

Bossier Parish Community College
Master Syllabus

Course Prefix and Number: CTEC 126

Credit Hours: 3-1-2

Course Title: Fiber Optics II

Course Prerequisites: CTEC 125

Textbook(s): None – online resources available through Fiber Optic Association’s online learning platform (Fiber U).

Course Description: this course provides advanced knowledge related to splicing, connectors, and testing fiber optics. Students will learn to splice fibers using fusion and mechanical splices while also learning termination and testing techniques. This course is mapped to the CFOS/S (Certified Fiber Optic Specialist, Splicing) certification and the CFOS/T (Certified Fiber Optic Specialist, Testing) certification by The Fiber Optic Association.

Learning Outcomes:

At the end of this course, the student will:

- A. explain splicing types, processes, and equipment needed
- B. operate equipment and tools to conduct fusion and mechanical splices
- C. test fiber cabling using various methods
- D. explain test methods and instruments needed

To achieve the learning outcomes, the student will or will be able to:

(The letter designations at the end of each statement refer to the learning outcome(s).)

- 1. Splicing
- 2. identify types of fiber optic splices (A)
- 3. describe the types fusion splicing (single fiber and mass/ribbon splicing) (A)
- 4. describe the types of mechanical splicing (A)
- 5. explain where each splice type typically used (A)
- 6. describe requirements for a good splice (loss/reflectance/reliability) (A)
- 7. list equipment needed for splicing (cable preparation tools, stripper, cleaning kit, cleaver, fusion splicer) (A)
- 8. describe the different processes of splicing (A)
- 9. explain cable preparation (B)
- 10. explain single fiber splicing (A)
- 11. explain stripping fibers related to single fiber splicing (A)
- 12. explain cleaning fibers related to single fiber splicing (A)
- 13. explain cleaving fibers related to single fiber splicing (A)
- 14. explain splicing – fusion and mechanical related to single fiber splicing (A)
- 15. explain splice protection related to single fiber splicing (A)
- 16. explain dressing fibers in splice closure related to single fiber splicing (A)
- 17. explain sealing/storing/attaching closure related to single fiber splicing (A)
- 18. explain duplication for mass/ribbon splicing (A)
- 19. explain testing splices (D)
- 20. explain testing for visual fault location (D)
- 21. explain OLTS testing (D)
- 22. explain OTDR testing (D)

Revised: 3/30/2023

23. describe the process of documenting tests (A)
24. prepare cable (strip, clean, cleave, splice, protect, store) (B)
25. operate splicers (B)
26. test completed splice (C)
27. inspect connectors using microscope (C)
28. clean connectors (C)
29. test connectors using OLTS testing (C)
30. test connectors using OTDR testing (C)
31. document tests (C)
32. explain the importance of cleanliness of connectors related to fiber optic testing (D)
33. explain continuity and fault location related to fiber optic testing (D)
34. explain optical power – understanding dB, dBm related to fiber optic testing (D)
35. explain insertion loss related to fiber optic testing (D)
36. explain fiber attenuation, splice loss, connector reflectance related to fiber optic testing (D)
37. explain fiber dispersion for long distance, high-speed links related to fiber optic testing (D)
38. describe various troubleshooting processes related to fiber optic testing (D)
39. explain the standards for testing related to fiber optic testing (D)
40. explain the use of inspection microscopes as fiber optic test instruments (D)
41. explain the use of visual fault locators as fiber optic test instruments (D)
42. explain the use of optical power meters as fiber optic test instruments (D)
43. explain the use of optical loss test set (light source and power meter) as fiber optic test instruments (D)
44. explain the use of optical time domain reflectometer (OTDR) as fiber optic test instruments (D)
45. explain the use of dispersion test sets for fiber characterization as fiber optic test instruments (D)
46. explain the use of reference cables as fiber optic test instruments (D)
47. describe the visual inspection and cleaning as a test method (D)
48. describe fiber tracing and fault location as a test method (D)
49. describe measuring optical power from transmitters and receivers as a test method (D)
50. describe measuring insertion loss of a cable plant as a test method (D)
51. describe testing cable plants with optical time domain reflectometer (OTDR) as a test method (D)
52. explain fiber characterization as a test method (D)
53. explain troubleshooting processes as a test method (D)
54. describe calibration in terms of metrology (D)
55. explain expected test results – loss budgets in terms of metrology (D)
56. explain fiber optic measurement uncertainty in terms of metrology (D)
57. clean connectors for testing (C)
58. operate testing instruments (C)
59. make and conduct tests (C)
60. evaluate test results (C)

Course Requirements:

- To pass the course, student must achieve a course average of 70% or above.
- Students must have access to a computer (not mobile device), Microsoft Office, and the Internet to complete the assignments. Computer, software, and the Internet are available to students on campus during scheduled computer lab times and in the Learning Commons located in the BPCC Library.
- Students are required to use BPCC's LMS and are encouraged to use the BPCC Library to research topics and employment opportunities.

Course Grading Scale:

- A = 90 - 100
- B = 80 - 89
- C = 70 - 79
- D = 60 - 69
- F = 0 - 59

Attendance Policy:

Each student is expected to attend class regularly; excessive unexcused absences constitute grounds for suspension. Refer to the student handbook for [Attendance Policy](#).

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

Coordinator for SECTION 504 AND ADA

Angie Cao, Student and Disability Services Specialist

Disability Services, F-254

6220 East Texas Street

Bossier City, LA 71111

Phone: 318-678-6511

Email: acao@bpcc.edu

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator

Teri Bashara, Director of Human Resources

Human Resources Office, A-105

6220 East Texas Street

Bossier City, LA 71111

Phone: 318-678-6056

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.