

# INTERNET RESOURCE GUIDE FOR PROSPECTIVE ENGINEERING STUDENTS

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# Table of Contents

I.	<u>General Information</u>	Pg
	a. What is in this Guide	2
	b. Guide's Audience	2
	c. Assumptions of Guide	2
	d. Guide Organization	3
	e. Tips for Using This Guide	3
II.	<u>Disciplines of Engineering</u>	
	a. Mechanical	
	i. Bureau of Labor Statistics – Government website	4
	ii. Thermal Engineering – Journal	5
	b. Electrical	
	i. Prospects – Website	6
	ii. Electrical Systems in Passenger Cars – Journal	7
	c. Civil	
	i. Truity – website	8
	ii. American Society of Civil Engineers – Website	9
III.	<u>Resources to Get into Engineering</u>	
	a. Technical School	
	i. Oakland Technical School – Website	10
	b. Colleges with Good Engineering Programs	
	i. University of Detroit Mercy – Website	11
	ii. Kettering University – Website	12

## General Information

### *What is in this Guide*

In the “Internet Research Guide for Prospective Engineering Students”, there is information and resources relating to multiple engineering disciplines. The information given will help its audience to decide if engineering is right for them and if so, what field within engineering is best for their personal interests. They will be provided with both abstracts of sources and links to those sources to ensure good research is done before committing to an engineering major or career. At the end of this guide, there are resources to look at for finding good engineering colleges for after high school and technical schools that one can attend after or during high school.

### *Guide’s Audience*

This guide has an intended audience of juniors and seniors in high school considering engineering as their future major in college. This guide is also appropriate for prospective engineers of any age who want to get into an engineering career or switch majors to engineering. The information that is found within this guide will cover all the basics of the three main engineering disciplines; mechanical, electrical, and civil, and will be useful to both audiences.

If a prospective engineer is already attending a school and is looking to transfer to a more direct engineering school, check the “Resources to Get into Engineering” section, they can find schools that are known for their engineering programs. If they want to stay at their school but still want to go into engineering, they can search on their school’s website and see if there is an engineering program available.

### *Assumptions of Guide*

While writing this guide, it is assumed that its audience has little to no knowledge of the engineering field and is meant to get someone started on the basics of the career i.e. salary, job duties, experience, etc. As a student in high school or someone who would like to switch majors to engineering, it is assumed not much research has been done yet into the field. This guide will be the first level of information that will be delivered to a prospective engineering student and therefore has basic information in it. Although, within some of the journals mentioned in this guide, there is some language used that is for a more in depth engineering audience. In this case, using a dictionary can help with some of the key terms used.

## *Guide Organization*

Organization of “Internet Research Guide for Prospective Engineering Students” is created to be an easy to navigate guide. The “General Information” section is the foremost section and contains the information about the guide itself. The second section “Disciplines of Engineering” has three subsections that regard the three main types of engineering; mechanical, electrical, and civil. Each subsection has two sources associated with it, one about the discipline and one about a specific job you can go into with that discipline.

The final section is “Resources to Get into Engineering”, here the users of the guide will find two subsections, one pertaining to a technical school and one relating to colleges who excel in engineering programs.

## *Tips for Using this Guide*

- If you are already enrolled in a college and are thinking of transferring to another college for their engineering program, look on page 11 and 12 for some schools known for their engineering programs
- In each discipline subsection, make sure to read through the website on the job description and write down any specific jobs that interest you. It could make picking your major easier and you will be more specific with it.
- In this guide, only one job from each discipline was picked but feel free to type into your internet browser “mechanical (civil or electrical) engineering jobs” to find more than what is listed!
- Read the “Tips” section after each abstract for information on what to look for to find more information on the website or journal.
- UDM students can view the journals mentioned in this guide for free

# Bureau of Labor Statistics for Mechanical Engineers

## *Website Link:*

<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm#tab-1>

## *Why Visit this Site?*

- Easy to navigate
- All the most sought after information is at the top
- It gives a strong overview of mechanical engineering

## *Abstract*

The Bureau of Labor Statistics is a government run website with statistics on all the careers seen within America today. The Bureau gives current information not only on a specific career but on the trends within the working world today. An example of what they do is the mechanical engineering page. Here there is information on work environment, what engineers do, etc. Analyzation, design, development, and overseeing are some key terms used in describing what a mechanical engineer does daily. Some of the information also includes how mechanical engineering is one of the broadest engineering programs, meaning there is a lot smaller niche to get into within the discipline. The outlook is expected to grow 5% from 2014 to 2024 which average for all occupations.

## *Tips*

- Check the years that the information is from, some information is for a year that has passed.
- Read the caption under the pictures, it has small bits of information about the profession you might find useful.
- There are tabs across the page under the title “Mechanical Engineers”, if you click on the similar occupation tab there’s a list of similar careers, look at those, you could find one that interest you!
- If you like this website and its features, in the upper right hand corner there’s a search box that says “Search BLS.gov”, look up some other engineering disciplines you are interested in.

# Journal of Thermal Engineering

## *Online Journal Link:*

<http://eds.yildiz.edu.tr/journal-of-thermal-engineering>

## *Why Visit this Site?*

- Peer Reviewed articles allow for accurate information on the studies and job information
- There are 122 articles within this journal that can give a glimpse of what goes on in thermal engineering
- Reading some of the published articles will give an idea about the projects that go on in a thermal engineer's daily tasks and help prospective engineers decide if this form of mechanical engineering is right for them

## *Abstract*

This online journal, "Journal of Thermal Engineering", is a collection of published articles from thermal engineers, students, teachers, authors, and other professionals throughout the world. It is new journal (2015) and all its articles are available in full PDF form. Most journals are subscription based so the ability to view all the articles within this journal sets this journal apart from most. Each article is blind peer reviewed and are held to a standard of completeness and validity. Most of the articles are a collaborative study effort done by numerous people to help the thermal engineering community and get the best most relevant information. In this case, it could be a useful tool for a prospective mechanical engineering student as this is a form of that. This is one of many types of jobs someone in mechanical engineering could have, a thermal engineer, and this journal is a look into that. If this job does not seem appealing, make sure to look up other mechanical engineering jobs.

## *Tips*

- If this journal doesn't interest you, click the all journals tab at the top of the page. There's many more journals related to engineering
- If you want to search for a specific article in a specific journal, click the articles tab at the top of the page. A search box will come up with over 846 articles to find!
- To learn more about the group who started these journals, click the about tab at the top of the page.
- Because the website it newer, there is not much information about it yet

# Prospect's Job Profile for Electrical Engineers

## *Website Link:*

<https://www.prospects.ac.uk/job-profiles/electrical-engineer>

## *Why Visit this Site?*

- It shows a list of qualifications associated to being an electrical engineer
- It has a related jobs section and alternate career section to help guide students through the process of deciding on a major
- Let's viewers see how well they match the electrical engineer profile

## *Abstract*

This source of research is a website based from the United Kingdom called Prospects. Prospects helps people who want to go into electrical engineering and other professions by setting up a career profile for each discipline. Here, it is focused on electrical engineering and its job profile. Within the website under electrical engineer, you will find different sections of text. Each section discusses different parts of what it takes to become an electrical engineer. Responsibilities and qualifications are some of the sections that reflect on what needs to be done in this field. Some examples of the responsibilities are designing, reading, researching, attending meetings and servicing equipment. To be qualified for an electrical engineering position, per Prospects, most join the career with some type of degree in electrical engineering and possibly mechanical engineering. Post graduate qualification is not usually required.

## *Tips*

- There is a list of job sites that are looking for electrical engineers above the "Professional Development" section, keep this in mind for the future!
- At the bottom of the webpage, there is a text box with alternate careers and right below that a text box with related jobs and courses. Use this to explore the field of engineering
- When scrolled to the top of the page, on the right side there is a yellow box. Click on it and you can take a career planner test. A test that will let you see how well you match with the career path you're looking at
- There is an add to favorites button under the title "Electrical Engineer", use this to add the discipline to your own section of personal major options.

# SAE International Journal of Passenger Cars - Electronic and Electrical Systems

## *Online Journal Link:*

<http://saepcelec.saejournals.org/>

## *Why Visit this Site?*

- In this journal (Issue 2 Vol. 9), there are 4 reports that are specific to electrical engineering in cars, this is good for someone who wants to work with cars and do electrical engineering
- This site is organized well with a list of journal subjects on the right to search through to find exactly what one needs
- You can save and download PDFs of each report within the journal for future reference

## *Abstract*

This is a journal dedicated to the discipline of electrical engineering and more specifically, to electrical systems in cars. Within the journal there are reports written by engineers in the field regarding the electrical systems used within cars and if they are working, not working, or how they can be improved. It is an innovative journal and gives prospective electrical engineers a glimpse into what they would be working on if they choose to join this field or major. Some of the editors within this journal and the journal itself is local to the metro Detroit area making this more relevant considering audience. It is noted within the “about” section of the journal that all work is non-biased and is meant to develop new knowledge. Looking at this journal and the reports within, one can see what electrical engineering deals with in a more in depth view.

## *Tips*

- Each journal entry (report) has a download PDF button underneath its abstract summary, click this to be able to read the report on the go and save it for future reference
- The right side of the website has a “Limit search by” section, use this to limit searches by peer reviewed journals, full text, or contains images.
- Underneath where it says Academic OneFile at the top of the webpage, there is a search by discipline button, use this to search other engineering disciplines that interest you!



# Truity's Career Profile for Civil Engineers

## *Website Link:*

<https://www.truity.com/career-profile/civil-engineer>

## *Why Visit this Site?*

- Has a good overview of the job duties, education, environment, etc.
- It lists ways a civil engineer can get ahead in their career such as what licenses they should get and experience
- It allows the community to comment and ask questions about the job that they may not have covered

## *Abstract*

Truity is a website where one can go to find out more about civil engineering and other engineering disciplines. On the civil engineering homepage, there is information on education needed, work environment, etc. A bachelor's degree in civil engineering is required for this career as an entry level employee. Per Truity, more than 1 in 5 civil engineers have a master's degree. Work environment is mostly outdoors and 50% of those hired are architectural engineers and related services. There is also a section on how to advance in the field such as gaining experience. At the bottom of the civil engineer page, there are links to more resources about licenses, schools, and jobs. If civil engineering seems of interest, look at the 'similar jobs' section at the bottom, there could be something much like civil engineering that works better. Truity also features a comments section where people who also are interested in civil engineering can ask questions about the job.

## *Tips*

- At the top of the webpage, there is a tab for taking a career test to help guide you into a job that would really fit you.
- Before you do anything else on the webpage, read the job duties section to see if civil engineering is right for you based on responsibilities
- Watch the video on the civil engineering profile to get a look into what civil engineering is and see professionals in action

# American Society of Civil Engineers

## *Website Link:*

<http://www.asce.org/>

## *Why Visit this Site?*

- It is solely based on civil engineering, great for if someone is thinking about this discipline
- Online chat is an option with an American Society of Civil Engineers (ASCE) member for help or questions
- Becoming a member could look good on a resume
- There is a list of publications near the bottom of the webpage that can lead to more information

## *Abstract*

This organization website is devoted to the civil engineering profession and all the members within that community. There are contests for ideas relating to civil projects and a chat section to members can communicate from their own homes. There is a lot of information on this website regarding every aspect of civil engineering. Under the “Education and Careers” tab, there is a “Pre-College Outreach” choice, pick that and explore all the things do as a pre-college student to prepare for a major or career in civil engineering. On the left side of the webpage is a “Civil Engineering Club” selection, click that and learn what someone can do to either join a club or start one of their own.

## *Tips*

- Under “Student Resources” in the education and careers tab, look for the scholarship and fellowships, it could help you if you decide to go through with civil engineering
- Memberships for students are free, just remember to renew it every year at no cost
- Join the innovation contest on the homepage if you already have some ideas that can relate to civil engineering
- Under the “Publications” tab, there are journals and e-books that could be help to you while considering engineering as a major

# Resources to Get into Engineering

## Oakland Technological School

### *Website Link:*

<http://www.ostconline.com/CAMPUSES/NortheastCampusPontiac/tabid/2842/Default.aspx>

### *Why Visit this Site?*

Oakland Technological school is a campus located in Pontiac, Royal Oak, Wixom, and Clarkston. It is for students who attend Oakland community schools to have a dual enrollment program and earn college credits before graduating high school. Attending this school gives students a one up once they get to college by preparing them for the professional and technical world they want to get involved in.

### *Tips*

- In the middle of the homepage there is a “School Hours” section, check the times there to see if you would be able to attend either the AM or PM section
- Under the programs tab at the top of the page, click on the engineering link and look at the skills Oakland Technology schools can teach you
- Under the quick links section on the left side of the page, there is a “New to OSTC” link, follow that link to see reasons you should attend and who goes there

# University of Detroit Mercy

## *Website Link:*

<http://eng-sci.udmercy.edu/programs/eng/index.htm> - Engineering Homepage

<http://www.udmercy.edu/> - UDM homepage

## *Why Visit this Site?*

University of Detroit Mercy is a Jesuit private University located within the city of Detroit, Michigan. It is known for its outstanding engineering program and success rate. 95% of UDM's engineering graduates have found jobs or are admitted into graduate school within 6 months of graduating. UDM teaches confidence, competence, and experience throughout their engineering programs and is a school that a metro Detroiter can commute to on a regular basis.

## *Tips*

- The circles under "Engineering Programs" are links to that specific discipline's undergraduate programs, click on them to go to whichever one interests you
- Visit the "Departmental Homepages" and see which discipline offered at UDM interests you the most
- In the top right of the webpage, there is a "Pre-College Programs" link, use that to see what you can do before you start attending University of Detroit Mercy

# Kettering University

## *Website Link:*

<https://www.kettering.edu/>

## *Why Visit this Site?*

Kettering University boasts as the #1 school for engineering in Michigan. Located in Flint, Kettering has hosted some of the top engineers in the industry today. Some students attest the reasons to attend are for the co-ops, hands-on-classes, and amazing education. Kettering has co-ops that do 3 months of school and 3 months of work. This rotates as so for four and half years until graduation. If a student wants to get into the working field as soon as possible, this is the place to do it.

## *Tips*

- In the admission tab, click on the “Pre-College Opportunities” link to view different ways you can prepare for life at Kettering
- Read their mission statement under “Pre-College Opportunities” and see if you can agree to their values
- Kettering offers dual enrollment with high schools, use the search bar to look this up and see if you qualify