Formal Evaluation and Subject Matter Expert Summary Report

ETC244

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

EMPORIA STATE UNIVERSITY
INFORMATION TECHNOLOGY

February 10, 2017

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Course Review for: Maine is IT
Course: KVCC: ETC244 - Electronics Application Lab
Reviewed by: Joseph Kern
Date: 2/10/16

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This review is based solely on the syllabus of the ETC244 course. No other course materials were made available.

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	**0**
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	**1**
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	**6**	

Comments:

1.1: No link to the LMS or instructions are given to help students access the course or its contents. Consider adding a direct course link.

1.2: The purpose of the course is clearly and succinctly stated. The descriptions of the lab activities and design projects adequately explain the course structure.

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 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: Course and institutional policies adequately cover absences, academic dishonesty, etc. The KVCC Student Code of Conduct is linked to support student navigation.

1.5: A table of required electronic equipment is provided, along with hyperlinks for purchase. The hyperlinks do not lead directly to the items, but to the supplier's search page, where the listed part numbers can be located. No written instructions regarding this equipment are provided.

1.6: A prerequisite course is indicated, but no knowledge vital to the success of incoming students is listed. Three corequisite courses are listed. These supply the content that this lab course is designed to put into practice.

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 indicates explicitly 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	**2**
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	**3**
2.5 The learning objectives or competencies are suited to the level of the course.	3	**3**
Total	**11**	

Comments:

2.1: The course learning objectives are measurable if appropriate rubrics are developed to itemize the student competencies involved in each "Demonstrate skills in..." outcome. Without rubrics or checklists of skills, the objectives would be too vague to apply objectively.

2.2: This course is unique in that no units or content are presented. The course is a place where student projects will be completed to support other content courses and synthesize their various topics. As a result, this review criterion is not applicable.

2.3 : Objectives are written from student perspectives.

2.4: All objectives are completely activity-based, so the link between objectives and student activities is clear.

2.5: Objectives are appropriate for the course level.

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	**1**
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	**11**	

Comments:

3.1: Assessments consist of weekly lab projects and creation of a Senior Design Project with a technical paper and presentation. The lab assignments from the corequisite courses are not available for review, so whether they align with all of the ETC225 objectives is not clear, but it is probable, based on the course descriptions of these other courses.

3.2: Course grading policy is clear and succinct.

3.3: No criteria are provided for evaluating student performance with the assessments, but assignments are tied to the course grading policy.

3.4: The variety of topics leads to a variety of work being done and evaluated. Inclusion of a design project, technical paper, and presentation provide distinct avenues to assess students' professional performance.

3.5: Although the feedback available to students from each assignment is not described, the active learning should adequately allow students to 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	**0**
4.2 Both the purpose of instructional materials and how the materials are to be used for learning activities are clearly explained.	3	**0**
4.3 All instructional materials used in the course are appropriately cited.	2	**0**
4.4 The instructional materials are current.	2	**0**
4.5 A variety of instructional materials is used in the course.	2	**0**
4.6 The distinction between required and optional materials is clearly explained.	1	**1**
Total	**1**	

Comments:
The only material listed in the syllabus is a lab manual, which is not described. As ETC244 serves as a work lab for other courses, the inclusion of instructional material may not be applicable in most cases.

4.1: Unable to review.
4.2: The purpose of the lab manual is not explained.
4.3: No citations are included for any materials.
4.4: Unable to review.
4.5: Unable to review.
4.6: The only material listed in the syllabus is provided to the students. It can be inferred that no 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	**2**
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	**5**	

Comments:
5.1: Activities apply a hands-on approach to achieve the objectives.
5.2: Students interact actively with content. Nothing indicates that students are encouraged to interact with each other to learn.
5.3: No plan is provided for classroom response time or assignment feedback.
5.4: No requirements are listed for learner interaction.

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: Equipment used in the course, listed in the course description and objectives, is appropriate for supporting the objectives.

6.2: Tools used in labs promote active learning

6.3: Equipment that students are required to purchase were available online, with links provided.

6.4: Technologies included in the syllabus are current for their applications.

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	**3**
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	**3**	

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: Specific steps are listed for students needing disability accommodations. Contact information for appropriate offices and a link to the KVCC ADA Policy are provided

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: Other than contact information to report and address discrimination, 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.

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. 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: The syllabus indicates that all course materials other than the syllabus are subject to a copyright held by Microsoft, and thus, may not be shared in Creative Commons. The syllabus includes Creative Commons license information and the corresponding CC graphic.

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

Course: KVCC: ETC244
Course Name: Electronics Application Lab
Reviewed by: Joseph Kern
Date: February 10, 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 ETC244 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 25 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 ETC244 relate to specific job openings.
2. Current job openings list specific duties that relate the Electronics Application Lab course, ETC244.
3. The current Advisory Board indicates that ETC244 contributes to the labor market data.

There are several current entry-level job openings available for field technicians, as well as more permanent jobs for electronics technicians with as few as 2 years of experience (as of 2/10/17) within a 25-mile radius of KVCC. An E&I Technician is currently being sought by the Huhtamaki food services company. The job description includes activities that align with ETC244, such as:

- *Analyzes circuits, wiring diagrams and drawings to install, repair, calibrate, service or replace electronic devices and systems*
- *Receives wiring diagrams, specifications and instructions from supervisor covering emergency repairs.*
- *Performs work requiring a thorough knowledge of electrical theory and principles, statutory codes, properties of materials and principals of operations of electrical equipment.*

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 ETC244 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the ETC244 course has listed measurable outcomes which can be stacked and latticed with other coursework. The industry sector for ETC244 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:17-3023 Electrical and Electronics Engineering Technicians.* (See: https://www.bls.gov/soc/2010/soc170000.htm)

The NCES CIP (Classification of Instructional Programs) is referenced as: *15: Engineering Technologies and Engineering-Related Fields*. (See: https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=88137) This is also an accurate classification.

This course was designed for 2nd-year community college students or equivalent. There is one course prerequisite listed and three corequisites.

Listed course objectives:

- Demonstrate skills in analog circuit test and measure.
- Demonstrate skills in electronic communication system circuit and systems.
- Demonstrate skills in the implementation of microcontroller applications.
- Demonstrate skills in microcontroller C language programming.
- Demonstrate skills in the use of engineering grade electronic test and measurement equipment.
- Demonstrate the skills in the use of time and frequency domain test and measure.
- Demonstrate skills in the use RF Spectrum Analysis.
- Demonstrate skills in the use of RF transmission line and antenna testing.
- Present an electronics design project which incorporates the use of analog circuits, digital circuits and the microcontroller.
- Present an electronics design project which incorporates the use of the C Programming language.
- Create a professional technical writing document.

The content of these course objectives aligns with the topics listed in the course syllabus and online course materials. 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- ETC244 articulates specific learning outcomes for the course. Most lab work is in connection with other courses and their objectives. Connections between senior design project work and its objectives are clear.
A.2 – One prerequisite course is listed, but previous skills and knowledge are not stated.
A.3 - Course objectives are measurable.
A.4 - Learning objectives are appropriate for a 2nd-year course.
A.5 – Activities appear to be scaffolded through the course, building in complexity throughout the course. They are latticed with corequisites in the program. 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 2nd 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, as they correspond to entry-level job requirements.
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 new hires in the web development field and those listed by the Advisory Board.
B.3 - Activities and instruction defined in the course outline offer real-world application in troubleshooting, creating, and coding electronic circuitry, which 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:

No course materials were made available for review, other than the syllabus.

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 – No instructional materials seem to be required for this course, as content is delivered through corequisite courses.
C.2 – The purpose of the lab manual is not explained.
C.3 – Unable to review
C.4 – Unable to review

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.
D.2 – Assessments were not available for review, but the use of in-class labs covering each topic suggest that the learning objective would be sufficiently assessed.
D.3 – No evaluation criteria are provided, but assignment groups are tied to the grading policy.
D.4 – The progression of course topics listed in the objectives would provide adequate sequence, and variety to lab assessments. The senior design project and its supporting components are appropriate to demonstrate student's summative professional work.