Subject Matter Expert Summary Report

MIT601
Web Development Fundamentals

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

November 2016

EMPORIA STATE
U N I V E R S I T Y
■ INFORMATION TECHNOLOGY

Course Review for: Maine is IT
Course: MIT 601 Web Dev Fundamentals
Reviewed by: Mark Summey
Date: November 1, 2016

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	0
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		5

Comments:

1.1: No link to the LMS was 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.

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 not covered in the syllabus.

1.5: Technology requirements were stated in the syllabus.

1.6: Prerequisite knowledge and competencies were not covered in the materials.

1.7: Minimum skills were not covered in course materials.

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: n discussion thread is not provided for students to communicate, informally, with each other outside of the class meetings.

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	**3**
2.5 The learning objectives or competencies are suited to the level of the course.	3	**3**
Total		15

Comments:

2.1: The course learning objective are measurable.

2.2: The module/unit learning objectives are measurable consistent with the course level competencies.

2.3: The objectives clearly state what the learner is to accomplish.

2.4: The course activities clearly relate to the learning objectives.

The course is a copyrighted certification from the Microsoft corporation. The rater assumes the content is current, up-to-date, and relates to the desired competencies for the certification.

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 assessments align with the learning objectives.

3.2: The grading policy is stated in the syllabus.

3.3: Descriptive criteria are provided for each assessment in the course. The criteria are aligned with the grading policy.

3.4: The assignments are varied and aligned with the objectives for each week.

3.5: There are multiple opportunities to track progress.

The course is a copyrighted certification from the Microsoft corporation. The rater assumes the assignments, assessments, and evaluation are current, up-to-date, and relates to the desired competencies for the certification.

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 align with the unit objectives stated in the syllabus.

4.2: The purpose of the instructional materials and their use 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 vary by unit and assignment.

4.6: The optional materials are clearly noted.

The course is a copyrighted certification from the Microsoft corporation. The rater assumes the instructional materials are current, up-to-date, and related to the desired competencies for the certification.

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	**3**
5.4 The requirements for learner interaction are clearly stated.	2	**2**
Total		11

Comments:

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

5.2: There are opportunities for interactive learning.

5.3: The feedback plan is clearly stated.

5.4: The requirements for class participation are stated in the syllabus.

The course is a copyrighted certification from the Microsoft corporation. The rater assumes the content includes learning activities related to stated objectives

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	**1**
Total		9

Comments:

6.1: b

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 technologies are3 readily available. A Google search for 'Eclipse Software' (required for assignment 1), returned a link for access to downloads for the software**.**

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

6.5: Privacy policies are available.

The course is a copyrighted certification from the Microsoft corporation. The rater assumes the course technology requirement is current, up-to-date, and relates to the desired competencies for the certification.

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: 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.

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.

The course is a copyrighted certification from the Microsoft corporation. The rater assumes Microsoft provides links to learner support.

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	**2**
8.4 The course design facilitates readability.	2	**2**
8.5 Course multimedia facilitate ease of use.	2	**2**
Total		**12**

Comments:

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

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

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.

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 cours**e.**

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

The course is a copyrighted certification from the Microsoft corporation. The rater assumes the accessibility and usability provided by Microsoft is compliant with best practices.

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.

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 from the publisher, 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: NMCC: MIT 601
Course Name: Web Development Fundamentals
Reviewed by: Anna J. Catterson, Ph.D.
Date: October 28, 2016

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 MIT601 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 with 30 miles of NMCC 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 MIT601 relate to specific job openings.
2. Current job openings list specific duties that relate the Web Development course, MIT601.
3. The MIT601 course is a certification course only. The current Advisory Board indicates it contributes to the labor market data.

There are several current job openings available for web development (as of 11/08/16) within a 50-mile radius of NMCC. A Frontend Developer is currently being sought at the time of the review with a leading software development company, King. Job description calls for "We are looking for an experienced frontend developer with strong JavaScript/TypeScript, HTML, CSS and React/Angular skills to join our Business Performance team in Stockholm. The ideal applicant will be a natural problem solver, proficient in developing user interfaces, dashboards and real time applications that are used by our analytics department." The same company has an additional job opening for a C++ Developer with skills implementing high quality code in C++ and the ability to architect & design APIs and components used by other developers through open source.

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 MIT601 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the MIT601 course has listed measurable outcomes which can be stacked and latticed with other coursework. The industry sector for MIT601 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:15-1134 Web Developers.* (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.

The content of these course objectives aligns with the topics listed in the course syllabus. This alignment also correlates to items found within the Dynamic Skills Audit and Burning Glass baseline skills as listed in the labor market data. It is not known whether these skills align with a specific Open Source Web Development certification exam, as none is listed in the course syllabus.

This reviewer recommends including the following course outcomes on the syllabus to match the MT98-363 exam (https://www.microsoft.com/en-us/learning/exam-98-363.aspx):

- Customize the layout and appearance of a web page
  - CSS; tables; embedding images; page layout for navigation
- Understand ASP.NET intrinsic objects
  - Request; Server; Application; Session; Response; HttpContext
- Understand state information in web applications
  - Understand how state is stored based on application design and hardware; understand different types such as session state, view state, control state, and application state
- Understand events and control page flow
  - Application and page life cycle events; page events; control events; application events; session events; cross-page posting; Response.Redirect; Server.Transfer; IsPostBack; setting AutoEventWireup

- Understand controls
  - Understanding various types of controls, including user, server, web, and validation controls; know which is the appropriate type of control for a scenario
- Understand configuration files
  - Understanding the usage of web.config and machine.config, and the settings that can be made
- Read and write XML data
  - Understanding XML, XML validation
  - Does not include: Web services; XPath syntax; XmlDocument; XPathNavigator; XPathNodeIterator; XPathDocument; XmlReader; XmlWriter; XmlDataDocument; XmlNamespaceManager
- Distinguish between DataSet and DataReader objects
  - The ability to choose the proper data object to use based on application requirements/design
- Call a service from a web page
  - Creating a basic WCF service or web service so that it can be consumed; App_WebReferences; configuration
- Understand DataSource controls
  - LinqDataSource: ObjectDataSource; XmlDataSource; SqlDataSource
- Bind controls to data by using data binding syntax
  - Ensure that data is updated and displayed in data-aware controls
- Manage data connections and databases
  - Database connections; connection objects; connection pools; transaction objects
- Debug a web application
  - Use in conjunction with custom error pages to display appropriate error information to the appropriate user; implement tracing of a web application, Trace.axd, Trace=True on @Page directive
- Handle web application errors
  - HTTP error codes
- Understand client-side scripting
  - Purpose of client-side scripting; various client-side scripting languages
- Understand AJAX concepts
  - ASP.NET AJAX implementation; working with client-side libraries, EnablePartialRendering, Triggers, ChildrenAsTriggers, Scripts, Services, UpdateProgress, Timer, ScriptManagerProxy, extender controls
- Configure authentication and authorization
  - Forms authentication, Windows authentication; authorization; file authorization; impersonation
  - Does not include: Windows Cardspace authentication, Passport (Windows Live ID) authentication, Custom authentication
- Configure projects, solutions, and reference assemblies
  - Local assemblies; shared assemblies (GAC); web application projects; solutions; configuration files; AppSettings
- Publish web applications
  - Choosing the appropriate method to deploy an application based on existing or intended environment; updatable vs. not updateable; MSI deployment; Internet Information Server (IIS) installation and configuration
- Understand application pools
  - Purpose of application pools; effect of application pools on web applications
  - Does not include: Configuring or assigning application pools

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- MIT601 articulates specific learning outcomes for the course, and it can be seen that aspects of the course objectives align with the topics of most weekly activities, but there is no explicit connection between the broader course outcomes and the course learning activities. Activity-level objectives are not listed, so it is unclear how each unit contributes to the whole course. The reviewer recommends linking the MT98-363 exam objectives to this specific course. Objectives listed above.
A.2 – Previous skills and knowledge are adequately stated.
A.3 - Course objectives are measurable.
A.4 - Learning objectives are similar to the competency levels of similar computer courses, specifying mastery of several technologies to achieve a specific purpose. However, the appropriateness of objectives cannot be completely determined without reviewing their alignment to a specific certification exam.
A.5 – Activities are scaffolded by prerequisite experience, and the additional skills and knowledge from this course would clearly stack on previous coursework. The course's objectives fill an industry need within the program's offerings.

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. (Using the MT98-363 exam to review).
B.2 - Core competencies are relevant to industry and employers and evidence of this was 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 programming and coding languages 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:

Instructional materials were not made available for review due to the copyright held by the publisher, although the contents of the required textbook through the Wiley Publisher were reviewed.

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

C.2 – Explanations are not given to clarify how the materials will be used and what types of activities will be performed by students in each lab assignment.

C.3 – Without seeing the course materials, this reviewer is unable to determine their variety regarding perspective and approach.

C.4 – Because the materials align with appropriate course outcomes, they are a good fit for the level of course. https://www.microsoft.com/en-us/learning/exam-98-363.aspx

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:

The only graded assessment of this zero-credit, pass/fail course is done through a certification exam that is not specified in the syllabus. There are assignments for each unit, and these appear to align with the course outcomes, but no details are given regarding how these will be evaluated to measure progress and help students learn.

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, with the exception of identifying the certification exam used.
D.2 – Without knowing the certification exam used, this reviewer is unable to determine whether this course assessment aligns with the course objectives and activities.
D.3 – No criteria or guidance was given to let students know how their work throughout the course would be evaluated to provide feedback on their progress. Especially if these assignments 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 assignments.

Reviewer suggest using the grading percentages listed on the exam site: Programming web applications (25%), Working with data and services (25%), Troubleshooting and debugging web applications (25%), Working with client-side scripting (20%) and Configuring and deploying web applications (20%).

https://www.microsoft.com/en-us/learning/exam-98-363.aspx

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 each assessment is adequate, as each lab may be procedurally-identical, although each will involve a unique technology application. It is reasonable to assume that each unit's lab involves creating something with that unit's listed technology, which would make each assignment appropriate to the content.