

Formal Evaluation and Subject Matter Expert Summary Report



Maine is IT!
INFORMATION TECHNOLOGY
A CONSORTIUM OF MAINE'S SEVEN COMMUNITY COLLEGES

ETC125

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

*By
Emporia State University*

EMPORIA STATE
UNIVERSITY
■ INFORMATION TECHNOLOGY

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Course Review for: Maine is IT
Course: ETC 125 Computer Technology Fundamentals
Reviewed by: Rob Gibson, EdD
Date: January 30, 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	2
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	1
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		10
Comments:		
<p>1.1: Some <i>Getting Started</i> components were included in the syllabus. However, the Reviewer would have liked to see a more thorough course navigation topology – even if the Blackboard course shell is supplemental to face-to-face instruction. As a student, I would like to know what content is located in the Blackboard shell and its navigation structure. This can be articulated in the syllabus, as a secondary document, or within the Blackboard course itself.</p> <p>1.2: The purpose and structure for the course was clearly explained in the syllabus.</p> <p>1.3: Etiquette expectations (sometimes called “netiquette”) for online discussions, email, and other forms of communication should be covered. Examples include:</p> <ul style="list-style-type: none"> • 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: Attendance Policy and Academic Honesty Policy were both described. The Reviewer would have liked to see a link to both policies within the syllabus.

Note: This is an on-ground course. The Attendance Policy was discussed, but no parameters as to how absenteeism would affect a student's grade was discussed other than to indicate it could impact employer references. A stronger attendance policy might help reduce potential ambiguity.

1.5: Technology requirements were stated in the secondary documents supplied by the college. It is assumed the college will provide all necessary technology and related components.

1.6: Prerequisite knowledge and co-requisite knowledge/competencies were clearly indicated.

1.7: See 1.6

1.8: Difficult to ascertain because access to the Blackboard course was not provided. The instructor's contact information is indicated in the syllabus which the Reviewer found helpful. An instructor biographical sketch is helpful to students.

1.9: Difficult to ascertain because access to the Blackboard course was not provided. This is an activity that can occur face-to-face or online.

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	2
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	2
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 clearly expressed using action-oriented verbs. The Reviewer applauds the detail. However, the Reviewer recommends developing both objectives and outcomes. In Instructional Design this is referred to as first and second level objectives. The first-level objectives describe the desired performance or behavior. The second-level objectives describe the specific outcomes/competencies desired by the instructor as measured using clearly stated assessments, activities or other evidence. As a heuristic, there are normally 3-5 second-level objectives for each first-level objectives.

2.2: The syllabus describes learning objectives using measurable language and verbs. Consider mapping these course-level learning objectives to the overall program outcomes/competencies. Those would be the outcomes required for program accreditation.

2.3: The course learning objectives clearly state what the learner is to accomplish by the end of the course. The Reviewer considers these to be well written.

2.4: The Reviewer noted an association between learning objectives and the course outline. The Reviewer recommends strengthening this association/crosswalk using more robust language to define the linkage between the stated objectives and individual course activities. A general overview of projects and activities was indicated, but more detailed information relative to these course tasks would strengthen the syllabus. For example, "Introduction to Semiconductors" > maps to _____ course/program/division outcomes or competencies. At some colleges and universities there may be a "conceptual framework" or program-based learning outcomes that provides these guiding student learning principles. Accreditors look for these linkages. (eg, How does this course and its activities map to the larger program or college goals. The Reviewer encourages expressing these linkages so that the student can see how the unit is associated with the broader learning outcomes.)

2.5: This assumed to be accurate. The course activities appear to support this requirement.

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	1
3.5 The course provides learners with multiple opportunities to track their learning progress.	2	1
<i>Total</i>		11

Comments:

3.1: Difficult to ascertain from the syllabus alone, but it is assumed the assessments (Exams and Final Exam) align with the Certified Electronics Technician (CET) criteria as noted in Course Activities. This leads to a potential culminating certification exam.

3.2: The grading policy/rubric is stated in the syllabus. The Reviewer applauds this detail.

3.3: The Reviewer found descriptive criteria associated with the grading policy.

3.4: There was a high-level description of assessments. The Reviewer would have preferred a more detailed breakdown of the exams relative to each week/module/unit with course objective alignment clearly indicated. In other words, express the crosswalk between the exams and the learning outcomes.

3.5: The Reviewer couldn't locate any evidence of tracking learning progress. (e.g., Circle back activities, mastery learning pathways, etc.) However, course activities appear to build on one another - providing scaffolding.

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 instructional materials aligns with the course and unit objectives stated in the syllabus. There are online resources and a variety of online resources made available.

4.2: The purpose of the instructional materials in the course is explained and aligns with each unit assignment.

4.3: The instructional materials were properly cited.

4.4: The instructional materials are current.

4.5: The instructional materials by unit and assignment.

4.6: Optional materials are not part of this course.

Note: Content conforms to ETA Certified Professional Exam

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	2
5.4 The requirements for learner interaction are clearly stated.	2	2
	Total	10

Comments:

5.1: The learning activities directly support the course/unit learning objectives.

5.2: There are opportunities for interactive learning. This is a theory/lab course with significant opportunity for students to gain knowledge through hands-on activities.

5.3: A plan for feedback is specified in the syllabus under *Communication*. However, a policy/expectation regarding communication and feedback was not found. This might include expectations as to instructor feedback on weekends and evenings, etc. Note: This may be included in the Blackboard course.

5.4: Some requirements for expected learner interaction are clearly specified under *Communication*. This is a face-to-face course, so online discussions are not factored.

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/weekly objectives. The assignments clearly state what tools/applications are needed to successfully complete the work.

6.2: The tools promote engagement and active learning. The assignments promote active student engagement by requiring interaction with the technology to build content for assignments.

6.3: The tools will be provided by the college and through independent resources. There is some cost involved to the student. (Textbook and lab manual)

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

6.5: Certain policies (eg, ADA, Codes of Conduct, etc.) are provided via extracted policy wording. However, the Reviewer was unable to locate links to privacy policies (eg, HIPAA, FERPA, etc.) Consider including that language in the course syllabus.

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: 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 and a link to the institution website pertaining to accessibility. The Reviewer applauds this information.

7.3: Access to the institutional academic support services is critical. Consider providing instructions/links to tutoring, writing center, library, 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. These might include health and wellness, child care, counseling, international, and other services provided by the college.

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	2
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	2	2
8.4 The course design facilitates readability.	2	2
8.5 Course multimedia facilitate ease of use.	2	2
Total		11

Comments:

8.1: Implied. The Reviewer did not have access to the Blackboard course.

8.2: This could be strengthened to include information specific to students with physical or learning disabilities. This course includes a significant hands-on components. Expressing the accessibility of the course materials and tools is important.

8.3: Implied. The Reviewer did not have access to the Blackboard course. 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 assumes this has been considered. Microsoft software includes an Accessibility Checker. Certain learning Management Systems also include accessibility checkers.

8.4: Implied. The Reviewer did not have access to the Blackboard course. Consider processing this course through an ADA checker. Webaim is one such option. <http://wave.webaim.org>

8.5: Implied. The Reviewer did not have access to the Blackboard course. Ensure content, such as videos, are easy accessed and include either 1) captioning and/or 2) a transcript.

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:

- See Subject Matter Expert review for specific feedback relative to this finding.

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:

- This material is licensed under the Creative Commons Attribution 4.0 International License.
- Creative Commons graphic is included on the footer.

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

Course: ETC 125
Course Name: Semiconductor Devices
Date: April 9, 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 ETC 125 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 in Somerset County 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 ETC 125 relate to specific job openings.
2. Current job openings list specific duties that relate to ETC 125.
3. The current Advisory Board indicates ETC 125 contributes to the labor market data.

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 ETC 125 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the ETC 125 course has listed measurable outcomes which can be stacked and latticed. The industry sector for ETC 125 has been categorized as: *541519 Other Computer Related Services*. (See: https://www.census.gov/svsd/www/services/sas/sas_summary/54summary.htm#sectordescription)

Those completing this course would enter the Bureau of Labor Statistics occupation classification of *SOC:17-2061 Computer Hardware Engineers*. (See: <https://www.bls.gov/Oes/current/oes172061.htm>). The reviewer finds that this classification is basically correct. Technically, this is a hardware architect position classification. The job outlook for this classification is considered “slower than average” at 3%: <https://www.bls.gov/ooh/architecture-and-engineering/computer-hardware-engineers.htm>

The NCES CIP (Classification of Instructional Programs) is referenced as: *11.0501: Computer Systems Analyst*. (See: <https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=88082>)

This is an accurate classification based on IDES classifications.

This course was designed for 1st year community college level students or equivalent. This Reviewer found that there are both prerequisites and co-requisites for this course.

Course objectives include:

1. Introduction to Semiconductors:
 - a. Outline the history of the semiconductor.
 - b. Describe the structure of the vacuum tube.
 - c. Compare Bipolar and Field Effect semiconductor technologies.
 - d. Describe semiconductors conduction characteristics.
2. Diode Characteristics:
 - a. Describe the properties of the PN silicon junction.
 - b. Test pn junction diodes using a digital multimeter.
 - c. Plot the characteristic curve of the pn junction diode from measured values.
 - d. Built, test, measure, and analyze diode forward and reverse biasing characteristics.
 - e. Use the proto-board to build, test and measure basic diode circuits.

Note: Not all course objectives are listed here

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 – ETC 125 articulates specific learning outcomes. **

A.2 - The course prerequisites are indicated.

A.3 - Course objectives are measurable and well described.

A.4 - Learning objectives are aligned to industry standards.

A.5 – Activities are scaffolded and appear to build on one another.

****Reviewer Note:** While the course outcomes are clearly stated and contain very specific measurable measures, it would also be recommended to include the program mission or goals in the course syllabus for clear assessment measuring. A deeper assessment could possibly be conducted that would match the course learning outcomes to specific program outcomes (or certificate). This would illustrate a direct impact on student learning.

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 1 st year college students should possess.		X	
B.2 Core course competencies are relevant to industry and employers.		X	
B.3 Instruction, activities, and assignment in individual courses are relevant and engaging to students.		X	

B.1 - Yes. The specific course objectives clearly represent industry expectations and also are current and relevant. This course is aligned to the Certified Electronics Technician (C.E.T.) certification.

B.2 - Yes. Core competencies are relevant to industry and employers and evidence of this was verified using the Burning Glass labor market data relative to STEM occupations (<http://burning-glass.com/research/stem/>) and the Dynamic Skills Audit Summary. This Reviewer took the interview summaries from Advisory Board members, current job openings and descriptions and matched them directly to all ten of the listed course objectives.

B.3 – Yes. Activities and instruction defined in the course outline offer real-world application in design and modeling that are required of any person 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:

Instructional materials being delivered achieve stated course objectives and learning outcomes. A formal course review was conducted that address more specifically course content and instructional design processes. However, in this SME report, specific findings in this section relate specifically to the overall instructional materials which contribute to the ten specific course outcomes.

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

C.1 - Yes. The course materials contribute to the achievement of the stated learning objectives, although the alignment can and should be strengthened.

C.2 - Yes. The purpose of the instructional materials was clearly explained.

C.3 - Yes. A variety of projects were identified. The Reviewer recommends small group projects to satisfy particular learning outcomes.

C.4 - Yes. The rigor matches 1st year college entry students. Reviewer also noted the rigor would be acceptable for all students from all demographics.

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

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	

Findings include:

Assessment strategies use established ways to measure effective learning, evaluate student progress by reference to stated learning objectives, and are designed to be integral to the learning process. The Reviewer compared and contrasted the eighty-one (81) learning outcomes listed for ETC 125 to affect best practices in assessing student learning. Those items have been identified and listed in the table below.

Table: Measurement of effective learning

D.1 - Yes. Grading is broken into several components and provides opportunity for a variety of course activities, including lab projects. The Reviewer applauds this variety and balance in grading.

D.2 - Yes. This is somewhat implied. The assessments (exams and final) appear to align with stated course-level objectives. This can be strengthened through describing this alignment.

D.3 - This Reviewer did not find any specific or descriptive criteria that was provided for the evaluation of student work. As mentioned previously, this could be solved with a simple outline listing each assignment, the due date, total points possible, and a grading rubric. In order to encourage students, especially in this particular field, it would be best practice to list assignments and due dates early so students are prepared for their learning.

D.4 - This Reviewer found sequenced and varied grading strategies, including simulations, assignments, and a final test out. This Reviewer encourages this variety.

