

# Internet Resource Guide

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A Collection of Online Resources for Choosing the Right Branch of Engineering

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ENGL 202C: Technical Writing  
02/11/2016

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## Preface

### **What's in the Guide?**

This guide contains seven Internet resources to assist you in choosing the right branch of engineering for your education. Researching the various types of engineering can become quite difficult; especially when you need thoroughly detailed information. This guide provides an easy way to accomplish your research by organizing the Internet resources and providing short abstracts on each. The Internet resources used in this guide include an index to periodical literature, an online professional journal and more. Use the table of contents for a complete list of the websites. The resources can help you compare the different branches of engineering as well as the different occupations associated with them. This guide can save you a lot of time if used correctly. Instead of going through the trouble of trying to research the types yourself, you can use this guide to get the best information on the topics in an easy-to-follow format.

### **Audience and Purpose**

The audience of this guide is high school seniors and college freshman who are unsure of what type of engineering they want to major in. While the audience is mainly focused on seniors in high school and freshman in college, it can also be used by sophomores and other high schoolers as well. It is for people who want to major in some type of engineering but cannot decide which one. This audience should already know they want to pursue engineering – they just are not sure what type. This audience will be thinking about what they want to do with their future. Hopefully, after using the guide, the audience will have a clearer vision of what they want to do with their college experience.

### **What You Should Already Know**

You should be already be familiar with some of the different types of engineering. If you are planning to major in engineering, then you probably know a little about the various branches. This guide focuses on the details in the different types of engineering, but not engineering in general. If you want information on engineering in general, research it on your own and come back to this guide when you are done. This guide assumes you want to learn more on what types of engineering are available to you, so decent background knowledge on engineering is important.

I need to organize it very carefully so my audience can skim through or skip majors they know they are not interested in. On the other hand, I need to provide enough information on each major so my audience can spend time researching ones they are interested in.

### **How This Guide is Organized**

This guide is organized very carefully so that you can skim through or skip sections that you might not be as interested in. On the other hand, it provides you with enough information on

each topic that you can really spend time on the ones that are of interest to you. The table of contents is organized to show exactly what Internet resources are included in this guide. In fact, if this guide is viewed on a PDF program, you can click on the titles in the table of contents and you will be brought exactly to that section. Each specific Internet resource is organized with an abstract and tips for using the website indicated. The abstract touches on what the resource is, what is in it, and why the information is relevant. The tips that follow should guide you through navigating the different sites in the most efficient way possible.

### **Tips for Using this Guide**

Keep the following tips in mind as you use this guide to get the most out of it:

- Use the Table of Contents to easily find what you are looking for. The material is arranged so that you can access the information as easily as possible; so you should use the Table of Contents take advantage of the arrangement.
- Use the URL's listed under each resource to open up the website. This way, you can follow along with the guide on the open website.
- Skim the abstract first. If it seems like something you are interested in, read the whole thing. If not, skip to the next resource. You can always go back later.
- If you open the website, definitely read through the tips so you can access the information on the site in the most effective way possible.

## Internet Resources

### Springer Link: Engineering Index

**Type:** Internet Site – Electronic Index

**URL:** <http://link.springer.com.ezaccess.libraries.psu.edu/search?facet-discipline=%22Engineering%22>

**Abstract:**

This index contains a list of hundreds of works of literature contained in the category “Engineering & Applied Sciences: Engineering – General.” All the literature is in the form of e-books and journals and are therefore viewed completely online. You can access this site by using the link above or by finding it through Penn State University’s libraries website.

The periodic literature includes e-books such as “Agile Project Management: Managing for Success,” “Bounding Approaches to System Identification,” “Directions in Engineering Research: An Assessment of Opportunities and Needs,” and more. As mentioned before, the index covers engineering in general, which is why there are so many books available.

With such a wide variety of literature, you can get information on just about anything dealing with engineering. This website serves as a tool for getting more in depth information on topics that the other websites listed in this guide might not have. If you are trying to figure out what branch of engineering to pursue, use this site to answer any questions you might have.

**Tips:**

- Under “Content Type,” you can choose from books, chapters of books, articles, etc. To access these different categories of literature, click on the hyperlink shown and it will take you to a more specific page.
- To open a book, click on the title. This will bring you to the book’s page on the site. From there, you can choose and chapter you are interested in. Either click on the title of the chapter to view it in the website, or click “Download PDF.”
- If you are not sure whether the book you chose is really what you want, you can click the “Look Inside” button in the top left of the screen to get a preview of the first few pages.
- If you scroll down to the bottom of the book’s webpage you will see all the information about the book including the publisher, online ISBN, topics included, and more.
- There is an option to “Share” the book on three social media platforms: Facebook, Twitter and LinkedIn. Share it with your friends on Facebook and Twitter, or share it with future employers and more on LinkedIn.
- On the URL listed above, you can narrow your search by choosing a specific sub discipline, language, etc.

## Types of Engineering Degrees

**Type:** Internet Site – Directory of Information

**URL:** <http://typesofengineeringdegrees.org/>

### **Abstract:**

This website is a type of index of forty different types of engineering available. It presents the index in the form of a list. This list provides a way to obtain more information about each type of engineering. The website starts by giving a brief description of engineering in general then introduces the variety of branches.

The content of this website, as mentioned before, is a simple list of forty different branches of engineering. You can get as vague or as detailed as you would like based on the different functions you decide to use. The index contains various functions such as “Available Types of Engineering Degrees,” “Engineering Degree Finder,” etc. Please see the Tips section below for more information on each function.

The “Engineering Degree Finder” is the easiest way on the site to find out which universities offer which majors. This function will work best for high school students that are not set on what university they want to attend yet.

### **Tips:**

- If you want more information on a specific type of engineering, scroll down to the section titled “Available Types of Engineering Degrees.” There are twelve different ‘categories’ of engineering listed and you can click on whatever one you are interested to find a quick blurb about that type of major.
- If you are seeking more information, you can click on the degree detail button located under the short paragraph. This button will bring you to a new site with a more detailed description as well as the majors listed in the category and which majors are offered at which university.
- Follow this tip if you are using the “Engineering Degree Finder” function. If you do know or are already at a specific university, use the hyperlinks on the right of the website. For example, you can search for “Engineering Schools by State” to find your college.
- If you are confused about the different types of degrees available in terms of bachelor, master, etc., scroll to the bottom of the page to find more information there.
- Or, you can find the section titled “Recent Articles” and read about things such as “3 Reasons for High Engineering School Dropout Rates” or “Petroleum Engineering Degree Overview.”

## Catalog of U.S. Government Publications

**Type:** Internet Site – Catalog

**URL:** <http://catalog.gpo.gov/F?RN=16640103>

### **Abstract:**

This catalog serves as an easy way to access various federal publications that range from “descriptive information for historical and current publications as well as direct links to the full document, when available.” To access the eBooks, click on the hyperlink titles “Please click here.”

There are over 500,000 records in all on the main website and over 200 eBooks on the eBook website. The records have been generated since July 1976 and the catalog is starting to include records for publications dating back to the late 1800s.

This website can be used as an easy way to search for any official documents related to engineering. If you follow the tips below, you will be able to find exactly what you need. If you are reading a publication and become very interested in the topic, then look more into the branch of engineering that the publication concerns. On the other hand, if you find a certain topic particularly boring, you might want to move onto the next branch.

### **Tips:**

- In the space provided, search by authoring agency, title, subject, and general keywords, or click on “Advanced Search” for more options.
- You have the option to find a Federal Depository Library close to you that might have the specific publication you are looking for. You can also use the librarians to help you find certain publications, or gain more knowledge on the U.S. government information.
- If you want information on engineering and the key word “Engineering” is not showing you what you want, try using the abbreviation, “ENGR.”
- To view more information on a publication, simply click on the title and you will be brought to a page that shows you a full view of the record.
- To access the publication directly, click on the URL listed under the “Internet Access” tab. From there, you can choose from the Mobi, epub or PDF versions. To be safe, just click on “PDF version/” and the publication will come up on your screen.
- You can organize your search more by choosing one of the four choices under “Sort options.”
- If you want a little more information on all the publications listed, click on “Extended” to the right of “Display options” and you will get a more in depth view of each publication.

## **Nail Gun Safety: A Guide for Construction Contractors**

**Type:** Catalog of U.S. Government Publications – Example

**URL:**[http://permanent.access.gpo.gov/gpo41185/PDF%20version/NailgunFinal\\_508\\_02\\_optimized.pdf](http://permanent.access.gpo.gov/gpo41185/PDF%20version/NailgunFinal_508_02_optimized.pdf)

**Abstract:**

This PDF serves as an example of a report found on the Catalog of U.S. Government Publications. It is a safety guide for construction contractors approved by OSHA. The guide is made for residential homebuilders and construction contractors, subcontractors, and supervisors. The topics covered in this guide include “Personal Protective Equipment,” “First Aid and Medical Treatment,” and more.

A guide like this is extremely important and has the potential to reduce the amount of injuries on a construction site. All the publications listed in the catalog are very important in their own way. If you are interested in this type of guide, then you can look more into civil engineering.



## **Engineering News-Record Top Lists**

**Type:** Internet Site – Potential Employers

**URL:** <http://www.enr.com/toplists>

### **Abstract:**

This website shows potential engineering employers and job search services. It has various lists of rated engineering companies. You can search for lists like “Top Design Firms”, “Top Contractors”, “Top International Design Firms”, etc. The focus is to bring organization to such a wide variety of industries. You can use this site to find out what companies are looking for what types of engineering and which are ranked higher than others. It can make comparing different jobs in different fields a lot easier as well as allow you to research certain jobs specifically.

The information on this site is extremely relevant and useful for anyone confused on what type of engineering they want to major in. It lets you get a glimpse at your future by showcasing different types of highly rated jobs and then what types of engineers work these jobs. You may stumble upon a job you have never heard of and become very interested in. Use this site carefully and take your time with it because it can seriously affect your future!

### **Tips:**

- All you have to do is click on one of the various hyperlinks of each list and it will bring you to a section of the website that includes a quick blurb about the list.
- Under this description, you can choose to either “View Rankings” or “View Full List with Data and Analysis.” This way, you can either get a quick glimpse of it or get as much detail as possible.
- If you click on the hyperlink titled “ENR Sourcebook” you can view their magazine editions listed including the “Top Design Firms Sourcebook”, “The Green Sourcebook”, and more. You can choose to view the complete sourcebook with data and analysis and there is even access to earlier editions dating all the way back to 2003.
- If for some reason you cannot find all the information you need, feel free to search the rest of ENR’s website. You can search for specific projects, products, ideas, businesses, etc. by using the tab at the top of the site.

## Crazy Engineers

**Type:** Internet Site – Discussion Group/Chat Room

**URL:** <http://www.crazyengineers.com/find-new/5257015/posts>

### Abstract:

This website acts as a forum for any kinds of discussions on any types of engineering. The site is owned by CrazyEngineers which is a group comprised of engineers from different disciplines, education, culture, backgrounds and work experience. CrazyEngineers believe engineering is about attitude and not formal degrees or certificates. The purpose of the website is to create an ecosystem for professional engineers and *engineering students* in over 180 countries.

Under the “Community” tab is where you can find the discussion groups and chat room. People can post whatever they want on the page, then other people can reply to it and the discussion begins. For example, Kaustubh Katdare, and administrator of the site, posted a topic “Career In Software Testing Vs. Software Development” in which he explains what he thinks the difference is and goes into detail about the two professions. So far, there have been 329 replies from people ranging from a simple thank you to completely disagreeing with him and presenting a new point of view.

You can use this information for numerous things. First, it is an easy, laidback way to view different people’s opinions on different aspects of engineering. For example, maybe you are interested in software testing or development and Katdare’s post can bring you some new information on the subject. Also, this is a perfect environment in which you can post a topic and have hundreds on professional engineers weigh in and give their opinion. You can even start a debate by asking what branch of engineering is the best and the PEs would go crazy.

### Tips:

- Simply click on the title under recent posts and the site will bring you to the full post. Scroll through the post to see the beginning of the replies – where the conversation really starts.
- You can also see how many people have viewed and replied to the post by looking beside the title before you even click on it.
- If you look to the right under “Oven Fresh” it shows you the most recent posts. The other ones listed are the most popular.
- You can click on the “Downloads” tab at the top to find items such as “Technical Interview Notes” or “Structural Dynamics.” These are not discussion groups but still hold a variety of important information.
- Click “SIGN UP” in the top right corner to have full access to the site and contact information of various PEs. These people can potentially serve as mentors for you.
- If you really love CrazyEngineers there is even a link at the bottom to buy a tee shirt.

## What Different Branches of Engineering Are There?

**Type:** Internet Site – Sample Report/Research Study

**URL:** <http://www.me.ua.edu/ges100/Explore/study-branch.html>

### **Abstract:**

This website is dedicated to a research study done on the different branches of engineering. A student from The Institution of Engineers, Australia, completed it. The study is organized by an opening paragraph, followed by information on each separate branch of engineering, and then finishes with two closing paragraphs. He chooses to write about the popular types (chemical, civil, electrical and mechanical) but also includes some lesser-known areas (mineral, mining, biomedical, and telecommunications.)

Overall, he includes aerospace, agricultural, biomedical, chemical, civil, computer systems, electrical, electronic, environmental, materials, mechanical, manufacturing, metallurgical, minerals, mining, resource, software, structural, and telecommunications engineering.

This website provides an actual study on what types of engineering do what types of things. It is a well-organized way to get quick information on different branches. It also introduces some engineering branches you might never have heard of. The information is compact and brief which makes reading through this study very fast and simple.

### **Tips:**

- First, read the short introduction paragraph to get you familiar with what the study is about.
- After that, you can either read through the whole study or choose from the index on the right. It includes hyperlinks to the different paragraphs so you do not need to read through all of it.
- Finish by reading through the last two paragraphs to get a good conclusion of the study.
- As the author states in the opening, highlight any areas you find interesting, then ask your careers counselor or general advisor for even more information on each specific area of interest.
- If you want more information from The Institution of Engineers, Australia, click on the hyperlink at the very top of the page and you will be brought to their homepage or study branch.

## PE Magazine

**Type:** Internet Site – Professional Journal

**URL:** <http://www.nspe.org/resources/pe-magazine>

### Abstract:

This website is the home of the PE, or Professional Engineer, Magazine. The National Society of Professional Engineers, or NSPE runs the journal. NSPE is an organization dedicated to the non-technical concerns of licensed professional engineers. It stands today as the only national organization committed to addressing the professional concerns of licensed PEs across *all disciplines*. The magazine is published six times per year and covers news and commentary on professional issues. These issues include but are not limited to licensing, engineering ethics, employment, legislative and regulatory issues, and education. Basically, if an issue has a direct impact on professional engineers, the magazine will cover it.

In the most recent edition (January/February) you can find such articles are “2016 PE Resolutions,” “2015 Survey of Insurance Providers,” “Engineering an Education Revolution,” and more. The site also includes links to older issues, a calendar of upcoming events, job boards, and more.

The information on this site is extremely useful for anyone interested in an engineering degree. As mentioned before, it covers issues across all disciplines in engineering. So, there are unlimited articles to read about different types of engineering. If you are finding yourself drawn to articles about construction, for example, maybe you should look more into Civil Engineering. If you are attracted to jobs on the job board about car engines, for example, maybe you should look more into Mechanical Engineering.

### Tips:

- Click on the “January/February” hyperlink to view that version of the magazine. Once on the new page, look under “Departments & Columns” to browse specific articles in the issue.
- Click the green button labeled “Calendar of Events” to find upcoming events related to all types of engineering.
- Scroll to the bottom to view the job postings as well as the shop for NSPE.
- If you want more information on professional engineering topics, follow PE on twitter using @PEmag.
- If you want to see their current media guide and related information, click the hyperlink under “Advertising.”
- If you are a NSPE member you can choose to receive the online PE magazine in digital format. It looks just like the printed version and can be accessed without Internet connection.