Course Title - Fiber Optic Communication System Installation and Repair
Course Prefix and Number - CSIR 2351
Department - Computer Science        Division - Technology and Business
Course Type: (check one)
☐ Academic General Education Course (from ACGM – but not in WCJC Core)
☐ Academic WCJC Core Course
☒ WECM course (This course is a Special Topics or Unique Needs Course:  Y☐ or N☒)

Semester Credit Hours #: Lecture Hours #: Lab/Other Hours #: 3:2:2

Equated Pay hours for course - 3

Course Catalog Description - Focus on installation and repair of fiber optic communication systems including networks and peripherals. Topics include fiber optic technology, state-of-the-art networking systems, installation/repair of fiber optic systems, and testing equipment.
Prepares students for the Electronics Technicians Association Fiber Optics Installer Certification exam.

<table>
<thead>
<tr>
<th>List Lab/Other Hours</th>
<th>Lab Hours</th>
<th>Clinical Hours</th>
<th>Practicum Hours</th>
<th>Other (list)</th>
</tr>
</thead>
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<td></td>
<td>2</td>
<td>0</td>
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Prerequisites/Co-requisites – None

Prepared by: J.B. Groves III, CFOI, CFOT, etal          Date: 8/29/2014
Reviewed by Department Head: Donna Schilling           Date: 6/24/2015
Accuracy Verified by Division Chair: David Kucera       Date: 8/12/15
Approved by Dean or Vice President of Instruction: Leigh Ann Collins Date: 3-4-16
I. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

Topics Covered:

- History of fiber optic cabling
- Principles of fiber optic transmission
- Basic principles of light
- Optical fiber construction and theory
- Optical fiber characteristics
- Fiber optic cabling safety
- Fiber optic cables
- Splicing
- Connectors
- Fiber optic light sources
- Fiber optic detectors and receivers
- Cable installation and hardware
- Fiber optic system design considerations
- Test equipment and link cable testing

Instructional Methods

- Lecture
- Individual Written and Hands-on Lab Assignments as prescribed by ETA
- Exams-Both written and hands-on
- Multimedia subject matter

II. Course Learning Outcomes

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Methods of Assessment</th>
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</thead>
<tbody>
<tr>
<td>Upon successful completion of this course, students will:</td>
<td>All outcomes will be assessed by one or more of the following:</td>
</tr>
<tr>
<td>Install a state-of-the-art fiber optics system and diagnose and repair a networking system and a fiber optic system.</td>
<td>Spelling Test</td>
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<td>Lab Assignments</td>
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<td>Projects</td>
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<td>Test, Quizzes</td>
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<td>Mid Term Exam</td>
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<td>Safety Examination</td>
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<td>Artifact Reflection Journal</td>
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<td>Final Exam</td>
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</table>

Administrative-Master Syllabus
Revised April 2013
III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.
- USB Flash Drive
- High-speed Internet Connection

IV. Suggested Course Maximum - 14

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.
Students are required to do both fusion splicing and mechanical splicing, and are required to utilize fiber tools to connectorize cables. Optical Loss Test Sets are used to test student cables.

Class requires the following fiber optic hardware:
- Fiber cable three eight foot lengths per student, ST (qty. six per student), SC (qty. six per student), and anaerobic ( qty. six per student) connectors for cable preparation loss on a fiber cable.
- Optical Time Domain Reflectometer to test dB loss on a fiber span with both fusion (qty. two per student) and mechanical splices (qty. two per student) in the span.
- Fusion splicer for fusing fiber spans together.
- Visual fault locator to determine visual breaks in the fiber cable span.
- Dual Core Intel Processor desktop computers to build a fiber network
- Fiber Switches and Fiber Network Interface Cards
- Tables or workbenches to fabricate fiber cables

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Cleanliness of work area, tools and equipment</td>
<td>05%</td>
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<tr>
<td>Homework and Quizzes</td>
<td>10%</td>
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<tr>
<td>Labs</td>
<td>40%</td>
</tr>
<tr>
<td>Tests and Final Exam</td>
<td>45%</td>
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</tbody>
</table>

**Grading System**

- 100 - 90 = A
- 89 - 80 = B
- 79 - 70 = C
- 69 - 60 = D
- and below = F
VII. Curriculum Checklist

☐ - Academic General Education Course (from ACGM – but not in WCJC Core)
   No additional documentation needed

☐ - Academic WCJC Core Course
   Attach the Core Curriculum Review Forms
   • ☐ Critical Thinking
   • ☐ Communication
   • ☐ Empirical & Quantitative Skills
   • ☐ Teamwork
   • ☐ Social Responsibility
   • ☐ Personal Responsibility

☑ - WECM Courses
   If needed, revise the Program SCANS Matrix & Competencies Checklist.