



Wayne County Community College District

COURSE SYLLABUS

TCM 202 Fiber Optics Communications

CREDIT HOURS: 3.00

CONTACT HOURS: 60.00

COURSE DESCRIPTION:

This course covers the properties and practical applications of fiber optics in telecommunication circuits. Fiber cables, fabrication techniques, modulation schemes, system design, installation and testing, and an introduction to lasers will be covered.

PREREQUISITES: *EE 111 and TCM 200*

EXPECTED COMPETENCIES:

Upon successful completion of this course, the student will be able to:

1. Describe the history of fiber optic, the advantages and disadvantages of using fiber optics.
2. Discuss applications in the telephone industry, the military.
3. T.V., computer, automotive, and the wired city.
4. Discuss the electromagnetic spectrum of light.
5. Discuss the basic principles of light by Snell's law.
6. Calculate velocity of light in free space, wavelength and angle associated with total internal reflection.
7. Distinguish different types of fiber by the core/cladding ratio.
8. Describe and calculate the parameter associated with fiber specification, BW bit-rate, dispersion, and absorption.
9. Familiar with various types of fabrication processes,
10. cable design.
11. Understand cable testing procedure and installation.
12. Understand the process to prepare fiber for connecting, splicing and coupling.
13. Compare optical sources for fiber optic transmission.
14. Understand the different photo detector and the parameters associated with detectors.
15. Understand the pin photo diode.
16. Distinguish between different transmission schemes for fiber optic systems.
17. Understand the difference between modulation and multiplexing.
18. Discuss the different configurations for transmitters and receivers.
19. Understand how component (R and C) can solve some noise problems.
20. Distinguish various network architecture such as LAN, WAN, and metropolitan area network.
21. Describe the different standard for network.
22. Understand insight into designing complete fiber optic systems by the use of an analytical work sheet.
23. Familiar with enclosure and protection for cable installation.
24. Understand how to use the test equipment used in fiber optics.



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ASSESSMENT METHODS:

Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:

90%-100% = A

80%-89.9% = B

70%-79.9% = C

60%-69.9% = D

<60% = E