The Fiber Optic Association Inc.
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Fiber U Basic Skills Remote/DIY Lab Scorecards

Name _____ Date _____

School _____ Instructor _____

Lessons and Exercises

The following lessons and exercises are included in this course. You are expected to watch the reference materials, do the simulations then use the tools and components specified to complete the exercises below.

For each of the lessons or exercises, there is a scorecard to check off your completion of the work and, for the hands-on sessions, additional detail on your work.

Safety
How fiber optics works and transmits information
Basic fiber optic cable handling

- Premises cable: zipcord and distribution cable
- Outside plant: loose tube cable

Fiber optic splicing and termination

- Stripping fiber optic cables
- Cleaving fibers
- Splicing fibers with a mechanical splice
- Terminating fibers with a prepolished/splice connector

Testing

- Visual tracing and fault location
- Microscope inspection of connectors
- Loss testing simulation

When you complete each exercise, complete your scorecard for that exercise. If you are part of a class, when you are finished, you can return a copy of them to your instructor to verify your completion of the work. You may also be asked to submit samples of the splices or connectors from your completed exercises.

Exercise Scorecards

Below are “scorecards” for the lab exercises. Check off “√” when you have correctly completed each step; repeat the step if it is a “X” until it is done correctly. Rate each exercise from 1 to 5 in how difficult it was (1=easy to 5=hard). Make comments in the column provided.

If you have a mentor or instructor, you will be asked to submit your scorecards.

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Video And Simulator Scorecard

Video or Simulation	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Safety – read and watch video			
Cable – Zipcord			
Cable - Distribution			
Cable – Loose Tube			
Microscope			

Loss Testing and Loss Budget Simulator Scorecard

Video or Simulation	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Loss testing simulator			
Loss budget calculations			
Troubleshooting			
Quiz			

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Hands-On Exercises Scorecards

How Fiber Works And VFL Testing

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Set up tools and components for exercise			
Insert cable connector into VFL port			
Turn VFL on			
Note light through fiber			
Put stress on fiber to show loss			
Change VFL to pulsed mode to see data transmission			

Stripping Fiber Exercise Scorecard

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Set up tools and components for exercise			
Examine cleaver			
Strip cable jacket for ~2-2.5” (50-60mm)			

Strip 900 micron buffer 1.5” (40mm)			
Strip 250 micron buffer			
Clean fiber			
Open cleaver lid with front lever Open fiber holder Place fiber in proper groove Align end of buffer at 15mm on cleaver gage Close fiber holder Close cleaver lid Push lever to cleave fiber Open cleaver lid Remove fiber scrap and discard Open fiber holder and remove fiber			

Cleaving Fiber Exercise Scorecard

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty	

		1(easy) to 5(hard)	
Set up tools and components for exercise			
Examine stripper grooves			
Strip cable jacket			
Strip 900 micron buffer			
Strip 250 micron buffer			
Strips fiber to proper length			
Clean fiber			
Cleave fiber			
Discards glass shard			

Mechanical Splicing Exercise Scorecard

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Set up tools and components for exercise			
Strip cable jacket			

Strip fiber to proper length			
Clean fiber			
Cleave fiber			
Discards glass shard			
Inserts fiber into one side of splice			
Repeat with second fiber			
Use VFL to verify splice			
Secure both fibers into splice			

Mechanical Splice Connector Exercise Scorecard

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Set up tools and components for exercise			
Strip cable jacket			
Strips fiber to proper length			
Clean fiber			

Cleave fiber			
Discards glass shard			
Insert fiber into connector			
Use VFL to verify splice and connector			
Secure fiber with clamp/crimp			

Building And Testing A Fiber Optic Network

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Set up tools and components for exercise			
Check cables with VFL			
Connect media converters with duplex fiber optic cables			Did you get the correct connections – transmitter to receiver? Did you confirm the link using the link indicator lights?
Connect Ethernet cables from your devices to complete link.			Did you confirm the link using the link indicator lights? Were you able to transmit data over the link?
Test the transmitter power from one media converter			Record the power here: ____dBm
Test the receiver power from one media converter			Record the power here: ____dBm

Calculate the loss of the cable plant			Record the loss here: ____dB

Building And Testing A Simulated FTTH PON Fiber Optic Network

Process Step	Completed		Comments or Mentor/Instructor Feedback
	√	Difficulty 1(easy) to 5(hard)	
Set up tools and components for exercise			
Check cables with VFL			
Connect media converters with fiber optic cables			Did you confirm the link using the link indicator lights?
Connect Ethernet cables from your devices to complete link.			Did you confirm the link using the link indicator lights? Were you able to transmit data over the link?
Check power in both directions over single fiber link			Did you detect power in both directions? Was it nearly the same in both directions?
Insert a 2-port spitter			Did you confirm the link using the link indicator lights? Were you able to transmit data over the link?
Measure loss added by splitter			Record the loss here: ____dB
Insert a 4-port spitter			Did you confirm the link using the link indicator lights? Were you able to transmit data over the link?
Measure loss added by splitter			Record the loss here: ____dB
Insert a 2-port splitter followed by a 4-port spitter			Did you confirm the link using the link indicator lights? Were you able to transmit data over the link?

Measure loss added by splitters			Record the loss of the two splitters here: ____dB

I attest that I have completed the required exercises:

Name _____ Date _____

Signature _____