Wharton County Junior College

Administrative - Master Syllabus
COVER SHEET

***Purpose**: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student*

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**

List Lab/ Other Hours
Lab Hours 2
Clinical Hours 0
Practicum Hours 0
Other (list) 0

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.

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

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

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

- Woodward, Bill. Cabling: The Complete Guide to Copper and Fiber-Optic Networking. 4th edition. Sybex, 2009, ISBN: 978-0-470-47707-6.
- 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 e 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

Cleanliness of work area, tools and equipment 05%
Homework and Quizzes 10%
Labs 40%
Tests and Final Exam 45%

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