Formal Evaluation and Subject Matter Expert Summary Report

NET221

Submitted to Maine is IT in fulfillment of the
TAACCCT grant requirements
By
Emporia State University

January 2017

Course Review for: Maine is IT
Course: YCCC: NET221 - Network Security
Reviewed by: Joseph Kern
Date: 1/12/16

Materials reviewed include the course syllabus, one quiz, and lecture note files with accompanying activities. Other materials and activities are protected by the publisher's copyright and are unable to be shared.

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	**2**
1.6 Prerequisite knowledge in the discipline and/or any required competencies are clearly stated.	1	**0**
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		**8**

Comments:

1.1: The syllabus provides a good introduction to the course, including the instructional format. It would be helpful to provide a link to the LMS and instructions to help students access the course and its contents. Consider adding support to guide students through the LMS.

1.2: The purpose of the course is clearly and succinctly stated. The course format is explained from the student perspective.

1.3: General student expectations are listed, including the need for respect, civility, and good cooperation among classmates. Because Blackboard discussions and other electronic communication are a part of the course, a section of "netiquette" is recommended to provide helpful guidelines that prevent the miscommunication that frequently occurs with e-communication. *Examples include:*
- Be sensitive to the fact that there will be cultural and linguistic backgrounds, as well as different political and religious beliefs, plus other 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: Many policies, including absences, academic dishonesty, and late work are covered. References are made to college-wide information about these, but hyperlinks directly to these locations would be more helpful.

1.5: Necessary technology and general minimum requirements are listed. It would be helpful if direct links to downloadable software were provided along with any relevant instructions for installing the software. There are more precise user instructions listed within some of the provided course activities.

1.6: The syllabus does not list prerequisites or expectations of students' knowledge when entering the course, although the YCCC course catalog does list NET110 as a prerequisite. Even if no formal prerequisite courses exist, students may appreciate a statement of the level of computer competency required for initial success.

1.7: Minimal skills for students entering the course are not listed.

1.8: No introduction for the instructor or link to an online introduction is given.

1.9: Nothing in the syllabus or provided materials indicates that students are asked to introduce themselves.

B. Learning Objectives & Competencies (15 points total)

2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable.	3	**3**
2.2 The module/unit learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies.	3	**3**
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		**13**

Comments:

2.1: The course learning objectives are measurable.

2.2: Provided lecture notes include objectives that are measurable. Some lecture notes also include accompanying activities with measurable objectives.

2.3 : Learning objectives and competencies are clearly stated from a student perspective.

2.4: While the topics included in course and lesson outcomes are evidently connected, it would be helpful to include cross-referencing between these. Students who can look at course objectives to see what lessons address each one are more easily able to review material when necessary.

2.5: Objectives are suited to the level of this 200-level 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	**3**
3.3 Specific and descriptive criteria are provided for the evaluation of learners' work and are tied to the course grading policy.	3	**3**
3.4 The assessment instruments selected are sequenced, varied, and suited to the learner work being assessed.	2	**2**
3.5 The course provides learners with multiple opportunities to track their learning progress.	2	**2**
Total		**13**

Comments:
3.1: The provided assessments are consistent with the learning objectives.
3.2: Course grading policy is clear and succinct.
3.3: Grading criteria for most assignments is based on simple correct/incorrect answers, which is appropriate for the content and the objectives.
3.4: Assignments are sequenced to follow the chapters of the course textbook. The examples of assignments provided for review were varied and appropriate for the students and the course.
3.5: Each topic has homework assignments, labs, and quizzes with which students can gauge their progress.

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	**2**
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	**1**
Total		**13**

Comments:
4.1: The provided course materials contribute to course objectives and unit objectives.
4.2: The purpose and use of instructional materials for student learning are adequately explained in the syllabus.
4.3: The textbook is sited by title, author, and ISBN.
4.4: The textbook was published in 2008, making it relatively current for the topic.
4.5: Materials include lectures, PowerPoint presentations, in-class activities, and content researched by the students. These are adequately varied.
4.6: Nothing indicates that optional materials exist.

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	**2**
Total		**8**

Comments:
5.1: Activities apply a hands-on approach to achieve the objectives.
5.2: Students are expected to work cooperatively and will engage in active network security tasks.
5.3: No plan is provided for classroom response time or assignment feedback.
5.4: The requirements listed regarding class participation are above-average in explaining the level of interaction expected from students.

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 software used in the course support the learning objectives.
6.2: Based on activity descriptions, course tools do promote learner engagement and active learning.
6.3: Software and equipment listed in the syllabus is either freely available or is provided by the institution.
6.4: Course technologies are current.
6.5: No links are provided in the syllabus. 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	**2**
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		**2**

Comments:
7.1: No technical support information is provided in the syllabus. It is recommended that multiple channels of tech support communication be listed in the syllabus to ensure that no student is put behind due to technical difficulties.
7.2: A "Reasonable Accommodations" statement is made, along with a statement directing any student with special needs to contact the correct YCCC office. To more adequately serve students the syllabus should include contact information for this office, along with a link to their webpage.
7.3: No academic resources are listed. If tutoring, advising, or other student services are available to support academic success, these should be listed along with links or contact information.
7.4: No student support services or resources are listed. If there are services to support student life resources, such as counseling or student wellness, these should be listed along with links or contact information. There is usually a statement made regarding how students can seek help if they feel discriminated against.

H.   Accessibility and Usability (12 points total)

8.1 Course navigation facilitates ease of use.	3	**0**
8.2 Information is provided about the accessibility of all technologies required in the course.	3	**0**
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	**0**
8.5 Course multimedia facilitate ease of use.	2	**0**
Total		**0**

Comments:

8.1: Unable to review this item, as no Blackboard LMS access to the course was provided. Course navigation should be designed to minimize the number of clicks necessary to access information.

8.2: Information regarding the accessibility of technology used is not included. This would include instructions on how to obtain and install any programs used.

8.3: Unable to review this item. In addition to varying the modality of content through text, audio, and video instruction, 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. For videos, a transcript or videos that are captioned are required as an effective means of communication.

8.4: Unable to review this item. 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.

8.5: Unable to review this item. When possible, embedding multimedia within the course LMS ensures ease of access and limits student issues that may arise when leaving the LMS to access outside resources.

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.
• See Subject Matter Expert review for specific feedback.

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: All course content provided for review includes Creative Commons license information and the corresponding CC graphic.

Course: YCCC: NET221
Course Name: Network Security
Reviewed by: Joseph Kern
Date: January 12, 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 NET221 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 were found within 25 miles of YCCC for graduates from an AAS in Information Technology.
2. Current job openings list specific duties that relate the Network Security course, NET221.

There are several current job openings available for network security specialists and general network technicians (as of 1/12/17) within a 25-mile radius of YCCC. Most positions require several years of work experience, although at least one accepts applicants with as few as one year. A Network/Desktop Systems Specialist is being sought by the McKesson healthcare records service.
(https://mckesson.taleo.net/careersection/ex/jobdetail.ftl?job=16008848&src=JB-10560)
The job duties include several functions explicitly linked to the NET221 course:
- *Maintains password security, data integrity, and file system security.*
- *Working knowledge of Microsoft O/S applications, workstation hardware, and network & communication protocols.*

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.

A formal SME was conducted with the above reports and compiled in the next section of this report.

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 NET221 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the NET221 course has listed measurable outcomes which can be stacked with other coursework. The industry sector for NET221 has 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 *SOC:15-1122 Information Security Analysts*. (See: http://www.bls.gov/soc/2010/soc150000.htm#15-1100)

The NCES CIP (Classification of Instructional Programs) is referenced as: *11: Computer and Information Sciences and Support Services*. (See: http://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cip=11) This is also an accurate classification.

This course was designed for 2nd-year community college students or equivalent. Network Fundamentals, NET110, is listed in the YCCC course catalog as a prerequisite, although this is not listed in the course syllabus.

Listed course objectives include:
1. Identify major different protocol attacks to which TCP/IP is susceptible.
2. Describe how cryptography improves network security.
3. Compare physical access control to logical access control.
4. Describe several areas of networking where security must be considered
5. Install and configure a firewall.
6. Explain how a remote access and a point-to-point VPN work.
7. Describe the risks in adding new server to an existing network.
8. Install and configure an intrusion detection system (IDS).
9. Demonstrate the function of an IDS by analyzing a simulated intrusion.
10. Describe how an audit trail is used after an attack has occurred.
11. Explain how the different protocol attacks work against an organization's network.

The content of these course objectives aligns with the topics listed in the course syllabus, the required textbook, and the listed certification exam. This alignment also correlates to items found within the Dynamic Skills Audit and Burning Glass baseline skills as listed in the labor market data.

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– NET221 articulates specific learning outcomes for the course, and Course Objectives are aligned with these. The syllabus would be improved by providing cross-references between course objectives and the semester's units/topics shown in a course outline or timeline.

A.2 – Previous skills and knowledge are not stated in the syllabus, although NET110 is listed in the course catalog as a prerequisite. As this is a 200-level course with a prerequisite, knowing what is expected of students as they enter can help them prepare for the course.

A.3 - Course objectives are measurable.

A.4 - Learning objectives are appropriate for a 200-level course.

A.5 – Activities appear to be scaffolded through the course. The skills mastered in previous courses will serve students in NET221. The course's objectives fill an industry need within the program.

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 **students**.		X	

B.1 - Course objectives align with industry expectations at the appropriate skill level, based on employee responsibilities found in current job postings.
B.2- Core competencies are relevant to industry and employers, as verified using the Burning Glass labor market data http://burning-glass.com/five-careers-where-coding-skills-will-help-you-get-ahead/)
and the Dynamic Skills Audit Summary. Student learning objectives align with the competencies expected of employees in network support fields and those listed by the Advisory Board.
B.3 - Activities and instruction defined in the course outline offer real-world application in computer network support that are beneficial to students seeking employment in this field.

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:

Not all instructional materials were made available for review due to the copyright held by the publisher. Textbook contents/topics were not available in course materials or online, although the syllabus stated that companion materials included tests and PowerPoint presentations that would be used in the course.

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 content.		X	
C.4 The instructional materials are appropriately designed for the level of the course.		X	

C.1 – The topics covered with the shared course materials clearly align with course learning objectives.

C.2 – The purpose of instructional materials was clearly explained in the syllabus and in each document.

C.3 – The materials include lecture notes provided by the instructor, content contributed through student research and discussion, the textbook, and companion materials. Hands-on computer activities also provide content. These sources and methods present an adequate variety of materials and approaches.

C.4 – Materials are appropriate for the course level and its complex content.

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:

A variety of formative assessments are used throughout the course, and examples of these were shared for review. One of the weekly quizzes was shared, although more quizzes and the course exams are under copyright protection.

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.
D.2 – The assessments provided for review adequately assess the learning objectives at multiple cognitive levels and are consistent with course activities.
D.3 – The clearest (and most impressive) criteria related to students' active participation in class activities. Assessments available for review lent themselves to straight-forward right-wrong competencies, so a lack of criteria for these is acceptable. All assessments were clearly tied to the course grading policy.
D.4 – The sequence of the assignments is clear, as they follow the progression of the course to build toward its outcomes. The variety of assessments is adequate, as assignments provided for review cover a range of content-focused activities, each in unique ways appropriate for the knowledge and skills being assessed.