of use.	2	**2**
Total	**10**	

Comments:

8**.1:** Make sure navigation is easy and intuitive (minimum clicks to reach destination). – This is assumed.

8.2: If students must download/install technology other than the LMS, make sure clear instructions are provided. - Assumed

8.3: Text files, audio files, video files. Consider multiple delivery systems for course materials. The Americans with Disabilities Act requires institutions to make accommodations for student who identify as having a disability. Work closely with your institution's office for disability services to identify resources to assist in making your course ADA compliant. The Reviewer understands that due to the nature of this course, creating accessible accommodations to someone with a disability may be difficult to do however, required. Taking a look at the learning outcomes and the lab projects, please consider finding solutions for students who are blind or deaf. Creating videos or other instructional materials other than the required resources will be required. Verify your course is accessible by using a screen reader like JAWS, a free download.

8.4: Pay special attention to fonts, text color, and background color. Most learning management systems have a default appearance that is ADA compliant. Also, be aware that screen reader software will not recognize bold or italicized fonts. Check with your office of disability services before changing the appearance of your course. Also, note that the course syllabus was not compliant. Try to avoid bold and use tables for screen readers.

8.5: If possible, embed the media player in the page to assure ease of access. Reduce the instances of outside links to multimedia.

Part II: Employment Data

Stakeholder Involvement and Employment Opportunities
Items Reviewed include: • Internships, Job Shadowing Opportunities that exist with the outcomes and objectives with this course. • Employment opportunities for these skills. • Outcomes/Objectives are current and relate to job market.
Findings include: Please refer to the SME report.

Part III: Creative Commons

Items Reviewed include: • All course materials presented in Creative Commons? • Creative Common license (including graphic) is represented on course materials.
Findings include: Creative commons logo and licensure found.

Part IV: Subject Matter Expert (SME) Findings & Review

Course: KVCC: ETC250
Course Name: Computer technology Applications
Reviewed by: Anna J. Catterson, Ph.D.
Date: February 13, 2017

Background
Funded by a $13 million grant from the U.S. Department of Labor, ***Maine is IT!*** is building new educational and career pathways in information technology at all seven of Maine's community colleges. The programs funded by the grant are designed to support Maine workers eligible for the Trade Adjustment Assistance (TAA) program, un/underemployed adults, and workforce needs in Maine's growing IT sector. They have been built to serve individuals with a range of experience, from those interested in gaining basic IT skills to IT professionals looking to advance their careers through new industry certifications.

Overall Remarks and Reviewer Summary
In reviewing ETC250, several processes and data collections tools were noted and identified. This reviewer took in account the Dynamic Skills Audit conducted in 2014-2015. Both qualitative and quantitative data was identified in the report that provides the key elements:

1. Career opportunities do exist within 50 miles of KVCC for graduates from an AAS in Information Technology or those completing a certificate program. It was also found by this reviewer that the skills mastered in ETC250 relate to specific job openings. More than 10 jobs were located near Augusta, Maine, a 31-minute drive from KVCC campus. Jobs posted that directly relate to ETC250 include:
    - **Information Security Analyst, Maine Public Employees Retirement System**
        - Knowledge of commonly-used concepts and data security procedures used within Information Technology.
        - Knowledge of NIST 800 series of cybersecurity best practices and frameworks.
        - Knowledge of Security Information and Event Management (SIEM) log analysis and event detection.
        - Knowledge of computer operating system architecture and management information system.
        - Knowledge of computer networking and data communication.
        - Ability to prepare and test data security programs.
        - Demonstrated understanding of business procedures.
        - Strong interpersonal skills and the ability to focus on the Guiding Principles when engaging others.
        - Demonstrated excellent analytical/critical thinking, problem-solving/decision making and troubleshooting skills.
        - Ability to utilize internet knowledge bases and other resources to preform research.
        - Ability to stay abreast of security industry activity including recent breaches and preventative techniques.
        - Knowledge of change management principles and the ability to effectively introduce change positively within the work environment.
        - Ability to establish and maintain effective working relationships with management, vendors, and other technical and non-technical peers.
        - Ability to effectively conduct meetings.
        - Ability to communicate effectively orally and in writing.

    - Ability to present information to a diverse audience in a clear and professional manner.
    - Ability to work independently, as well as part of a team.
- **Technical Customer Support Consultant – DVMax; IDEXX Laboratories, Inc.**
    - Possess excellent verbal and written communication skills
    - Be able to type 60 WPM
    - Be detail oriented, including the ability to understand a client's needs and issues and translate them into a clear, legible format.
    - Have a good understanding of both Windows and Macintosh computer hardware and operating systems.
    - Have solid foundation in the use of Microsoft Office applications including Word, Excel, and PowerPoint is needed.
    - Have strong troubleshooting skills.
    - Have an aptitude for learning new software and features through manuals, the Internet, trial-and-error, and internal resources.
    - Have a genuine interest in new technology, and the products we currently offer.
    - Have an overall knowledge of the veterinary profession and business management in general would be advantageous to someone in this position.
- **Client Systems Administrator, Vermont Energy Investment Corporation (VEIC)**
    - Strong personal commitment to the mission, vision, goals and values of VEIC.
    - Associate's degree in, management of information systems, computer science or a combination of education and experiences from which comparable knowledge and skills are acquired.
    - 4 years of experience managing client systems or a combination of education and experience from which comparable knowledge and skills are acquired.
    - Proficiency with Microsoft System Center Configuration Manager, Active Directory and Group Policy are required.
    - Extremely strong analytical and troubleshooting skills.
    - Strong interpersonal skills, written and oral communication skills and customer service approach.
    - Operational knowledge of Windows operating system deployment, desktop and laptop hardware/drivers, and 1 or more scripting languages, PowerShell preferred.
    - Proficiency with word processing, spreadsheet and database software.
    - Demonstrated ability to be organized, detail-oriented, accurate, and able to handle multiple tasks and competing priorities in a dynamic and fast paced environment.

The reviewer suggests consideration of additional written and oral communication assessments in the ETC250 course. The Dynamic Skills Audit outlined the following process, which this reviewer took into consideration when compiling this the formal SME report:

1. Local industry needs were assessed through the program Advisory Board. Minutes from those Advisory Board meetings were reviewed and suggestions from the partnerships were adopted into this summary.
2. Burning Glass data was reviewed to identify themes and trends in the current job market. The Burning Glass report helped identify skills demanded by employers to curriculum outcomes and learning objectives. Again, the Advisory Board committee has identified key soft skills that should be incorporated into the assessments and/or course outcomes and should also be a considered as a direct tie to the program outcomes.

A. Program and Course Overview and Objectives

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

The ETC250 course learning outcomes and objectives are clear and measurable. Action verbs start each student learning outcome and application of several technologies can be measured.

The industry sector for ETC250has been categorized as: *541519 Other computer related services*. (See: https://www.census.gov/svsd/www/services/sas/sas_summary/54summary.htm#sectordescription) The reviewer finds that this classification is correct.

Those completing this course would enter the Bureau of Labor Statistics occupation classification of *15-1152 Computer Network Support Specialist.* (See: https://www.bls.gov/soc/2010/soc151152.htm) This is defined as: Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption. Excludes "Network and Computer Systems Administrators" (15-1142) and "Computer Network Architects" (15-1143).

The NCES CIP (Classification of Instructional Programs) is referenced as: 11.0901: Computer Systems Networking and Telecommunications. A program that focuses on the design, implementation, and management of linked systems of computers, peripherals, and associated software to maximize efficiency and productivity, and that prepares individuals to function as network specialists and managers at various levels. Includes instruction in operating systems and applications; systems design and analysis; networking theory and solutions; types of networks; network management and control; network and flow optimization; security; configuring; and troubleshooting. (See: https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=87259)

This course was designed for 1st-year community college students or equivalent. Some course pre-requisites include Computer Technology Fundamentals and Data Communication Systems.

Specific review standards are listed in the table referenced below:

Table: Standard Reviewed Standards for Course Outcomes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
A.1 The learning outcomes are clearly stated and mapped to specific objectives and/or assignments.			X
A.2 Prerequisites and/or any required competencies are clearly stated.		X	
A.3 Learning objectives for each course describe outcomes that are measurable.			X
A.4 Learning objectives are appropriately designed for the level of each of the course.		X	
A.5 Instruction, activities, and assignments in courses are scaffolded from course to course, and throughout the program.		X	

A.1– ETC250 student learning outcomes need revised to be more descriptive and follow the CompTIA exam 801 and 802. Objectives were provided in this report.
A.2 – Yes, pre-requisites are clearly stated.
A.3 – Course outcomes are not measurable. Use action verbs to relate to students what they will be doing, learning, demonstrating or mastering.
A.4 – Learning objectives are appropriate for an introductory course.
A.5 – This course offers great variety of learning activities and Reviewer commends the additional effort put forth on the different assignment types.

B. Relevancy

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

Course competencies are relevant to students, industry, and employers. Strong evidence was found in the Dynamic Skills Audit Summary Report. Direct ties were found through interviews with stakeholders and in Advisory Board minutes.

The table that follows is a clear matrix of how the course outcomes are relevant to students, industry, and employers:

Table: Matrix of evidence-based skills mapped to students, industry, and employers

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
B.1 Course competencies represent industry's expectation of the overarching knowledge, skills, and abilities that 1st year college students should possess.		X	
B.2 Core course competencies are relevant to **industry and employer**s.		X	
B.3 Instruction, activities, and assignment in individual courses are relevant and engaging to		X	

B.1 - Course objectives align with industry expectations at the appropriate skill level. Specific jobs found that relate directly to student learning outcomes.
B.2 - Core competencies are relevant to industry and employers, as verified using the Burning Glass labor market data (http://burning-glass.com/research/coding-skills/) and the Dynamic Skills Audit Summary. Student learning objectives align with the competencies expected of the networking field. Several state jobs were found by the Reviewer as of 2/14/1017, it is suggested to articulate partnerships with the State of Maine allowing for direct internships or job shadowing opportunities. This will help build the soft skills that were deemed an important trait by the Advisory Board AS WELL AS the jobs found. Direct language from the jobs required strong interpersonal skills which includes both written and oral communication. Reviewer suggests including these skills directly into this course (noted that this is a lab only course, however, collaborative efforts could be adopted and should be considered).
B.3 - Activities and instruction defined in the course table of contents are engaging, however, learners need to know what type of engagement and interaction will be expected of them. It is best practice to place this into the course syllabus.

C. Resources & Materials

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

Textbook contents, CompTIA 801 and 802 exams are aligned with course objectives that the Reviewer shared although the learning activities listed in the syllabus were not described or correlated with unit-level objectives. The textbook is current and the simulated learning environment with LabSIM is a good fit for this course. There are several OER resources that could be included for students (Open Educational Resources). Students may inquire about an optional study guide, Reviewer recommends including this. Microsoft has some great resources as well that are free and could be included in the syllabus as OPTIONAL MATERIALS.

Table: Instructional materials and their direct link to course outcomes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
C.1 The instructional materials contribute to the achievement of the stated course learning objectives.		X	
C.2 The purpose of the instructional materials is clearly explained.		X	
C.3 The instructional materials present a variety of perspectives and approaches on the course		X	
C.4 The instructional materials are appropriately designed for the level of the course.		X	

C.1 – Instructional materials should align with the course outcomes; Reviewer recommends creating a curriculum map.

C.2 – Explanations of lab projects should be included in the course syllabus. Reviewer noted in this review that a table with due dates and alignment to student learning outcomes should be considered.

C.3 –The technology content varies throughout the course.

C.4 – Because the materials align with appropriate course outcomes, they are a good fit for the level of course.

D. Assessment & Measurement

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

Table: Measurement of effective learning

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
D.1 The course evaluation/criteria/course grading policy is stated clearly on each syllabus.		X	
D.2 Course-level assessments (those that can be delivered) measure the stated learning objectives and are consistent with course activities and resources.		X	
D.3 Specific and descriptive criteria are provided for the evaluation of students' work and participation and are tied to the course grading policy.			X
D.4 The assessment instruments (that can be delivered) are sequenced, varied, and appropriate to the content being assessed.		X	

D.1 – The grading policy is clearly stated. The categories of assignments have been commended in this report.
D.2 – This is assumed. The Reviewer could not verify that the labs were a direct relation to the student learning outcomes. It is suggested to create a curriculum map to see the alignment between the two. This would strengthen the assessment/accreditation piece. (TAACCCT note – this could also be aligned with equipment purchased for a more granular assessment).
D.3 – No criteria or guidance is given to let students know how their work throughout the course would be evaluated to provide feedback on their progress. The listed lab project activities are not labeled as "assignments." Especially if these activities will not contribute to the final grade, the purpose for each one should be made clear to students. Describing what will be done in each assignment and how it contributes to the course outcomes will serve this purpose and motivate students to complete these ungraded activities.
D.4 – It is assumed that the lab projects build from one to the next; only assumed not verified.