I'm not a bot

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The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. LinkedIn and 3rd parties use essential and non-essential cookies to provide, secure, analyze and improve our Services, and to show you relevant ads (including professional and job ads) on and off LinkedIn. Learn more in our Cookie Policy.Select Accept to consent or Reject to decline non-essential cookies for this use. You can update your choices at any time in your settings. Most people have heard the term civil engineer, yet few know exactly what these highly-trained professionals do. Among other things, they're the heroes who design, build, and maintain bridges, roads, and utility infrastructure. In this article, we'll explore: What it takes to become a civil engineer Their origin story The training required and some of the best schools for civil engineers Historic and current engineering feats Specializations within the field What makes civil engineers superhuman Not only are engineers planners and doers, they're also imagineers, people who see and create things out of nothing. Some of the characteristics that make good engineers include being: Analytical: Engineers must be able to evaluate situations, consider options, and determine how to make things work effectively. This includes finding ways to build better bridges at lower costs, improving traffic flow, and installing utility systems that will last a long time. Detail-oriented: Engineering projects are made up of countless details. A tiny oversight could lead to calamity. They must understand how the smallest parts of a project work and connect with each other to create sound, stable, and safe structures. An excellent communicator: Engineers interact with countless people every day, explaining complex concepts in ways everyone can understand. Curious: The field of engineering is changing all the time. Engineers must be open to exploring different options and learning new things. Creative: Great bridges and other structures don't just happen. Engineers imagine and design them. It takes a lot of creativity to develop amazing structures like the Golden Gate, the Brooklyn, and the Gateshead Millennium bridges. A logical thinker: It's one thing to possess unbridled creativity. Engineers must take it to the next level and use logic to pull all the pieces together to bring their ideas to life. Good with numbers: Every building project is backed up by math. Engineers do complex calculations to ensure structures can withstand gravity and other powerful forces. A problem solver: Design projects involve solving problems. Bridge engineers have to figure out how to move traffic from one side of a natural or manmade barrier to the other and ensure a structure can withstand forces like hurricanes and earthquakes, all while making sure the bridge is attractive and enhances its natural environment. A team player: It takes many people to build and maintain bridges. Being able to interact with all personality types is critical for success. Tech savvy: Engineers utilize complex computer software every day. Being technologically literate is a requirement for the job. The earliest superhero engineers Civil engineers could make a claim to the title of world's oldest profession. Along with military engineering, the field can be traced back to ancient times. Engineering began when humans stopped living as wandering nomads and decided to settle near each other and build shelters in urban centers. Around the same time, transportation became important, and some civil engineers designed and developed things like basic roads and bridges, the wheel, and boats. Some of the first major civil engineering projects include: Projects left to right Egyptian pyramids, Circa 2700-2500 B.C. The pyramids at Giza are among the largest structures ever built. They are the only survivors of the original seven wonders of the ancient world. Qanat water management system, Circa 1000 B.C. This advanced system delivered water to arid areas in ancient Persia. Greek Parthenon, Circa 447-438 B.C. This former temple built on the acropolis in Athens was dedicated to the goddess Athena. Even in its ruined state, it is still considered one of the most beautiful buildings ever built. The Roman Appian Way, Circa 310 B.C. This was a critical stone thoroughfare that connected Rome with Brindisi in southeast Italy. It supported warfare and trade. Sections of the roadway still survive today. The Romans deserve a special mention in the engineering hall of fame. They accomplished extraordinary engineering feats throughout their vast ancient empire, including developing harbors, bridges, dams, roads, sports and entertainment venues, and aqueducts. Transition to the modern era While civil engineers differentiated themselves from their military counterparts in ancient times, the distinction diminished in the Middle Ages. The first person to officially call himself a civil engineer in the modern era was John Smeaton. Back in 1771, he and a group of other engineers formed the Smeatonian Society of Civil Engineers. The group met regularly over dinner to discuss engineering-related issues and advances. A few decades later, in 1818, the Institution of Civil Engineers was founded in London. Ten years later, the group received a royal charter, which officially recognized civil engineering as a profession in the United Kingdom. Among the first types of engineering projects outlined in the charter were the development of roads, bridges, and urban drainage systems. Education and training Early engineers were self-taught, transferring knowledge from one generation to the next. The first U.S. college to offer civil engineering courses was Norwich University, back in the early 1800s. The first degree in the field was awarded by Rensselaer Polytechnic Institute in 1835. Today, people working in the profession usually hold Bachelors degrees in civil engineering. They study heavy concentrations of physics, advanced math, and project management and design. After taking some general civil engineering courses, students choose an area of specialization. An undergraduate degree is enough to begin the process of earning industry accreditation and getting a job in the field. However, many students choose to pursue advanced degrees that allow them to specialize even more and potentially earn higher incomes. There are solid engineering programs offered at colleges all over the United States. Some of the best-ranked ones according to College Choice include: University of Illinois — Urbana-Champaign Purdue University — West Lafayette Georgia Institute of Technology University of Minnesota — Twin Cities Texas A&M University — College Station Next steps toward becoming a civil engineer In most advanced countries (including the United States), earning a degree is only the first step toward becoming a civil engineer. Once someone gets a degree, they must meet requirements that include doing a prescribed amount of hands-on work and passing a series of exams. Once a civil engineer is certified in the U.S., they can prepare, sign, seal, and submit plans to public authorities for approval. Legal requirements From a legal and regulatory standpoint, certified engineers must comply with the requirements of the contracts they sign. They can be held legally responsible if their work fails. At the extreme, they will be subject to criminal charges for failures, injuries, and deaths. Engineers must also work within building codes and environmental regulations. Civil engineering sub-disciplines The lead engineers on a job partner with specialized engineers. Some of the most common civil engineering sub-disciplines involved in bridge projects include: Construction engineers, who help plan and develop construction sites, including getting equipment and materials delivered to building locations and preparing them for development. Some are involved in business activities like drafting and reviewing contracts, hiring workers, ordering supplies, and monitoring budgets. Earthquake engineers, who specialize in designing structures that can survive in earthquake-prone areas. They focus on the impact that seismic activity could have on bridges and related utility installations. Environmental engineers, who are becoming more important on bridge construction sites. They ensure that structures don't affect the local environment negatively during demolition and construction and after a project is complete. Geotechnical engineers, who ensure rocks and soil can support the bridges built on and in them. They are key to developing things like piers, foundations, and retaining walls. Water resources engineers, who play a role on projects that cross creeks, rivers, and other waterways or that are built around wet lands. They focus on the impact it could have on water quality. Hydraulic engineers, who play a key role designing bridges that span waterways. They provide input on how the flow of water in, around, and through a bridge could affect its structural integrity. Structural engineers, who oversee the overall design, analysis, and integrity of bridges. They make sure the structures perform as required by identifying and analyzing the loads that will act on them and the stresses and forces that could affect them. Transportation engineers, who plan how cars, trucks, trains, bicycles, and pedestrians cross bridges and how bridges connect with roads, tunnels, tracks, terminals, and other transportation-related infrastructure. They also manage bridges after they're completed. Municipal and urban engineers, who focus on how bridges and utility installations connect with the broader urban tapestry. They oversee situations where multiple development projects must connect together as a whole when completed. Forensic engineers, who are brought in when bridges and other structures fail or don't function as intended. They investigate the cause of failures or issues and come up with ways to make improvements in the future. Today's superheroes Check out some of these amazing projects recently developed by today's superhero engineers: 2nd image by Glabb (Own work) [CC BY-SA 3.0], via Wikimedia Commons. 3rd image by Glabb (Own work) [CC BY-SA 3.0], via Wikimedia Commons Port Mann Bridge, Vancouver, B.C., Canada This bridge, opened in 2012, is the second longest and widest in the world. It uses 288 cables to support its almost 7,000-foot length. Aizhai Suspension Bridge, China This is one of the world's highest and longest suspension bridges. It connects two tunnels across the Dehang Canyon. It spans almost 4,000 feet, and the mountains on either end anchor its towers. Liuchonghe Bridge, China Another Chinese wonder, this is the second-highest cable-stayed bridge in the world. It rises more than 1,000 feet above the Liuchonghe River. The designers made the most of its spectacular setting. Becoming an engineer Interested in learning more about civil engineers, the superheroes of the design and construction industry? The American Society of Civil Engineers website is a good place to start. It has information about education and career opportunities, along with links to interesting publications and extensive libraries. It could help you get started in the field or take your career to the next level. Since our founding as a public university for New South Wales in 1949, UNSW has remained dedicated to advancing the public good. Over 75 years of global change, we have worked to create a positive societal impact through transformative education, innovative research, and meaningful global engagement. In 2025, we are proud to launch the UNSW Strategy: Progress for All alongside our inaugural Societal Impact Framework (SIF). Key Highlights Rapid infrastructure and real estate changes in Kerala, around 200 civil engineering job vacancies in Kerala have opened up in the city. The average salary is INR 13,985 per month for civil engineering job vacancies for freshers in Kerala. Numerous companies have training programs available to freshers so that they can apply what they have learned practically. You should know project management, AutoCAD, and site supervision to excel in these jobs. Most work situations include shifts during the day, time out in the field, and often also pay for overtime. Kerala is becoming an essential place for civil engineering jobs vacancy in Kerala, India. It provides suitable opportunities, whether you are just beginning your career or aiming to climb the ladder. We can look into the current trends, best jobs, and salary projections, as well. Latest Facts & News Kerala's infrastructure sector is projected to grow by 8% in 2025, increasing demand for civil engineers. Over 1,200 new civil engineering job postings appeared in Kerala in Q1 2025, with 35% targeted at freshers. The Kerala Public Service Commission (KPSC) announced new recruitment drives for civil site engineers and junior engineers. Leading construction firms in Kochi and Trivandrum are expanding, offering both permanent and contract roles. Salary packages for entry-level civil engineers in Kerala have increased by 12% compared to 2024. Remote and hybrid civil engineering job options are emerging, especially in design and project management. Major infrastructure projects, such as Kochi Metro Phase II and Smart City initiatives, are creating specialised job roles. Women's participation in civil engineering jobs in Kerala has risen by 20% in the last year. Government and private sector collaborations are leading to more internship opportunities for civil engineering students. Kerala's construction sector is prioritizing green and sustainable engineering, opening new niche job profiles. Also Read: Civil Engineering Jobs in Australia: Latest Guide Below's an overview of civil engineering job vacancies in Kerala: Both public and private companies offer civil engineering job vacancies in Kerala. Demand continues to increase because of fast urban growth, investments in smart cities, environmentally friendly projects, and large public work programs. Many people like government jobs because they provide job security, steady hours, and benefits that last through retirement, like a pension and housing assistance. If you want stability in your work style, these roles provide clear progression. Meanwhile, legal firms that belong to the private sector are constantly changing and usually lead in innovation in civil engineering job vacancies in Kerala. They let you earn better and deal with the latest technologies and essential projects worldwide. Main tasks are site supervision, creating structural designs, planning the entire project, handling transportation, and managing available water resources. Because more construction and modern technology are being used, civil engineering job vacancies in Kerala is an option with a strong future. Types of Civil Engineering Jobs Vacancy in Kerala 2025 There are many civil engineering job vacancies in Kerala. The tasks at a job and how challenging they are vary depending on the workplace and job description. There are positions available for engineers regardless of their experience. The type of job depends on both the project and the specialist. Common Job Careers Here are some common careers available in civil engineering job vacancies in Kerala: Site Engineer – Guides all activities taking place on the site during construction. Junior Civil Engineer – Contributes to the planning and design of construction projects and oversees them on-site. Quality Engineer - The Quality Engineer ensures that the project adheres to the set requirements. Project Engineer – Oversees the project schedule, available resources, and how teams coordinate. Site Supervisor – Manages workers and construction materials on the site. Civil Draftsman – Designs and creates CAD drawings for technical use. Civil Billing Engineer – Works on estimating expenses and making invoices. Also Read: Civil Engineer Job Vacancy in Dubai: Latest Pay, Scope & More Civil Site Engineer Job Vacancy in Kerala 2025 A civil site engineer job vacancy in Kerala plays an important role in managing and executing construction projects in Kerala efficiently. These civil site engineer job vacancy in Kerala requires construction activities on-site, ensuring structural integrity, compliance with design specifications, and coordinating with various stakeholders in Kerala to ensure timely project completion. Below is the table of civil site engineer job vacancy in Kerala with location and salary in INR: Civil Site Engineer Job Vacancy in Kerala Location Salary (INR) Per Month ABC InfraTech Pvt Ltd Kochi 20,000 – 35,000 Kerala Infra Projects Thiruvananthapuram 18,000 – 30,000 GreenBuild Solutions Calicut 25,000 – 40,000 South India Constructions Ernakulam 15,000 – 25,000 BuildRight Engineers Thrissur 22,000 – 38,000 Government vs. Private Sector Civil Engineering Jobs in 2025 Popular job profiles include those in government civil engineering job vacancies in Kerala: Job Title Average Salary (INR) Hiring Bodies Junior Engineer 2 – 6 LPA SSC JE, State PSCs Assistant Engineer 7 – 9 LPA CPWD, PWD, Railways Project Manager 9 – 13+ LPA PSUs, NHAI, Defence Services Structural Engineer 5 – 10 LPA SAIL, IOCL, Metro Projects Private Sector Civil Engineering Jobs in 2025 Top profiles of private sector civil engineering job vacancies in Kerala : Job Title Average Salary (INR) Top Recruiters Site Engineer 4 – 7 LPA L&T, Tata Projects, Shapoorji Pallonji Design Engineer 4 – 9 LPA Arcadis, AECOM, Atkins Structural Engineer 7 – 10 LPA Sobha, Godrej Properties, Jacobs Planning Engineer 5 – 8 LPA Consulting and EPC firms Also Read: Civil Engineering Jobs in Austria: Trusted Expert Guide Civil Engineering Job Vacancies for Freshers in Kerala 2025 Kerala offers many opportunities for civil engineering job vacancies for freshers in Kerala. Several companies hire directly from engineering colleges. On-the-job training programs are widely offered. These programs help freshers learn project work and technical tasks. Civil Engineering Job Vacancies for Freshers in Kerala Here are some job details about civil engineering job vacancies for freshers in Kerala: Trainee Site Engineer Assistant Engineer Graduate Engineer Trainee (GET) These roles involve site supervision, basic planning, and documentation work. Freshers work under senior engineers and learn through real-time exposure. Required Skills for Freshers Here are some required skills for civil engineering job vacancies for freshers in Kerala: It is essential to know AutoCAD basics. Ability to use MS Excel for creating reports and business data Being able to work well with the team and communicate properly Freshers' Salary in Kerala This is what the salary in the job for a fresher civil engineer in Kerala looks like: The average monthly pay falls within the range of INR 12,885 to INR 17,000. After completing the training period or probation, some companies give their employees a pay rise. Tip: Include your academic projects, any internships you completed and your tech skills. Use a simple organisation and point out the tools you can work with best. Top Companies Hiring Freshers Civil engineers find plenty of opportunities in Kerala. Often, leading employers share job openings on job websites and their career sites. Here are some notable employers for civil engineering job vacancies in Kerala : Confident Group It is one of the leading companies in offers trainee engineer positions. Hands-on jobs in industrial, metro, and real estate development. CREO HOMES PVT LTD Works on attractive, high-end residential and commercial civil site projects. Helps new and seasoned professionals achieve their career goals. Divine Homes The Kerala, city is recognised for having many high-end real estate developments. Tries to employ engineers with experience on the construction site and ensures quality. Building Contractor These jobs are available in engineering, procurement, and construction. This certificate is best for those who have worked in project management. Maharaja Engineers and Contractors A leading firm in infrastructure and developing cities. Recruits staff to work on designing, supervising, and implementing projects. Arcline Properties Pvt Ltd A local firm that is gaining momentum and has a good reputation. Usually hires fresh talent as well as experienced engineers. Fijos Engineers and Architects Company They are appreciated for their high-quality projects and creative designs. Perfect for engineers who focus on finishing and detailing parts of a project. Also Read: Civil Engineering Jobs in Canada: Latest Pay, Scope & More Tips for Freshers to Secure Civil Engineering Jobs Vacancy in Kerala Getting started in civil engineering job vacancies in Kerala is both exciting and can be tough. Below are some real tips that freshers should follow when looking for their first job: List your internships, projects from university, and any work you have done in practice on your resume. Mentioning what you have done and accomplished in tech is very important. Learn AutoCAD, BIM, STAAD Pro, and how to handle project management software. Employers appreciate these skills, and they may help you get ahead of your competition. Government jobs require early application for the SSC JE, GATE, and PSCs. Getting a good mark in these tests makes it easier to obtain top and steady employment in government civil engineering. Check Naukri, LinkedIn, and Indeed often to find new job vacancies. Suit your applications to what the employer wants. Participate in groups formed by alumni, civil engineering professionals, and different associations. Talking to other professionals in your field gives you access to unknown jobs and to people who can recommend you. Practice often with simple programming questions, conduct problem-solving exercises in your field, and keep improving your communication. Doing mock interviews can prepare you and build your trust in yourself. How to Apply for Civil Engineering Jobs Vacancy in Kerala? Here's a step-by-step guide to applying for civil engineering job vacancies in Kerala: 1. Update Your Resume Make sure to revise your resume. Be sure to include your skills in technology, any projects you did in school, and your work experience as an intern. Give importance to learning AutoCAD, using Excel, and gaining site experience. 2. Use Job Portals Create an account on social media platforms such as: Naukri.com LinkedIn Jobs Indeed.com Many civil engineering jobs are advertised here. 3. Use Filters You can use filters such as: "Finding Civil Engineering Careers in Kerala" Freshers can look for civil jobs in Kerala. "What is the salary of a Site Engineer in Kerala?" Use the settings to focus on the places, jobs, and salaries that fit your ambitions. 4. Get Ready for the Interview Familiarize yourself with concrete grades, safety at the site, and design codes. Be able to outline how you are involved in any project you work on. Create several case study examples to demonstrate your way of tackling problems. 5. Follow-Up Always write a gracious email thanking them after your interview. Let them know you will wait a week if no response is received. Also Read: Civil Engineering Jobs in Europe: Latest Guide Best Job Portals and Recruitment Agencies for Civil Engineering Job Vacancies in Kerala 2025 There are several places to find civil engineering job vacancies in Kerala. On Indeed.com, users can look for jobs by choosing their salary, number of years worked, and type of job. LinkedIn Jobs helps get advice and insights from companies. Many people choose Naukri.com to find fresher and more experienced jobs. Glassdoor tells you what working for different companies and their pay is like. You can set up alerts on these sites to be notified of new jobs daily. Salary Trends and Growth Opportunities for Civil Engineering Jobs Vacancy in Kerala Here are some details about civil engineering job vacancies in Kerala with salaries by experience: Experience Level Average Monthly Salary Top Roles 3–5 years INR 27,000 – INR 38,000 Site Engineer, Billing Engineer 6–8 years INR 40,000 – INR 57,000 Project Coordinator, QA/QC Engineer 10+ years INR 50,000 – INR65,000+ Project Manager, Sr. Civil Engineer Latest Skills and Qualifications Required for Civil Engineering Jobs Vacancy in Kerala 2025 These skills and qualifications can help you secure your desired civil engineering job vacancies in Kerala: Educational Requirements These are the educational requirements for civil engineering job vacancies in Kerala: The diploma program is aimed at technician or junior jobs in the field. Most employers require B.E./B.Tech degrees in Civil Engineering. Most of the time, organisations prefer M.E./M. Tech in Civil Engineering for team leaders or researchers. Technical Skills Here are the technical skills required for civil engineering job vacancies in Kerala: AutoCAD is used to make drawings and sketches. STAAD Pro can be used for analysing and designing structures. MS Excel and MS Project are used mainly to create budgets and plan tasks. You must be supervised on-site for your tasks to be practical. Quality Control and Testing – Safeguards that all standards are met. Surveying Tools – These tools are used to measure land and set up a site plan. Soft Skills Here are the soft skills required for civil engineering job vacancies in Kerala: Clear Communication – To manage efforts between employees and vendors In charge of guiding the work of others and junior engineers. It is essential to keep track of time to meet the required project deadline. It aids employees in making quick decisions at the job site. Certifications Here are some certificates that can be beneficial for civil engineering job vacancies in Kerala: PMP (Project Management Professional) – Enhances the trust in your role on projects Being OSHA Certified guarantees an understanding of safety rules worldwide. Getting a LEED Certification is helpful for projects focused on sustainability and building with green materials. Also Read: Top Civil Engineering Companies in Germany: Latest List Latest Recruitment Drives and Walk-ins for Civil Engineers in Kerala 2025 Here are the latest requirements drives regarding civil engineering job vacancies in Kerala: Green Buildings More projects are being devoted to sustainability and energy efficiency. Having skills in LEED or IGBC standards will give engineers an advantage. Smart Infrastructure Kerala is included in the country's Smart Cities Mission. For this reason, the future workplace will likely need experienced civil engineers. Data Skills in Demand Those with knowledge of data analysis and project metrics are expected to stand out in their field. Gaining experience with Power BI or MS Project can distinguish you from others. There are many opportunities in civil engineering job vacancies in Kerala, and interest in these jobs grew in 2025. The pay is competitive enough that this career option is very popular. Those starting in engineering do well after good training and begin with fundamental roles, while experienced people have a chance to enter managerial and unique engineering fields. For success, try to develop your talents, follow new developments in the industry, and use strategy efficiently. Frequently look for jobs on career websites and aim to build your career in civil engineering job vacancies in Kerala. To learn more about the civil engineering job vacancies in Kerala, visit TerraTern now. Posted on : 2024-12-10Civil Engineer job notification released on : 10-12-2024 from the CMD Kerala , Indian Bank , KIIFB , KMML , National Chemical Laboratory , NIT Calicut , VSSC , BPCL , KEL organizations. Interested Candidates who are looking for Civil Engineer jobs may Submit the Application for the CMD Kerala , Indian Bank , KIIFB , KMML , National Chemical Laboratory , NIT Calicut , VSSC , BPCL , KEL Recruitment Notification before the last date of the application ie: 2024-12-11. Every candidate must read the detailed information of the 490 Civil Engineer jobs in Kerala Notification which is mentioned briefly below for ongoing application of Govt Jobs in Kerala. Also, we provide a free job alert for every aspirant as per their required set of eligibility criteria. Every student must read the following details below to apply for the Govt jobs in KeralaQualification : Based on the Job post of Civil Engineer and other notification has certain eligible criteria as followsVacancy DetailsNo. Of Posts: 490 Posts : As per the Government jobs notification, every notification has different posts and vacancies.Employment Type: Fresher, Civil Engineer JobsAge Limit: The candidate should not exceed 45 years of age.Selection Process: The selection process differs for every notification. It may Direct recruitment, Interview or Written Test.Pay Scale: Rs.12,000/- to 52000/- per month.Application Process: Offline / Online Application procedure.CMD Kerala Jobs 2024 Apply for 06 Civil Engineer and Other JobsCMD Kerala Jobs 2024 Apply for 03 Civil Engineer, RBI Advisor and Other JobsIndian Bank Jobs 2023 Apply for 03 Civil Engineer PostsKerala Maritime Board Jobs 2023 - Apply Online For 06 Board Secretary, Electrical Engineer, Senior Civil Engineer, Resident Engineer PostsKIIFB Jobs 2023 - Apply for 10 Inspection Engineer and Driver PostsKMML Recruitment 2023 - Apply for 05 Civil Engineer and Marketing Executive PostsHOCL Recruitment 2022 - Apply for 02 Civil Engineer and Junior Operator PostsNIT Calicut Recruitment 2022 - Apply for 41 Faculty PostsKSWMP Recruitment 2022 - Apply for 09 Environmental Engineer, GIS Expert, and Other JobsVSSC Recruitment 2022 - Apply 273 Graduate Apprentice PostsBPCL Recruitment 2022 - Apply for 102 Graduate Apprentice VacanciesKEL Site Engineer Job Notification 2022 - 30 Vacancies Engineering of infrastructure Civil engineerTennessee Valley Authority civil engineers monitoring water flow on a scale model of Tellico DamOccupationNamesCivil engineerOccupation typeProfessionActivity sectorsDesign and management of structures, transportation systems, infrastructureDescriptionCompetenciesTechnical knowledge, management skills, mathematical analysis A civil engineer is a person who practices civil engineering – the application of planning, designing, constructing, maintaining, and operating infrastructure while protecting the public and environmental health, as well as improving existing infrastructure that may have been neglected. Civil engineering is one of the oldest engineering disciplines because it deals with constructed environment[1] including planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems.[2] The term "civil engineer" was established by John Smeaton in 1750 to contrast engineers working on civil projects with the military engineers,[3][4] who worked on armaments and defenses. Over time, various sub-disciplines of civil engineering have become recognized[5] and much of military engineering has been absorbed by civil engineering.[6] Other engineering practices became recognized as independent engineering disciplines, including chemical engineering, mechanical engineering, and electrical engineering. In some places, a civil engineer may perform land surveying; in others, surveying is limited to construction surveying, unless an additional qualification is obtained. Civil engineers usually practice in a particular specialty, such as construction engineering, geotechnical engineering, structural engineering, land development, transportation engineering, hydraulic engineering, sanitary engineering, and environmental engineering. A civil engineer is concerned with determining the right design for these structures and looking after the construction process so that the longevity of these structures is guaranteed after completion. These structures should also be satisfactory for the public in terms of comfort.[7] Some civil engineers, particularly those working for government agencies, may practice across multiple specializations, particularly when involved in critical infrastructure development or maintenance. While all civil engineers tend to spend at least some time working "on site", much of the modern civil engineering work is done in offices, working with plans or computers. Civil engineers generally work in a variety of locations and conditions. Much of a civil engineer's work is dealing with non-engineers or others from different technical disciplines, so training should give skills preparing future civil engineers in organizational relationships between parties to projects, cost and time.[8] Many spend time outdoors at construction sites so that they can monitor operations or solve problems onsite.[2] The job is typically a blend of in-office and on-location work depending on the focus of each engineer. Most engineers work full-time. In most countries, a civil engineer will have graduated from a post-secondary school with a degree in civil engineering, which requires a strong background in mathematics and the physical sciences; this degree is typically a bachelor's degree, though many civil engineers study further to obtain master's, engineer, doctoral and post doctoral degrees. In many countries, civil engineers are subject to licensure. In some jurisdictions with mandatory licensing, people who do not obtain a license may not call themselves "civil engineers". In Belgium, Civil Engineer (abbreviated Ir.) (French: Ingénieur Civil, Dutch: Burgerlijk Ingenieur) is a legally protected title applicable to graduates of the five-year engineering course of one of the six universities and the Royal Military Academy. Their speciality can be all fields of engineering: civil, structural, electrical, mechanical, chemical, physics and even computer science.[9] This use of the title may cause confusion to the English speaker as the Belgian "civil" engineer can have a speciality other than civil engineering. In fact, Belgians use the adjective "civil" in the sense of "civilian", as opposed to military engineers. The formation of the civil engineer has a strong mathematical and scientific base and is more theoretical in approach than the practical oriented industrial engineer (Ing.) educated in a five-year program at a polytechnic. Traditionally, students were required to pass an entrance exam on mathematics to start civil engineering studies. This exam was abolished in 2004 for the Flemish Community, but is still organised in the French Community. This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources in this section. Unsourced material may be challenged and removed.Find sources: "Civil engineer" – news · newspapers · books · scholar · JSTOR (April 2023) (Learn how and when to remove this message) In Scandinavian countries, "civil engineer" (civilingenjör in Swedish; sivilingeniør in Norwegian; civilingeniør in Danish) is a first professional degree, approximately equivalent to Master of Science in Engineering, and a protected title granted to students by selected institutes of technology. As in English, the word has its origin in the distinction between civilian and military engineers; before the start of the 19th century only military engineers existed, and the prefix "civil" was a way to separate those who had studied engineering in a regular university from their military counterparts. Today the degree spans over all fields within engineering, including civil engineering, mechanical engineering, computer science, and electronics engineering, among others. There is generally a slight difference between a Master of Science in Engineering degree and the Scandinavian civil engineer degree, the latter's programme having closer ties with the industry's demands. A civil engineer is the better-known of the two; still, the area of expertise remains obfuscated for most of the public. A noteworthy difference is the mandatory courses in mathematics and physics, regardless of the equivalent master's degree, e.g. computer science. Although a "college engineer" (högskoleingenjör, diplomingenjör, or mellaningenjör in Swedish; høgskoleingeniør in Norwegian; diplomingeniør in Danish) is roughly equivalent to a Bachelor of Science in Scandinavia, to become a "civil engineer" one often has had to do up to one extra year of overlapping studies compared to attaining a B.Sc./M.Sc. combination. This is because the higher educational system is not fully adapted to the international standard graduation system, since it is treated as a professional degree. Today (2009) this is starting to change due to the Bologna process. A Scandinavian civilingenjör will in international contexts commonly use the title of "Master of Science in Engineering" and will occasionally wear an engineering class ring. At the Norwegian Institute of Technology (now the Norwegian University of Science and Technology), the tradition with an NTH Ring goes back to 1914, before the Canadian iron ring. In Spain, a civil engineering degree can be obtained after four years of study in the various branches of mathematics, physics, mechanics, etc. The earned degree is called Grado en Ingeniería Civil. Further studies at a graduate school include master's and doctoral degrees. Before the current situation, that is, before the implementation of Bologna Process in 2010, a degree in civil engineering in Spain could be obtained after three to six years of study and was divided into two main degrees. In the first case, the earned degree was called Ingeniero Técnico de Obras Públicas (ITOP), literally translated as "Public Works Engineer" obtained after three years of study and equivalent to a Bachelor of Civil Engineering. In the second case, the academic degree was called Ingeniero de Caminos, Canales y Puertos (often shortened to Ingeniero de Caminos or ICCP), that literally means "Highways, Canals and Harbors Engineer", though civil engineers in Spain practice in the same fields as civil engineers do elsewhere. This degree is equivalent to a Master of Civil Engineering and is obtained after five or six years of study depending on the school granting the title. The first Spanish Civil Engineering School was the Escuela Especial de Ingenieros de Caminos y Canales (now called Escuela Técnica Superior de Ingenieros de Caminos, Canales y Puertos), established in 1802 in Madrid, followed by the Escuela Especial de Ayudantes de Obras Públicas (now called Escuela Universitaria de Ingeniería Técnica de Obras Públicas de la Universidad Politécnica de Madrid), founded in 1854 in Madrid. Both schools now belong to the Technical University of Madrid. In Spain, a civil engineer has the technical and legal ability to design projects of any branch, so any Spanish civil engineer can oversee projects about structures, buildings (except residential structures which are reserved for architects), foundations, hydraulics, the environment, transportation, urbanism, etc. Mechanical and Electrical engineering tasks are included under the Industrial engineering degree. A chartered civil engineer (known as certified or professional engineer in other countries) is a member of the Institution of Civil Engineers, and has also passed membership exams. However, a non-chartered civil engineer may be a member of the Institution of Civil Engineers or the Institution of Civil Engineering Surveyors. The description "civil engineer" is not restricted to members of any particular professional organisation although "chartered civil engineer" is. In many Eastern European countries, civil engineering does not exist as a distinct degree or profession [citation needed] but its various sub-professions are often studied in separate university faculties and performed as separate professions, whether they are taught in civilian universities or military engineering academies. Even many polytechnic tertiary schools give out separate degrees for each field of study. Typically study in geology, geodesy, structural engineering and urban engineering allows a person to obtain a degree in construction engineering. Mechanical engineering, automotive engineering, hydraulics and even sometimes metallurgy are fields in a degree in "Machinery Engineering". Computer sciences, control engineering and electrical engineering are fields in a degree in electrical engineering, while security, safety, environmental engineering, transportation, hydrology and meteorology are in a category of their own, typically each with their own degrees, either in separate university faculties or at polytechnic schools. In the United States, civil engineers are typically employed by municipalities, construction firms, consulting engineering firms, architect/engineer firms, the military, state governments, and the federal government. Each state requires engineers who offer their services to the public to be licensed by the state.[10] Licensure is obtained by meeting specified education, examination, and work experience requirements. Specific requirements vary by state. Typically, licensed engineers must graduate from an ABET-accredited university or college engineering program with a minimum of bachelor's degree,[11] pass the Fundamentals of Engineering exam (FE), obtain several years of engineering experience under the supervision of a licensed engineer, then pass the Principles and Practice of Engineering Exam. After completing these steps and the granting of licensure by a state board, engineers may use the title "Professional Engineer" or PE in advertising and documents. Most states have implemented mandatory continuing education requirements to maintain a license.[11] Main article: American Society of Civil Engineers The ASCE (American Society of Civil Engineers) represents more than 150,000 members of the civil engineering profession worldwide.[12] Official members of the ASCE must hold a bachelor's degree from an accredited civil engineering program and be a licensed professional engineer or have five years responsible charge of engineering experience.[13] Most civil engineers join this organization to be updated of current news, projects, and methods (such as sustainability) related to civil engineering as well as contribute their expertise and knowledge to other civil engineers and students obtaining their civil engineering degree. Main article: Institution of Civil Engineers The ICE (Institution of Civil Engineers) is a professional association that has helped Civil Engineer's in their training and jobs since 1818. The ICE (Institution of Civil Engineers) founded in 1818, represents, as of 2008, more than 80,000 members of the civil engineering profession worldwide. Its commercial arm, Thomas Telford Ltd, provides training, recruitment, publishing and contract services. Main article: Canadian Society for Civil Engineering Founded in 1887, the CSCE (Canadian Society for Civil Engineering) represents members of the Canadian civil engineering profession. Official members of the CSCE must hold a bachelor's degree from an accredited civil engineering program. Most civil engineers join this organization to be updated of current news, projects, and methods (such as sustainability) related to civil engineering; as well as contribute their expertise and knowledge to other civil engineers and students obtaining their civil engineering degree. Local sections frequently host events such as seminars, tours, and courses. Engineering portal Canal engineer Construction engineering Critical infrastructure Environmental engineering Sanitary engineering Geotechnical engineering Glossary of civil engineering Hydraulic engineering List of civil engineers National Council of Examiners for Engineering and Surveying Professional engineer Structural engineer Structural engineering Transport engineering Urban planning ^ "What is Civil Engineering?". Department of Civil Engineering and Engineering Mechanics: Columbia University. Archived from the original on 24 December 2015. Retrieved 17 December 2015. ^ a b "Civil Engineers". BLS.gov. U.S. Bureau of Labor Statistics. May 2014. Archived from the original on 2018-06-15. Retrieved 2015-12-19. ^ Mark Denny (2007). "Ingenium: Five Machines That Changed the World". p. 34. Johns Hopkins University Press. ^ Florman, Samuel (1987). The Civilized Engineer. New York: St. Martin's Griffin. p. 51. 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Retrieved 2 January 2011. ^ National Council of Examiners for Engineering and Surveying; Licensure Archived 2012-11-01 at the Wayback Machine, retrieved November 24, 2010. ^ a b Civil Engineering Study.com; Requirements for Becoming a Civil Engineer Archived 2015-12-12 at the Wayback Machine, retrieved December 19, 2015. ^ "About ASCE". www.asce.org. Retrieved 2024-02-22. ^ About ASCE Archived 2010-12-13 at the Wayback Machine Media related to Civil engineers at Wikimedia Commons Retrieved from " Civil engineers design, construct, manage and maintain the infrastructure of modern society. Roads, railways, tunnels, buildings, bridges, airports, mines, dams, ports and harbours, water supply and sewerage systems and flood mitigation works are all shaped by civil engineers. Civil engineering is based on Maths, Mechanics and Physics but it's also about creative problem-solving. While normally associated with the world's largest buildings, civil engineers must also effectively adapt the infrastructure to complex challenges such as climate change or natural disasters. Civil engineering comprises five main areas, which provide a breadth and depth of opportunities for our graduates. Structural engineering underpins and sustains the built environment, ensuring structures are safe, serviceable, durable, aesthetically pleasing and economical. Structural engineers analyse and design all types of structures, including buildings, bridges, towers, marine structures, dams, tunnels and retaining walls. They're focused on the materials of construction and their ability to withstand various design loads. Structural engineers apply Maths and Physics to materials such as concrete, stone, steel, timber and glass. With the world now aware of the challenging implications of climate change and population growth, structural engineers at UNSW are focusing on new and improved low-emission materials and full life cycle assessment of infrastructure including real-time monitoring and recycling of structures. Construction engineering and management, project management and asset management skills are vital to building and maintaining the infrastructure we need to live in modern society. Construction engineering and project management are about bringing the structural engineer's designs to life. It involves organising and coordinating the people, equipment, materials and construction processes so that construction work can be done in an effic