Nashville State Community College  
Computer and Engineering Technologies Division  
Electrical Engineering Technology

Master Course Syllabus

EETH 2255 Fiber Optics & Cabling Lab  
1 Credit  
2 Laboratory Hours  
This laboratory is tailored primarily to enhance hands-on fiber optics. It covers experimentations on light sources (LEDs & LASERS), light detectors (photo diodes & photo transistors), making connectors, polishing and splicing, and testing fiber cables. The course also covers types of cables and measurements with test equipment.  
Co-requisite: EETH 2250

Catalog description below  
Parallels the EETH 2250 lecture course. Laboratory exercises include construction, installation, analysis and trouble-shooting of fiber optic systems and cabling.

Instructor Information:  
Name:  
Email:  
Office Phone:  
Office Location:  
Office Hours:

Textbook and Other Materials:  
Textbook:  
Reference Materials:  
Supplies:

Course Outcomes:  
Upon successful completion of this course, students should be able to:  
1. have a working knowledge and application of fiber optics and cables  
2. make connectors from beginning to finish that is polishing and testing them.  
3. confidently use the test equipment  
4. make and test splices with minimum losses  
5. Identify different types of cables

Equipment list  
Includes but not limited to:  
XYZR testing Apparatus  
Multi-cure Oven
665 nm and 850 nm light sources
ATT ST Epoxy less Crimp Tools
Normal Crimp Tools
1310/1550 laser power and power meter
Buehler Fiberscope, portable Microscope 400x
Fotec 100x Microscopes
Polishing Glasses, Tool kits and VOM meters.

**Mechanical Splices**

- Fibers can be held together by non-welding.
- Mechanical splices do not require power supply
- Use simple tools such as stripper and cleavers
- They are often re-usable

**Course Competencies:**
The following are detailed course competencies intended to support the course outcomes

**Course Assessments:**
The following performance assessments will be used to demonstrate students’ understanding, knowledge and skills:

Each team will be directly observed through the process of construction and analysis of the lab exercise. Verbal critique and suggestions are made to increase troubleshooting skills and productivity.

Using the data acquired by the team, each member will write a report demonstrating an understanding of the circuits. The reports are graded based on comprehension of the electronic concepts and ability to communicate the information effectively.

Using the individual reports from a lab chosen at random, each team will be required to generate one joint report. The teams will be directly observed during the creation process. Team member participation will be a factor in the assigned grade.

**Grading Policy**
This course deals more with “hands on” and regular class attendance than other courses you might have taken. Therefore, regular class attendance is a must. For that reason, class attendance is 15%.

Note: If a case study or project is done in this course, the case study grade will be 15% of the final grade.

Final grade is distributed as follows:
- Attendance 15%
- Labs 85%
Grading Scale:

A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (less than 60%)

Topics to Be Covered:

- LAB 1: Video Tape on Optical Fiber
- LAB 2: Biasing LED
- LAB 3: Light Color Voltage
- LAB 4: Plastic Cables
- LAB 5: Making Connectors with Multimode Cable
- LAB 6: Polishing and Measurements
- LAB 7: Connectorization in Second Cable
- LAB 8: Review of Plastic cables of 1m, 2m, and 3m
  Measurement of Power Attenuation in Plastic Optical cables
  Measurement in 3m, 1m, and 10m Plastic and converting the power in dB to mw
- LAB 9: Determining NA of Plastic and Glass Cable
- LAB 10: Preparing unshielded twisted pair (UTP)
- LAB 11: preparing shielded twisted pair (STP)
- LAB 12: Measuring the Angular Misalignment Loss of Optical Fiber
- LAB 13: Splicing of optical Fiber.
- LAB 14: 1X8 Multi-Mode Coupler.

Attendance Policy

A student is expected to attend all scheduled classes and laboratories. Each instructor will formulate an attendance policy and provide it on the course syllabus. Absences are counted from the first scheduled meeting of the class, and it is the responsibility of each student to know the attendance policy of each instructor in whose class he/she is enrolled. If a student is absent from a class, he/she should give an advanced explanation to the instructor. Absences in a
course may affect a student's final grade. The student is responsible for all assigned work in the course regardless of excused or unexcused absences. Tardiness may also affect a student’s final grade.

Failure to attend class will result in a final course grade of "FA" or "FN" (see explanation below) depending on the individual instructor's course policy.

FA= failure, attendance-related (unofficial withdrawal) Last recorded date of attendance required.

FN= failure, never attended class (unofficial withdrawal)

**Student Communication Channels**
It is the student's responsibility to check D2L and MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through those channels. D2L contains specific course information and MyNSCC contains information important for other purposes.

**Early Warning System**
Nashville State Community College has implemented an Early Warning System to notify students via e-mail about academic problems such as poor classroom attendance, poor performance on assignments/tests, poor communication skills, late/missing assignments, and/or lack of classroom participation. Please note that Early Warning Alerts do not affect a student's academic standing.

**ADA Compliance Statement**
Nashville State complies with the Americans with Disabilities Act. Please contact the Access Services Coordinators at 615-353-3721 or 615-353-3741 if you would like to arrange ADA accommodations.

**Classroom Misconduct**
Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions. Please consult your Student Handbook for more specific details.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College.

Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Please be aware that children are not allowed in class or unattended on campus.

**Academic Dishonesty (Honor Code)**
Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. "Plagiarism may result from: (1) failing to cite quotations and borrowed ideas,
failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an “F” or a “Zero” for the exercise, paper, or examination or to assign an “F” for the course. Students may appeal through the appropriate college grade appeal procedures.

**Inclement Weather Policy**

In the event of an inclement weather event, check the Nashville State web site home page at www.nscc.edu for announcements on campus closures. Campus closures will also be announced on local television stations (channels 2, 4, 5, and 17).

When classes are cancelled, an online assignment will be posted in NS Online. Check your NS Online email for a message from your instructor regarding your online assignment requirements. Even though classes may be cancelled, some areas, i.e. Testing Center, may be open.

However, you should check before commuting to campus.

The Vice President for Academic Affairs and the Director of Security are responsible for cancellation decisions during an inclement weather event for the Nashville State main campus and the Southeast campus. Cookeville, Waverly, and Dickson Campus Directors will make class cancellation decisions based on conditions in their respective areas. Decisions about class cancellations are based on actual conditions, not forecasts. The perspective used for making decisions is that of the college as an employer, not as a K-12 institution. Students should use their own best judgment in determining whether to report to campus during inclement weather when classes are not cancelled.

**NOTE:** This syllabus is meant simply as a guide and overview of the course. Some items are subject to change or may be revised at the instructor’s discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc. on his/her course syllabus.