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FOA Advice on Jobs in Fiber Optics

We get many questions regarding how to find jobs in fiber optics so we've created this report to share some information.

Part 1: Jobs in Fiber Optics

There are many different jobs available in the fiber optics field, in many different types of organizations. Each has unique requirements and requires different educational backgrounds.

Fiber Optic Component and System Designers

Most of those who design fiber optic components have at least a undergraduate degree. For components like connectors, it would be in mechanical engineering. Optical components like fibers require knowledge of both optics and materials, so many designers will have degrees in physics, chemistry or materials. If you want to develop lasers or photodetectors, you should have a background in solid-state physics. Designing transceivers involves a combination of electronics and fiber optics. Designers of fiber optic systems are usually electronic engineers familiar with digital communications systems. Fiber optic components are used like integrated circuits to develop these communications systems.

Manufacturing Fiber Optic Components and Systems

Facilities where fiber optic components (fiber, cable, connectors, hardware, tools or test equipment) are manufactured need highly educated and skilled workers. They may operate machines costing millions of dollars that make the precision components and use sophisticated instruments to test the quality of the products. Manufacturing jobs will have differing requirements depending on the technical nature of the job. Some require manual skills while others may require advanced technical education to understand the complicated manufacturing processes in order to ensure proper operation.

Installation

Probably the largest number of jobs are as installers who build fiber optic networks. Installers must be skilled in the process of pulling cables, splicing and terminating, then testing them. It requires more manual dexterity than the other jobs, plus a basic understanding of how the systems work. In addition, installers work with specialized equipment like fusion splicers, OLTs and OTDRs that require extensive knowledge of their operation and an understanding of how to interpret test results. Workers who install telephone, surveillance CCTV and CATV fiber optic networks do much of their work outdoors (what we call outside plant – OSP - installations) braving year-round weather. They sometimes operate big machines that dig trenches and lay

and/or pull cables as well as bucket trucks. Then they bring the ends of the cables into special trucks or trailers where lengths of cable are spliced together and tested. Outside plant (OSP) installations generally require more hardware (and more knowledge of the tools and test equipment.) Pullers, splicers, OTDRs and even splicing vans are the tools of the trade for OSP contractors.

Premises cabling techs install cables inside buildings for computer networks, security systems and other building management systems. Computer and security networks use lots of fiber which is installed inside buildings. Often premises cabling techs install complete structured cabling systems that include copper (often called "Cat 5") and fiber, as well as providing connections and sometimes installing wireless access points.

Premises cables are pulled through conduits or laid in cable trays, then terminated in communications rooms. Premises installers may come from an electrical background so one contractor may be installing power as well as communications cabling.

Premises installers may need only a termination kit for attaching connectors and a simple test kit for their installations. Working above ceilings or in crowded telecom closets or communications rooms is the norm.

FTTH techs install fiber from local areas directly to the home. Some use standard OSP installation practices and some install preterminated cables that just require plugging into network equipment.

Besides the cables, some techs install the fiber optic communications equipment, then test and troubleshoot networks.

Education

Fiber optics, like any fast-growing technology, needs well-trained workers. Some of those workers are trained in technical schools, both in high schools and colleges, where general courses will prepare you for most any aspect of fiber optics. Some are trained by schools specializing in adult education, often aimed at specific applications, such as installing outside plant telecommunications cables underground, where instructors are usually experienced in the field themselves.

All these programs need qualified teachers. A qualified teacher will know the material they are teaching, preferably from personal experience, and will have skills in teaching students that material. Since all training involves hands-on labs to develop skills in the relevant processes, it's important that a teacher have those skills and know how to teach them to others.

Part 2: U.S. Bureau of Labor Statistics Telecommunications Career Guide to Industries, 2010 Edition

The U.S. Bureau of Labor Statistics has a good website with lots of information on jobs in our industry. The BLS Career Guide to Industries tells you about:

Occupations in the industry

Training and advancement

Earnings

Expected job prospects

Working conditions

In addition, the Career Guide gives you links to information about the job market in each [State](#) and [more](#). You can also view [frequently asked questions](#) about the Career Guide.

Ways to use the Career Guide to Industries site:

To find out about a specific industry or topic, use the [Search box](#) that is on every page—enter your search term in the box.

To find out about many industries, browse through listings using the Industries links that are on the left side of each page.

For a listing of all industries in alphabetical order, go to the [A-Z Index](#) and select a letter.

For more information on jobs in telecommunications, go to:

<http://stats.bls.gov/oco/cg/cgs020.htm>

Highlights from the BLS Telecommunications Guide to Industries:

Recent developments

Telecommunications carriers are expanding their data transmission capabilities, known as "bandwidth," by replacing copper wires with fiber optic cables. Fiber optic cable, which transmits light signals along glass strands, permits faster, higher capacity transmissions than traditional copper wire. In some areas, carriers are extending fiber optic cable to residential customers, enabling them to offer cable television, video-on-demand, faster high-speed Internet, and conventional telephone communications over a single line.

Wireless telecommunications carriers are deploying several new technologies to allow faster data transmission and better Internet access in an effort to make them more competitive in a market that includes wired Internet carriers. With faster connection speeds, wireless carriers can transmit music, videos, applications, and other content that can be downloaded and played on cellular phones, giving users mobile access to large amounts of data. In addition, as use of this mobile technology increases, wireless companies continue to develop the next generation of technologies that will allow even faster data transmission.

Working Conditions

Hours

Most workers in the telecommunications industry worked 40 hours per week in 2008, but about 14 percent worked more than 50 hours, on average. Workers in this industry are sometimes required to work overtime, especially during emergencies such as floods or hurricanes when employees may need to report to work with little notice to help restore network connections.

Work environment

Individuals in installation, maintenance, and repair occupations work in a variety of settings, both indoors and outdoors, and in all kinds of weather. Their work involves

lifting, climbing, reaching, stooping, crouching, and crawling. They often work in high places, such as rooftops and telephone poles. Their jobs bring them into proximity with electrical wires and circuits, so they must take precautions to avoid shocks. These workers must wear safety equipment when entering manholes, and test for the presence of gas before going underground.

Most telecommunications managers, administrative workers, and professionals work in clean, comfortable offices. Customer service representatives often work in call centers where they answer customer service calls, and may be required to work evening and weekend hours.

Employment

The telecommunications industry provided about 1.0 million wage and salary jobs in 2008. Wired telecommunications carriers accounted for about 666,100 of these jobs in 2008, while 202,700 were in wireless telecommunications carriers.

Telecommunications jobs are found in almost every part of the country, but most employees work in cities that have large concentrations of industrial and business establishments.

Occupations in the Industry

Although the telecommunications industry employs workers in many different occupations, 52 percent of all workers are employed in either installation, maintenance, and repair occupations or office and administrative support occupations.

Installation, maintenance, and repair occupations

Telecommunications craft workers install, repair, and maintain telephone equipment, cables and access lines, and telecommunications systems. These workers can be grouped by the type of work they perform. *Line installers and repairers*, often referred to as *outside plant personnel*, connect central offices to customers' buildings. They install poles and terminals, and lay wires and cables that lead to a consumer's premises. Some may install lines or equipment inside a customer's business or residence. They use power-driven equipment to dig holes and set telephone poles. Line installers climb the poles or work in truck-mounted buckets, also known as "aerial work platforms," and attach the cables using various hand tools. After line installers place cables on poles or towers or in underground conduits and trenches, they complete the line connections. Some line installers, called *cable splicers*, specialize in splicing together two telecommunication lines.

Telecommunications equipment installers and repairers, except line installers, install, repair, and maintain the array of increasingly complex and sophisticated communications equipment. Their work includes setting up, rearranging, and removing the complex switching and routing equipment used in central offices. They may also solve network-related problems.

Some telecommunications equipment installers are referred to as **station installers and repairers or telecommunications service technicians**. They install, service, and repair telephone systems and other communications equipment on customers' property. When customers first purchase a service, move to another home or office, or request

new types of service, these workers install the necessary equipment and wiring. They also connect telephone, Internet, and TV equipment to outside service wires, sometimes climbing poles or ladders to make these connections.

Cable installers travel to customers' premises to set up pay television service so that customers can receive programming. *Cable service installers* connect a customer's television set to the cable serving the entire neighborhood.

Wireless and satellite service installers attach antennas or satellite dishes to the sides of customers' houses. These devices must be positioned to provide clear lines of sight to satellite locations. Installers check the strength and clarity of the television signal before completing the installation. They also may need to explain to the subscriber how certain television services operate. As these services expand to include additional features, it is increasingly important that installers have an understanding of the basic service technology and computer software and be able to communicate that knowledge to customers.

Office and administrative support occupations *Telephone operators* make telephone connections, assist customers with specialized services such as reverse-charge calls, and provide telephone numbers. They also may provide emergency assistance.

Customer service representatives help customers understand the new and varied types of services offered by telecommunications providers. They answer customer questions and respond to complaints. Customer service representatives spend a considerable amount of time on the phone, but some may respond to inquiries by email, traditional mail, or in person. Some customer service representatives also are expected to sell services and may work on a commission basis. Other administrative support workers include *financial, information, and records clerks; secretaries and administrative assistants; and first-line supervisors/managers of office and administrative support workers*. These workers keep service records, compile and send bills to customers, and prepare statistical and other company reports, among other duties.

Professional and related occupations

Nineteen percent of the industry's employees are professional and related workers. (Many additional workers in these occupations are employed at the headquarters or research facilities of telecommunications companies, establishments that are classified in other industries.)

Engineers plan cable routes, equipment installations, the expansion of existing structures, and solve other engineering problems. Some engineers also engage in research and development of new equipment. Many specialize in telecommunications design or voice, video, or data communications systems, and integrate communications equipment with computer networks. Others research, design, and develop gas lasers and related equipment needed to send messages through fiber optic cables. They study the limitations and uses of lasers and fiber optics; find new applications for them; and oversee the building, testing, and operations of the new applications. They work closely with clients who may not understand sophisticated communications systems, and design systems that meet their customers' needs.

Computer software engineers and network systems and data communications analysts design, develop, test, and debug computer software programs and computer

networks. These include computer-assisted engineering programs for schematic cabling projects; modeling programs for cellular and satellite systems; and programs for telephone options, such as voice mail, email, and call waiting.

Telecommunications specialists coordinate the installation of these systems and may provide follow-up maintenance and training.

Sales and related occupations. Seventeen percent of the industry's employees are in sales and related occupations. These workers, such as *sales representatives* and *retail salespersons*, are responsible for selling telecommunications and related services to businesses and residential customers. In addition, the industry employs a number of *telemarketers*, who attempt to acquire new customers over the phone.

Industry earnings

Average weekly earnings of nonsupervisory workers in the telecommunications industry were \$1,038 in 2008, significantly higher than average earnings of \$608 in private industry. Table 2 presents wages in selected occupations in telecommunications.

Table 2. Median hourly wages of the largest occupations in telecommunications, May 2008

Occupation		All industries
Computer software engineers, systems software	\$41.84	\$44.44
Electronics engineers, except computer	\$38.85	41.52
Network systems and data communications analysts	\$36.48	34.18
Business operations specialists, all other	\$34.06	28.81
Network and computer systems administrators	\$32.68	31.88
Telecommunications equipment installers and repairers, except line installers	\$27.60	26.73
Telecommunications line installers and repairers	\$26.55	23.12
Sales representatives, services, all other	24.83	23.77
Customer service representatives	\$15.76	14.36
Retail salespersons	\$12.30	9.86
SOURCE: BLS Occupational Employment Statistics, May 2008.		

Benefits and union membership

Most full-time workers in the telecommunications industry receive substantial benefits in addition to their salaries or hourly wages. This is particularly true for those workers covered by a collective bargaining agreement. About 20 percent of employees in the industry are union members or covered by union contracts, compared with about 14 percent for all industries. Many telecommunications employees belong to the Communications Workers of America or the International Brotherhood of Electrical Workers.

In this varied field, demand for workers, or lack of it, will be based mostly on technology. For example, as new voice recognition technology improves productivity, jobs like telephone and directory assistance operators will continue to decrease in number. But the need for engineers who develop that technology will increase.

The outlook is good in telecom sectors that are bringing exciting new technologies to market. High-speed data services, voice communications over the Internet, and wireless networking are some of the sectors that will be hiring, and small companies are good places to find jobs. Electrical and electronics engineers, computer software engineers, systems analysts, customer service professionals, and the likes will find opportunities growing faster than overall for the industry as networks expand, providers invest in R&D, and computer technology grows more sophisticated. Line installers and repairers should also find work as businesses seek to increase connections to suppliers and customers and residential customers add broadband service. _

Part 3: Starting Your Job Search

When you begin your job search, you will have to “cast a wide net” and look at all the possible avenues. Also, in today’s job market, you need to be open-minded about what types of jobs you will apply for.

Get organized

Make lists of everything you're going to do to job search. It will help you start the process and you'll feel more confident with a plan. One of the most difficult challenges of finding a job is how to distinguish yourself from all the other people who are applying for the same job. Here are some tips:

Personal Contacts

Make a list of all your business acquaintances, friends and relatives – is there anyone who could help you find a job? A personal contact is one of the most important advantages you could have in your job search. This could be a written recommendation from your contact or a phone call to someone in the company who might put in a good word for you.

You should also look at your list of contacts to see if anyone can help you research job opportunities. Basically, you should sit down with this person and interview them. Who do they know, what do they know? You could get a name of someone else and start “networking” with more “interviews”. Here is a basic truth about human nature: most

people are flattered when ask for advice and are happy to help. Be sure you clarify that you are only looking for advice – no special favors. This puts the person at ease and helps them open up in your discussions. You will be surprised how much you can learn.

Local Contacts

Join local “service” organizations such as Rotary where you can network with other business people. The local Chamber of Commerce might have a job posting site.

For fiber optic jobs you should contact:

Local electrical contractors, especially the larger companies. Most will be doing cabling, Cat 5 etc. but they might be doing fiber jobs also.

NECA/IBEW Electrical Apprentice Program– this link will identify your local training center:

<http://www.njatc.org/training/find.aspx>

Independent Electrical Contractors – search for state chapters:

www.ieci.org/

CATV company is your area - check their website for hiring information

Phone companies - check their websites for hiring information

In larger cities there may be a Telecommunications Business Network group. Massachusetts even has the “New England Fiber Optic Council”, a regional group focussing for fiber optic companies..

Using the Web

In other sections of this website, we have discussed using *craigslist* and other online job search sites.

Don't forget Google

Founded in 1998, Google runs the world's most popular Internet search engine.

Look for jobs using Google – enter different combinations and see what pops up, ie:

“Fiber optic jobs in _____”

Note: due to the variation in terminology used, we suggest you search using all of the terms “fiber optic,” “fiber optic,” or for jobs outside the US, “fibre optic” and “fibre optic.”

Part 4: Writing your resume and cover letter

Be sure to give equal importance to creating both the resume and cover letter (in most cases, today this is a email not a letter). Your resume will not be seen if you don't catch their attention with the cover letter.

Before you start:

Read the job advertisement carefully.

If possible, contact people that work with the company.

Research any company you might apply for a job – “google” them. You’ll want to become familiar with all the products, where around the world are they doing business? When were they established? Are they a division of another company? Don’t just go to the company website, find out about the company from other listings on Google.

Special online considerations:

Picking up on “key words”

E-mail subject lines can make or break whether your e-mail is opened and read. Always use the exact job description from the ad, ie: “Applying for the fiber optic installer position”

Privacy

If you post your resume on online, you should probably remove your name and address and make sure inquiries are legitimate before giving out personal information

Use Facebook responsibly – if you are actively looking for a job, be aware that potential employers can go to your facebook page – make sure they will not get a negative impression of you.

The Cover Letter

The main job of the cover letter is to explain why you are a good fit for the position you are applying for. It must be short and to the point.

Summarize three items from your resume that match up with the what they are looking for. Possible topics:

Skills:

Proficient in _____

Proven ability with _____

Demonstrated communication skills with _____

In depth understanding of _____

Managed _____

Speak more than one language?

Experience:

I have built and installed _____ types of cables

I have installed, tested and troubleshot _____

Performed _____ tests

Installed and repaired _____

Installed and maintained _____ equipment.

I have achieved the following FOA certifications _____

I have received special recognition for _____

Sample Cover Letter

To Whom It May Concern (or a person's name, if known):

From the _____(website), I learned about the _____(job opening) in _____(location). I am very interested in this position and believe that I have the qualifications you are seeking.

I worked for _____years as a _____ .

I am responsible for _____

I have the knowledge and skills in _____

Attached (or "below" if email) is a copy of my resume, which more fully details my qualifications for the position.

Thank you for considering my application and I look forward to your positive response. (If you have a name you can add: Within the next week I will contact you to confirm that you received my e-mail and resume and to answer any questions you may have.)

Sincerely,

Your Resume

Your resume should be well organized and as short as possible and still communicate the important points you are trying to get across.

Read and reread and keep paring it down. Avoid the negatives of excessive information.

No spelling or grammar errors EVER – get someone to proof-read the document for you, "spell check" can miss things.

How long?

For someone with limited experience, a 1-page resume is ideal.

For those with substantial careers a 2-page resume is necessary to document experience. Even if you have had a lot of experience, resist going to 3 pages.

Sample resumes for fiber optic technicians

Your work experience with the most recent job listed first. Each job lists the dates of your employment, your title, if relevant and a very precise, easy to understand description of what you did on this job.

1. Name

Address, home #, cell #, email (If applying online, you often don't include personal

information - see section _____.)

2. Career Summary – this section picks up on the cover letter and presents the key qualifications to sell yourself (remember short and to the point).

3. Employment History

No more than 4 lines to describe what you did. Keep it simple – the first person to read your resume may be a non-technical HR person.

Job Title Company Name City/State start date – end date

Responsible for _____

Set up and installed _____

Oversaw _____

Performed installations _____

Installed and tested _____

Troubleshoot and repaired

Testing with (list all the equipment)

4. Education

BS: _____

AAS: _____

Additional Courses:

On-the-job training

5. Certifications and Affiliations:

FOA Certified Fiber Optic Specialist (CFOT)

Additional Certifications?

Member: Professional Society _____

Additional Considerations

Part 5: How to approach the interview

Interview for all types of jobs even ones you do not think you are interested in. This is how you can practice your interview skills in preparation for the jobs you really want.

Make a list of all the questions you think they might ask and practice your responses.

Dress conservatively – get some advice, even from a store clerk at a traditional clothing store.

The problem of being overqualified

Think about it from the potential employer's point of view. If you are over qualified, will you stay in the job if a better opportunity comes along? The employer wants the best fit, sometimes this will be someone with less experience that will challenged and grow with the job and can be hired at a cheaper rate.

What to do? You should “tone down” the experience that might be a “red flag” that you are over qualified and play up the parts that are a better match.

Also remember that you do not have to reveal your age and in the interview they cannot ask. Make sure the resume makes it hard to do the math.

Do not list your salary requirements on the resume. The challenge is can you live with lower your salary ranges if you cannot find a job in the salary you expected?

Dealing with Rejection

Don't beat yourself up. An employer can choose to hire someone for a variety of reasons. You may have been the best qualified person for the job but an insider was picked. When you get to the interview process, there is a “gut feeling” compatibility factor that you cannot control. A lot of companies have you interview with different people including your potential peers. Each of these people could have a say in who get hired. Sometimes a job opening is withdrawn for a variety of reasons and no one was chosen. You will never know what happened.

Part 6: Using The Internet

LinkedIn For Networking and Looking For Jobs

LinkedIn has established the world's largest and most powerful professional network. Currently, more than 17 million professionals are on LinkedIn. The FOA on LinkedIn is a resource for CFOTs to view job postings, participate in discussions about Fiber Optics or other topics and connect with other CFOTs. LinkedIn also allows companies to recruit LinkedIn members for jobs based on their online resume. Therefore it is good to keep your linkedIn profile resume up to date.

How to Use Your LinkedIn Profile as a Job Search Tool

Your Profile. Your LinkedIn profile is your online resume. It should have the same information that is on your resume. If you're currently unemployed list your current position as "Open to opportunities."

Add a Photo. It must be a small photo - no larger than 80x80 pixels.

Professional Summary. The Professional Summary section of your profile is a good way to highlight your experience. Select an Industry, because recruiters often use that field to search. Don't forget the Headline, because that's right at the top of the page when someone views your profile.

Contact Settings. Your contact settings let your connections (and recruiters) know what you're available for. Be explicit about who you want connecting with you.

Links. The links section of your profile is a good way to provide even more information to potential employers and to your contacts.

Public Profile URL. Don't forget to make your profile public - that's how the world can find it. Also, customizing your URL will give you a link that's easy to share.

Create a Signature. Create a LinkedIn signature to use in your email. That's another way to increase the visibility of your profile.

Update Your Profile. Don't forget to update your profile when you change positions or companies. Your profile should be current and up-to-date.

Grow Your Network. Connect with other members and build your network. The more connections you have, the more opportunities you have, but don't randomly connect with people you don't know. All that does is annoy them - you won't gain anything by attempting to connect with someone who never heard of you.

Get Recommendations. To a potential employer, a LinkedIn recommendation is a reference in advance.

Use the groups features and find groups where you might want to contribute.

Participate in the Q&A function to share your expertise (it's like free advertising, when done tastefully).

Online Job Sites

If you are a heavy computer user, you probably think first about Craigslist to start your job search. If you are not familiar with this online classified website, you should look into it.

As an alternative to craigslist, you should start with a simple Google search for "fiber optic jobs in _____" and keep trying different combinations. There seem to be endless numbers of online job sites and this seems to be the easiest way to sample what's out there.

What is Craigslist?

Craigslist was started in 1995 in San Francisco by Craig Newmark. It is basically huge site for classified listing for every product and service you can think of in 450 locations in the US and around the world. It is also the largest job posting site.

Here are some interesting facts about craigslist: Each month more than 30 million people use craigslist. _Even more important, more than 2 million new job listings each month from employers both large and small. Here is a link to the craigslist fact sheet: <http://www.craigslist.org/about/pr/factsheet>

Getting Started

Go to www.craigslist.org Search for your city and click on it. The craigslist system is made up of individual sites for each city but not all cities have a dedicated site. If you don't see your city, use the state site.

When you have the city you want to search, go to "search craigslist" heading on the left. Use the drop-down menu to choose "jobs".

Enter the name of the type of job you are looking for. You should be as general as possible in your search. The idea is to "widen the net" and capture as many possible leads as possible. For instance you should enter "fiber optic" instead of the more specific "fiber optic technician" or "fiber optic installer".

If you are searching for either fiber optic or cabling jobs, you can enter "cabling" and you might bring in both cabling and fiber job openings.

All the possible matches to your request will be listed – the most recent job listings are first.

Visit websites several times a day. Everything happens fast on the internet

How to Respond to an Ad on Craigslist

Click on the “reply to” link and this will create an email to respond to the listing.

Use Caution with Craigslist

If you answer an ad, be sure to choose a public space like a local coffee shop for your first meeting.

If you decide to post your resume on craigslist and you want it to remain confidential, use the anonymous email response and take your name and address off your resume before posting. You can share this information when you have determined that the company is legitimate

Be aware job lists could be a scam. If you stumble across a scam, it is easy to flag the posting so that craigslist will remove it for others

FTC Job Scam Website

Videos to share on your website

<http://www.ftc.gov/multimedia/video/scam-watch/job-scams.shtm>

The bottom line: With real jobs so scarce these days, you have to wonder why legitimate employers would have to pay money to advertise positions. Signs that a scam is in the works include:

- Promises to get you a job, a “guaranteed” offer, or any hiring without an interview.
- Enticements of easy money working from home, whether it’s assembling crafts, stuffing envelopes, doing medical billing or processing rebates.
- Any request for upfront money for “mentors,” job placement or materials. Legitimate placement firms are paid by employers, not job seekers.
- Any e-mails or ads promising jobs in the federal government or the entertainment industry, or other sought-after positions that don’t need to be advertised. Real government jobs are found at the federal government’s official job site.
- Requests for your Social Security number, bank account details, driver’s license or other personal info.

Always check with your local consumer protection agency, state attorney general’s office, and the Better Business Bureau to see if any complaints have been filed about a company with which you intend to do business. Report suspicious job offers to those agencies and the FTC.

This information is provided by The Fiber Optic Association, Inc. as a benefit to those interested in employment in fiber optics. It is intended to be used as a overview and/or basic guidelines and in no way should be considered to be complete or comprehensive. These guidelines are strictly the opinion of the FOA and the reader is urged to develop their own programs for job search. The FOA assumes no liability for the use of any of this material.