

**Note: Press Ctrl + Mouse point click on RED Color highlighted word so that it will redirect to the original website**

## **Education & Skill Development**

Each of the 17 major engineering disciplines has professional societies and career development organizations. Associations, institutes and private engineering schools offer certification, advanced courses and seminar programs. Engineers continue learning in the classroom, at conferences and seminars, and on the job. Fundamentals are available from free massive open online courses (MOOCs).

### **American Society of Civil Engineers (ASCE)**

ASCE provides continuing education to civil engineers seeking advanced training and certifications. Options include face-to-face instruction, live webinars, P.E. and S.E. exam reviews and on-site corporate training.

### **American Society of Mechanical Engineers (ASME)**

Professionals can sign up for career development programs at ASME that provide certification training in HVAC, nuclear quality assurance, and bioprocessing. Assessment tests are offered for certification candidates.

### **Canvas Network**

Canvas provides open, online engineering courses taught by educators from major universities at no cost. Current courses are available in unmanned aerospace systems, physics for animators, communications boot-camp, project management, technical documentation, and data privacy.

### **Coursera**

This MOOC pioneer has partnerships with the nation's elite engineering colleges and universities, allowing Coursera to offer free classes in topics such as big data, machine learning, strategic management and innovation, applications in engineering mechanics, dynamics of motion, and mechanics of materials.

### **CourseTalk**

Another MOOC aggregator, CourseTalk has 325 course listings in the engineering disciplines, including studies in circuit analysis, aerospace engineering, artificial intelligence and robotics, VLSI CAD, compilers, nanotechnology, nuclear science, and fuel cells.

## **edX**

A MOOC offering free courses, edX currently lists 115 engineering classes in subjects such as astrophysics, robotics, big data, Six-Sigma, structural engineering for bridges, wastewater engineering, circuits and electronics, nanotechnology, thermodynamics, signal processing, and climate change.

## **Engineering.com**

The engineering megasite maintains an extensive resources section that publishes white papers, ebooks, research findings and webinars. Members receive unlimited access to resources and newsletters.

## **Institute of Industrial Engineers (IIE)**

Professional engineers can receive LEAN and Six Sigma “green belt” training from the IIE. Other training programs from the institute provide courses in engineering management and industrial engineering.

## **Khan Academy**

Khan Academy offers free online classes through practice exercises and instructional videos from top engineering college partners including NASA, MIT, and The California Academy of Science. Courses are coordinated through a personalized dashboard that tracks student progress through the curriculum.

## **MIT OpenCourseware**

Massachusetts Institute of Technology was a pioneer of MOOCs and today hosts nearly 900 classes from its engineering faculty, offered free of charge. Engineering fields represented include mechanical, electrical, materials, civil and environmental, biological, chemical, nuclear science, and aeronautics.

## **MOOC List**

Engineering students seeking free courses from top universities can find a wide range of classes, from introductory to post-graduate level engineering topics, at the MOOC aggregator. Recent classes included practical machine learning, signals and systems, hydraulics, numerical methods for engineers, dynamic controls, structural engineering for bridges, vehicle dynamics and robotics.

## **National Programme on Technology Enhanced Learning (NPTEL)**

The seven Indian Institutes of Technology have created this tech MOOC offering e-courses in topics such as non-linear dynamics, manufacturing systems, wireless communications, modern construction materials, the physics of materials, and propulsion systems.

### **National Society of Professional Engineers (NSPE)**

Every year, NSPE offers 15 free courses to member engineers. Current offerings include studies in engineering ethics, sustainable development, team building, trends in seismic shifts, designing for high wind, and engineering leadership.

### **Open Learning Initiative, Carnegie Mellon University (OLI)**

Carnegie Mellon's OLI program has served up free courses to more than 45,000 students. Current offerings include classes in biochemistry, evidence-based practice in managing, logic and proofs, probability and statistics, and public policy analysis for engineers.

### **PDHdirect**

Engineers seeking professional development hours, courses, or certificates to meet continuing education requirements will find more than 200 online, interactive courses and webinars in civil engineering, electrical engineering, environmental, industrial, materials, sustainability, HVAC, petroleum, and others at PDHdirect.

### **PDHengineer**

PDH provides online engineering continuing education for professionals renewing their PE licenses. Subject areas include civil, electrical, geotechnical, HVAC, industrial, materials, oil and gas, renewable energy, and state-specific engineering.

### **RedVector**

Professional training firm RedVector provides 1,300 continuing education courses for professional engineers. Programs include OSHA 30 training and CE training in engineering disciplines of chemical, architectural, construction, energy, minerals and mining, pulp and paper, and facilities management.

### **Society of Petroleum Engineers (SPE)**

The largest society of petroleum engineers and scientists offers a SPE-certification course curriculum, webinars, and recorded classes. It also provides advanced PE courses, offered at locations across the globe.

### **Stanford Online**

Engineering students have free access to Stanford University lectures and classes via iTunes and through Stanford Online. Recent courses include the

Stanford LEAD certificate, economics of energy technologies, statistical learning, and the science of decision making.

### **Young Engineers in ASHRAE (YEA)**

Designed to promote education and career development of young engineers, the American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) created YEA to offer technical training weekends, HVAC Design Essentials scholarships, awards programs and the YEA Connection newsletter

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## **Academics & Research**

Whether or not an engineering graduate student is required to complete a master's thesis or doctoral dissertation depends on the individual degree program. Some programs, particularly on the master's level, offer both thesis and non-thesis degree options. Nevertheless, engineering grad students will be required to carry out some level of research as part of their degree programs. The sites linked below are provided to help engineering grad students get a feel for what is available online to aid them in conducting their research.

### **Directory of Open Access Journals (DOAJ)**

The DOAJ is a not-for-profit organization whose site provides access to over 10,000 open access journals concerning all areas of science, technology and other subjects.

### **Microsoft Academic Search**

Microsoft search engine that provides a connection to nearly 50 million publications including those from scientific journals in subjects such as engineering, computer science, and more.

### **National Institute of Standards and Technology (NIST)**

An agency of the U.S. Department of Commerce, the NIST website offers a broad selection of information and data sources for engineers, including scientific databases and an engineering statistics handbook.

### **National Technical Information Service (NTIS)**

Another source provided by the U.S. Department of Commerce. The NTIS website provides access to approximately 3 million publications covering over 350 subject areas, including government-funded scientific, technical, engineering, and business related information.

### **NSSN Search Engine for Standards**

Sponsored by the American National Standards Institute (ANSI), this search engine provides users with standards-related information from a variety of developers, including government agencies, international organizations, private sector standards bodies and ANSI-accredited organizations.

### **SciCentral**

SciCentral primarily functions as a news aggregate and ranking site for breaking scientific research news, including engineering-related news. The site also provides access to a number of non-news resources such as literature search tools, utilities and directories.

### **Science Direct**

The search engine at Science Direct allows individuals to search for information regarding peer-reviewed journals, articles, book chapters and other content, much of which is offered via open-access platform.

### **Science.gov**

Science.gov searches over 60 databases and more than 2200 websites from 15 federal agencies, resulting in access to 200 million pages of U.S. government science information including research and development information and data.

### **SciTech Connect**

SciTech Connect is the U.S. Department of Energy's clearinghouse site for its science, technology and engineering research information. Individuals can use the site's search engine to access full text to studies, citations, software and much more.

### **United States Nuclear Regulatory Commission (NRC) Library**

The NRC Library site provides access to the agency's publically-released documents and data. A substantial amount of documentation is available for review online, while other information and data can be obtained through the library's record retrieval systems.

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# Internships

Dedication, persistence and commitment are indispensable for landing an engineering job. The following job sites and internship resources also provide essential tools for researching engineering openings, credentials, or professional networks. Thousands of engineering openings are updated daily including jobs in particular disciplines posted on smaller job sites and professional association career centers.

## **Boeing Aircraft**

Leading aerospace manufacturer Boeing offers a 12-week undergraduate and graduate Engineering Intern Program, held at one of its 11 research and development centers located around the globe.

## **Engineering Jobs.com**

More than 5,000 internships are listed at this job site in a range of disciplines including civil, construction, mechanical, design, research and development, field testing and machine learning. Employers include Granite Construction, Lockheed Martin, General Dynamics, Intel, Sachs Electric, Sandia National Laboratories, SpaceX, Go Pro, Seagate, Corning, and Priceline.

## **Five Great Engineering and Technology Internships for 2016**

From Forbes Magazine, a roundup of five engineering internships, including the compensation, perks, how to apply and how well they're viewed by the industry. The top internships (ranked in order by Forbes) are at Boeing, 3M, Computer Sciences Corporation, CH2M Hill, and SpaceX.

## **Glassdoor**

This megasite that evaluates companies and corporate culture recently listed 12,000 engineering internships in mechanical, civil, software, electrical, structural, applications, and process engineering students. Companies recently seeking interns include Lockheed Martin, Bechtel, Sony Playstation, Novetta, TE Connectivity, Carfax, Pacific Gas and Electric, and Facebook.

## **Google**

The innovative search company offers students year-round technical and product development internships at its facilities and labs. Recent internships were advertised for students of mechanical engineering, quantitative analysis, reliability testing, and software engineering.

## **GovCentral**

Part of Monster.com, this federal jobs/internships site features “The Ultimate Government Internship Index”, a roundup of special federal internships by department, a list of branches and agencies, and articles on landing government placements.

## **IEEE Job Site**

Managed by The Institute of Electrical and Electronics Engineers (IEEE), Job Site hosts a searchable engineering job bank, job-seeker tools, career fair listings, and current news in engineering hiring. There’s a special student section for entry level jobs.

## **Internships.com**

Intern candidates are matched with internship opportunities at this site which allows students to search by location or discipline. Recent internships were listed for Mitsubishi Electric, Honda, Lakeview Industries, THX Ltd., Intel, Women’s iLab, Conoco Phillips, Verizon and Ericsson.

## **LinkedIn**

As part of their vast professional networking company, Linked-In maintains an engineering internship board. Among the 6,000 recent opportunities were internships with Global Nomadic, Groupon, Google, Amazon, Tumblr, Verizon, NuScale Power, Hewlett Packard Enterprise, Rolls-Royce and Facebook.

## **Looksharp**

The engine behind Looksharp allows students to search engineering internships among 17 disciplines in the field. Recent internships were listed for BlueStamp Engineering, Allegro MicroSystems, Inc., Schweitzer Engineering Laboratories, American Engineering Testing Inc., Campbell Soup Company, Fedex Ground, Streck, Hewlett Packard, and Consolidated Container Company.

## **Washington Internship for Students of Engineering (WISE)**

Engineering students from more than 50 colleges and universities have received these nine-week internships in the nation’s capital to learn the legislative process and conduct original research leading to a paper on engineering public policy.

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Many you can get from the below (source)..

<https://www.affordablecollegesonline.org/degrees/engineering-programs/resources/>