DOWNLOAD PDF ROLE OF A CIVIL ENGINEER

Chapter 1 : What does a Civil Engineer do?

A civil engineer plays a pivotal role in the effective execution of all manner of engineering projects. Their input, and leadership where necessary is essential to secure the smooth execution of a vast selection of projects.

Get Full Essay Get access to this section to get all help you need with your essay and educational issues. When humans decided to build their permanent houses, the construction of shelter began. Therefore, civil engineering considered as one of the oldest field in engineering and is the broadest of the all engineering professions. Civil engineer works to enhance the infrastructures around us like roads, sewage, bridges, dams, aqueducts, large building constructions, canals, railway lines, airports, water supply systems, harbors, transportation, tunnels, and other engineering constructions. They are the best in designing, constructing, buildings, creating, improving, maintaining, and repairing facilities and industries. Being a civil engineer you have to know the basic knowledge of the other engineering since most in the field are connected to civil engineering. Like the electrical engineering, when we have buildings without electricity or roads without stoplights, then the two engineers will be able to work with each other. In mechanical engineering, we cannot have a train without its railway or a machine without its factory. Therefore, civil engineering said to be the mother of all branches since it has a very wide field. Civil engineers develop our society, they design and build an infrastructure that ensures safeness and enhances the life of people. Also, they provide reliable and safe structures which resists the effect of natural calamities like floods, earthquake etc. The safety of the people is in the hand of a civil engineer. Dolorical, an alumnus of TUP-Manila and now a civil engineer at Geotechnical and Building Assessment Department Services Pte Ltd Singapore, once the engineer did not conduct a test or did not monitor the ongoing construction, it may cause such a serious accident. Safety is the main priority. They can save lives by just conducting an inspections and tests to make sure that the structures are safe enough to use. Proper planning is also important. Validation of design basis is also a job that will avoid any unwanted occurrences. That is way civil engineering is important. We can also save life. Frederick Dolorical, personal communication, July 8, Civil engineering is also important in our modern society. We can witness in our country the development of roads, buildings and other structures. The main intention behind this is not only to make the lives of people easy, safe and secure, but also to make our surroundings beautiful in a stronger and better way. Nowadays, many structure and buildings are very unique in designs. As we look towards the future and picture a world with high rise skyscrapers, flying cars and cities in the clouds, we need to take a minute to appreciate the importance of those with civil engineering jobs. We take for granted how our cities are always upgrading, growing to keep up with the fast increasing numbers of people. We are in an era that is ready to see some breathtakingly futuristic construction and these plans are only possible with the help of civil engineers. Without the expertise of civil engineers, none of these incredible projects will be possible. Civil engineering also played a role in increasing the health and quality of life. From developing better water supplies, municipal sewer systems, wastewater treatment plants to the design of buildings to protect us from natural hazards and provide health care, to improved agriculture through water resource development and distribution projects to rapid and dramatic changes in transportation systems, civil engineers have developed the basic infrastructure on which modern society depends. Civil engineers were the first engineers and continue to be dedicated to the technology development for the goods of the general public and benefit the everyday lives of the people and the communities in which we live. Their work helped as to reduce the death rate which is one of the principal reasons that population has been able to grow so fast. Growth of population means growth of infrastructures. We need to construct shelter for the growing population. Due to the increase in construction in our country, the demands for civil engineers are expected to go faster as well. This can also be one of the reasons why students of today are choosing civil engineering. As long as there are structures and facilities that need to be build or constructed, there will always be a demand for civil engineers. Those are the reasons why I took BS Civil Engineering, to have the knowledge on the field of structures and designs. I want to know every little detail on how a building was built. Surveying a land, measuring the area, create a building plan, building the walls and so on. I want to design a unique structure that I can put my name

on it and be proud of it. I kept asking him about the use of the materials that I sew in the room. I was also curious on how he fixed those toys that I broke. Since I took this course, I can now answer those questions and I can also apply those things that my father used to do. Also, as I talked to Engr. All the hard work is being paid off with gratitude especially when somebody recognizes your work. The fulfillment is different. Also, you can learn a lot from people you used to work with that even the university cannot teach you. Albretch Hernandez, personal communication, July17, I really want to be an engineer, a civil engineer to be exact. As I have learned from them. Being an engineer is not all about constructing, it is also about designing not just an ordinary infrastructure but a very unique one. More essays like this:

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Chapter 2 : Responsibilities and Duties of a Civil Engineer | IT Training and Consulting â€“ Exforsys

A civil engineer serves a role in the construction, design and maintenance of a man-made or naturally built environment, such as roads, dams, bridges, buildings and canals. Civil engineering is the second oldest engineering discipline. The earliest practices of civil engineering are thought to have.

It provides solutions to all problems pertaining to houses right from concept to completion. Role of a civil engineer is vital for construction project. Here, we have restricted the role of civil engineer up to house construction only. The activities carried out in construction works of a house here are highly dynamic in nature. Sometimes unexpected decisions and actions have to be taken spontaneously on construction site. Role of civil engineer in various construction works is not constrained or rather fixed to any particular task. The major categories where a civil engineer works on the site are described below. It intends to convert the design into reality. It includes the checking of plans, drawings and quantities. Responsible for safety of workers. To give instructions, health and safety training and provision of welfare units for labourers time to time. In case, if safety measures are not followed, construction works should be immediately stopped at that point itself. To deal with the assets i. Efficiently organizing the plant and site facilities. Day-to-day management of construction site including labour force To know about 15 Reasons to Hire an Architect Courtesy - rf The Role of civil engineer does not limit to above mentioned points. Apart from these; duties performed by a civil engineer on a construction site are as follows: To bring to notice if any discrepancies in drawings, quantities and rates as well as make necessary changes if any. Liaising coordinating with consultants, subcontractors, supervisors, planners, quantity surveyors and labourers involved in the project. To keep an eye on surveying works i. To save on material and labour cost along with adding a valve to the structure. Agreeing a price for materials, and making cost-effective solutions. Checking of materials at the time of delivery. Setting up the sequence of work in accordance with the drawings and specifications. To check on safety measures taken by people working on site. Resolving technical issues arising, if any, during execution of work. Keeping record of drawings, technical reports and site diary. Counselling and Supervising junior or trainee engineers and give them health and safety training. Role of civil engineer on site varies as per the work carried out at construction site and work schedule. A Civil Engineer looks after all the works of the project form the very first planning stage to the last commissioning stage.

Chapter 3 : Importance of civil engineering | Essay Example

As a civil engineer, you could work in any one of the following specialist areas of engineering: structural - dams, buildings, offshore platforms and pipelines transportation - roads, railways, canals and airports.

Responsibilities and Duties of a Civil Engineer By Exforsys on October 26, Career Tracks The General Responsibilities and Specific Duties of a Civil Engineer The work of a civil engineer is all around us yet many do not even realize what a civil engineer is responsible for doing. The job role of a civil engineer is extremely important as it equates for the overall safety of society in many different facets. It is important to look at the role that a civil engineer plays and realize what they do in their daily job duties that make the area safe for the people who live there. What Is a Civil Engineer? It is important to first provide a formal definition highlighting the role of a civil engineer. A civil engineer is responsible for using their civil engineering background to plan and oversee various construction efforts in many different areas of this field. They will apply civil engineering principles to ensure that structures are constructed in the safest, sturdiest manner. General Responsibilities of a Civil Engineer A civil engineer engages in many general responsibilities on a daily basis. These responsibilities are a crucial part of their job and enable the civil engineer to engage in their profession to the best of their ability. One general responsibility of the civil engineer is to analyze various factors concerning a construction job. The civil engineer will analyze the proposed site location as well as the entire construction job which is to be completed at such a site. They will analyze the process for completing the construction job every step of the way. The civil engineer must also plan the construction project that will be taking place in conjunction with the results they found due to their analysis of the proposed project. During the process and at the end, the civil engineer must inspect the product to ensure that all rules, regulations and guidelines have been explicitly followed. Specific Duties of a Civil Engineer Within the general responsibilities of a civil engineer are specific duties that must be carried out on a frequent basis, often times daily. The first duty of a civil engineer is to inspect and analyze the proposed construction project. They will not only inspect the plan itself but will go to the site location many times to ensure that the plan fits the location and vice versa. When they have adequately analyzed the situation, they will write detailed reports stating what is acceptable and what needs to be changed prior to beginning the project. Once these proposed changes have been made, the civil engineer will review the plans and project site once again to ensure that all changes have been made as required. The job of a civil engineer does not end at this point. The civil engineer will follow the project from start to finish and make any necessary changes along the way. They will ensure that procedure is being followed and check on safety features of the project during the time it is being completed. A civil engineer must use many different equations, applications and figures to ensure the proper procedure application. Items that civil engineers must take part in and use include chemical testing applications, drafting and design software, electrical test devices and equipment, land surveying techniques and the metric system, to name just a few pertinent items. The civil engineer must also be certain to follow land use laws and regulations every step of the way. This is extremely important as one who does not abide by such rules and regulations may find that the project is stalled, either temporarily or permanently. Therefore, a specific duty of a civil engineer is to know the pertinent land use laws and regulations and to follow them consistently. One who is a civil engineer is also the key contact person regarding the construction project in many cases. They will answer questions directed towards them by individuals involved with the construction project and the general public as well. While answering questions, they will also be responsible for backing up their statements with reports, graphs, charts and surveys. Positive Traits for a Civil Engineer to Possess There are some definitive positive traits which civil engineers should possess. By having these traits, one who is a civil engineer can excel in their job profession. Although having all of these traits is not a perquisite to doing a good job as a civil engineer, one who does have such traits will find that their job may go much more smoothly than if these positive attributes were lacking. Good analytical skills are a must for any civil engineer. Civil engineers have to read and interpret many complex charts, diagrams, maps and reports. By having superior analytical skills, one who fills this job role will find that they can complete their daily job duties in an

effective and efficient manner. One who does not have good analytical skills may have a hard time in the role of a civil engineer. Above average communication skills are also a good thing for civil engineers to possess. Civil engineers need to correspond with a wide array of individuals throughout their profession. They will have to deal with everyone from construction workers to CEOs of large corporations. Therefore, it is imperative that a civil engineer possesses above average communication skills as this will allow them to communicate effectively with individuals involved in the job. One who is a civil engineer should also possess excellent problem solving capabilities. The role of a civil engineer is not an easy one. There will be problems that arise from time to time which the civil engineer will be responsible for fixing. With that said, one who works as a civil engineer should have impeccable problem solving skills. They need to be able to survey potential or full-blown problems and come up with a solution for such problems as quickly as possible. Since most construction jobs are on a stringent time schedule, it is important to not only be able to solve the problems that arise but to do so in a quick and speedy fashion. They ensure not only that the buildings are constructed in a proper fashion but an expedient one as well. Should problems arise, they are the ones who step in to take control and come up with possible solutions. If one is interested in pursuing a profession as a civil engineer, the previously mentioned items may provide one with the information they need to make a career decision one way or the other.

Chapter 4 : What is the duties and Responsibilities of Civil Site Engineer? - calendrierdelascience.com Spe

The job role of a civil engineer is extremely important as it equates for the overall safety of society in many different facets. It is important to look at the role that a civil engineer plays and realize what they do in their daily job duties that make the area safe for the people who live there.

This involves construction projects such as bridges, roads, dams, levees, and large public buildings. Civil project engineers are either employed by the government or work in the private construction sector. The actual design process may take place in an office, but civil project engineers spend a lot of time on site ensuring projects are completed on time and on budget. The role of civil project engineer involves supervisory duties. Part of their responsibility involves directing workers onsite to make sure the project is constructed according to their specific designs. According to the National Bureau of Labor Statistics, demand for civil engineers, which includes civil project engineers, is set to rise 11 percent through Civil Project Engineer Duties and Responsibilities The role of civil project engineer is a technical position that involves many different duties and responsibilities. We searched civil project engineer job descriptions to craft the following list of civil project engineer duties and responsibilities: Analyze Data to Plan and Design Projects Civil project engineers spend a fair amount of time analyzing data during the planning stage. They look at land survey reports, demographic information, local zoning laws, etc. Conduct Risk-Analysis for Each Project The risk-analysis stage involves testing the real-world application of a theoretical design. It requires someone who is inquisitive, yet pragmatic, to consider such things as construction costs and environmental impact. Prepare and Submit Permits to Comply with Federal, State, and Local Regulations Every town and every state has its own regulations when it comes to permits for public properties. It is up to the civil project engineer to proactively prepare and submit these documents to the proper departments. Analyze Test Results of Construction Materials Civil project engineers make sure all of their construction materials pass inspection and meet government regulations. This involves conducting tests on materials such as wood, steel, and asphalt for quality assurance. Manage the Repair and Maintenance of Completed Projects Sometimes civil project engineers are called upon to repair a public structure rather than design and build a new one. This requires one to first diagnose the areas for repair and then outline the project components necessary to get the repairs done. Project management skills are necessary to perform this duty. Civil Project Engineer Skills As the role of civil project engineer is a technical position, most of the skills required are hard skills, but there is a management aspect to this role that requires some soft skills. Civil project engineers have to be experts in their area of specialization, which can be construction, transportation, geotechnical, or structural. Problem-solvers who take pride in their attention to detail do well in this position. This position also requires project management skills to bring designs to life. Other skills civil project engineers need to get hired include: Academic coursework covers mathematics, fluid dynamics, statistics, civil engineering technology, and engineering principles and mechanics. Civil Project Engineer Resources We compiled the following list of resources for those interested in learning more about the career path of civil project engineer: American Society of Civil Engineers â€" Founded in , the American Society of Civil Engineers now has more than , members in countries, including many civil project engineers. There are several different groups within the organization, such as one for students and one for professionals under The website contains a career development section and professional education resources. National Association of Professional Engineers â€" The National Association of Professional Engineers is a general organization for all types of engineers, but it has a community specifically for civil engineers. When it comes to professional development, this organization offers 15 free courses, plus resources to prepare for the professional engineer licensing examination. Daily Civil â€" Daily Civil is a civil engineering blog that produces educational and informational articles on the many tasks involved in the engineering process. It is updated at least once a week and has a lot of archived evergreen articles. Masters in Engineering â€" Masters in Engineering is a general engineering blog that covers a variety of industry news and topics. It has a post of the top 50 civil engineering blogs that is a must-read for aspiring and practicing civil project engineers. Civil Engineering Formulas â€" This book contains more than common and

not-so-common formulas used by civil engineers. It makes a great desk reference for civil project engineers.

Chapter 5 : Professional Responsibility: The Role of Engineering in Society

A civil engineer is responsible for many facets of a project, such as designing, planning, managing, and creating reports on construction jobs. These responsibilities are even more important when it comes to commercial projects.

But civil engineering is also about maintaining and adapting the infrastructure that we depend on every day â€" our roads, railways and bridges; energy and water supply; waste networks and flood defences. Civil engineers have to keep this infrastructure running effectively and adapt it to meet challenges, such as population growth, climate change and natural disasters. Put simply, civil engineers have to come up with solutions to complex problems and implement them; they literally shape the world we live in. There are many different specialisms within civil engineering, including environmental, structural, municipal, transport and geotechnical. There are two types of civil engineering roles within the various specialisms: Both challenging environments, and all civil engineers are required to be innovative and logical individuals. Other essential attributes civil engineers need include: Enjoying and understanding maths and science at GCSE level is a great way to get you on the right path to becoming a civil engineer. After GCSEs there are several paths; the most common is to study for A-levels or Scottish highers , with maths and physics as the core subjects. The next stage would be applying to university to get onto an accredited civil engineering course, which is recognised by the Institution of Civil Engineers ICE. After university, most graduates join a graduate programme â€" at a small or large firm â€" and work their way up the ladder. The application process varies from company to company, but it generally pays to apply early. Many courses offer the opportunity to spend a year in industry, and this may lead to the offer of a graduate role. Some students decide to follow vocational courses after GCSEs. BTec qualifications in civil engineering are a tried and tested route to becoming a civil engineer, and can be taken either as part of an apprenticeship scheme or as a full-time college course. From BTec level 3, you can progress to a higher national diploma, a foundation degree in civil engineering or a university degree. Students interested in an apprenticeship can train as a civil engineering technician; usually on an advanced technical apprenticeship. After gaining a qualification, the next step is to become professionally qualified as a chartered engineer CEng , incorporated engineer IEng or engineering technician EngTech. This will involve a period working in the industry to build experience, followed by a professional review. Case study Fiona Dixon, a graduate site engineer for engineering company Costain , explains what it is like to work in the industry. She is currently working in east London on the Crossrail project. My role basically involves translating designs on to the construction site, so my time is split between the office and the site, where I supervise and check the construction activities. I currently work a hour, five-day week. But there are options to suit everyone â€" if I wanted a more traditional job, I could move into engineering design. If you enjoy working with people to help solve problems that affect wider society, then go for it. The industry is all about jumping in and trying new solutions. To get more content and advice like this direct to your inbox, sign up for our weekly update and careers ebook.

Chapter 6 : Role of a Civil Engineer for a Landfill | calendrierdelascience.com

Role and Responsibilities of a Civil Site Engineer. The site engineer should possess basic knowledge about the practical construction procedures in site, along with the details of how they are planned.

Civil engineers design and build infrastructures, including bridges that make life more comfortable. Civil engineers are responsible for designing, building, supervising, operating, and maintaining large construction projects and systems, such as roads, airports, buildings, tunnels, bridges, community water supply and drainage systems, and dams. Their job descriptions involve managing repairs, maintenance, and replacement of both private and public infrastructure. When planning for each stage of a project and its risk analysis, the role of the civil engineer will entail consideration for cost of construction, possible hazards to the environment, government regulations, and other necessary factors. Responsibilities of civil engineers also cover coordinating soil testing process to be sure that the soil is right for the structure to be put on it, and that the foundation has the needed strength to hold the structure. The work description of a civil engineer also involves application of design software in planning and designing hydraulic and transportation systems, and structures following established government and industry standards. Engineers may specialize in one of the following areas: Here is a typical civil engineer job description, comprising tasks, duties, and responsibilities commonly associated with the role: Perform preparation of design specifications Incorporate special features which relate to the project at hand into specifications. These include order of work, physical conditions at the site, construction work schedules, method of payment and measurement, construction procedures and special methods, and coordination with contractors and other stakeholders Perform technical review on specifications to ensure clarity, completeness, and exactness, and to remove restrictive descriptions so as to ensure competitive bidding Prepare project for advertisement by compiling contract specification into Electronic Bid Set EBS Visit proposed project site to obtain necessary information for use in creating project specification. This include condition and location of project site, location of storage and staging areas, and character and scope of work Provide guidance and technical advice to various persons and departments, including engineering personnel, Branch Chief, Section Chief, Engineering and Construction Department, and Architect-Engineer firms where necessary to develop basic specification procedure and policies to cover new types of projects and structures, and to make clearer various phases of the construction work Communicate with higher authorities on issues concerning specifications, engineering interpretations and explanations, supply of items, and items of work, and offer recommendations on reviewing specifications. Requirements â€" Knowledge, Skills, and Abilities â€" for Civil Engineer Role If you are seeking the job of a civil engineer, here are major requirements and qualifications you may be expected to possess to be considered by most employers for the position: Conclusion If you are an employer in the process of hiring a new civil engineer, you will need to publish a good description of the role to get the best applicants responding to your offer. To help you create an effective civil engineer job description, you can apply the sample copy provided in this post. This article is also helpful to individuals interested in the civil engineering career. They will learn all they need to know about the duties and responsibilities of a civil engineer and so be able to make wise decisions about the career. Did this post help improve your knowledge of what civil engineers do and the skills they need to develop to succeed on the job? Please, share your thoughts about this post in the comment box below. And if you work as a civil engineer, please also share your job description. You may need to pass a job test to be hired for a position, improve your chances of making high scores today! The goal of this phase is to determine if the candidate has the appropriate set of skills and qualities to excel on the job. Find out the tests you will be needing to take for the position you are applying for; get lots of success proven Practice materials to prepare with now: Sure way to make high scores in job tests.

Chapter 7 : The Role of Civil Engineers in the Construction Industry | calendrierdelascience.com

Role of civil engineer on site varies as per the work carried out at construction site and work schedule. A Civil Engineer looks after all the works of the project form the very first planning stage to the last commissioning stage.

These can range from the relatively small-scale, for example bridge repairs, through to large national schemes, like the building of a new stadium. So, what will I actually be doing? Civil engineering is a broad term covering several specialist areas of engineering , so as a civil engineer you could be employed in any sector from structural , transportation , environmental to maritime and geotechnical. Many of these branches overlap, but in all areas your typical duties would include: Discussing requirements with the client and other professionals e. As an incorporated engineer, you would specialise in the day-to-day management of engineering operations. At chartered level, you would have a more strategic role, planning, researching and developing new ideas, and streamlining management methods. Find civil engineer jobs now See all of our current civil engineer vacancies or sign up to have new civil engineer jobs emailed directly to you. Your time will be split between the office and working on site. Sitework would be in all weathers and may involve extensive travel, sometimes overseas, depending on the contract. Money, money, money Figures are intended as a guideline only. See what people are earning in this job The good points The opportunities are excellent as a qualified civil engineer. Many different organisations employ engineers, including local authorities, building contractors , power companies, environmental agencies and specialist consulting firms. You may also find work overseas with British consulting or contracting firms, working for foreign governments, and oil and mining companies. Is there study involved? To become a civil engineer you normally need a three-year Bachelor of Engineering degree BEng or four-year Masters degree MEng in civil engineering. These qualifications are important if you want to gain incorporated or chartered engineer status later in your career see the training and development section for details. You could take other engineering-related subjects but it may take you longer to fully qualify. You will need at least five GCSEs A-C and two or three A levels, including maths and a science subject normally physics , or equivalent qualifications to get onto a degree course. Colleges and universities may accept a relevant Access to Higher Education award for entry to certain courses. Please check with them for their exact entry requirements. Alternatively, you could work your way up to become an engineer if you are already in the industry, for example, working as an engineering technician. These schemes give you the chance to get involved in projects under the supervision of a mentor, and are designed to develop your technical knowledge and business skills. Over time, you would take on more responsibility. Training schemes often last between one and two years. You could help your career development by working towards incorporated or chartered status. To do this, you should register with your professional industry body and apply to the Engineering Council. But is it really the job for me? Excellent maths , science, and IT skills The ability to explain design ideas and plans clearly The ability to analyse large amounts of data and assess solutions Confident decision-making ability.

Chapter 8 : About Civil Engineering | ASCE

When Tredgold in defined civil engineering at the time of the establishment of the Institution he was taking a visionary stance that demonstrated the vital role civil engineering endeavour had for mankind, as "A Society for the general advancement of Mechanical Science, and more particularly for promoting the acquisition of that species.

Contamination problems caused by abandoned waste dumps have led to the concept of an engineered landfill, also known as a sanitary landfill. Civil engineers specializing in waste management have designed landfill sites that incorporate environmental protection measures. Pollutants Landfills may contain industrial, agricultural and household waste. Industrial waste contains many chemicals, agricultural waste contains pesticides and biological compounds. In some places, household waste can include paint, batteries and discarded electrical appliances, which may contain heavy metals. There are separate landfills for non-hazardous municipal waste, and commercial and industrial waste. Municipal waste and some non-hazardous industrial waste, such as demolition debris, is collected by local authorities and the landfills may be managed by them. The majority of commercial and industrial waste is collected by the private sector. The landfills into which any of this waste is deposited may be managed by the private or public sectors. If the waste is not sealed from the surrounding ground, rainwater can infiltrate it and leach out into the groundwater. This leachate can flow through groundwater into streams, lakes and into a drinking water supply. Organic matter in landfills biodegrades and produces methane gas. Methane ignites easily, and even when not burning, can cause breathing problems. Site State and federal regulations stipulate that landfills cannot be sited in wetlands, flood plains, strong seismic zones or those with unstable bedrock, or close to airports. Volatile and easily combustible methane is a major risk at airports. Civil engineers specializing in geotechnical engineering, hydrology and environmental science are involved as soon as a landfill site is proposed. They study plant and animal habitats, soil and rock properties, and water courses in and around the proposed site to decide if it is suitable for a landfill. Transportation engineers will be involved to work out the need for additional road access and support infrastructure. Design Modern landfills must have a liner that acts as a barrier between the dumped waste and the surrounding ground. They need to build a collection system for any leachate or run off. Another collection system is needed for the methane gas. An effective seal should cap the landfill and there must be continuous monitoring of groundwater. Geotechnical engineers make detailed studies of the final site and decide how and where the burial pit should be excavated. They must ensure that the sides of the pit remain stable. They work together with chemical engineers to lay the liner material, and decide on the route of pipes collecting leachate and methane gas. Construction Civil engineers specializing in construction take over during the excavation and construction phase. The area involved could be the size of a football field or could cover many acres. Specialized machinery is used to compact the sides of the landfill and a clay layer before rolling out the plastic base liner. The sides of the liner must be welded together and the welds must be leak proof. In practice, it is difficult to guarantee that there will be no punctures or leaky welds. Operation Landfill operation and management is a compromise between obtaining the greatest density of waste on site and maintaining environmental protection. Waste compaction can buckle or puncture the lining material. Chemicals may precipitate and clog the insides of collection pipes for liquids and gases. The landfill operations manager is usually a civil engineer with a graduate degree and several years of expertise in waste management. He also works with local communities and governments if there are any pollution problems. Closure The construction and geotechnical engineers return to close and cap the landfill when its capacity is reached. The cap must be impervious to rainwater infiltration, though collection of leachate and gas may continue for some years as the waste settles and compacts. Bureau of Labor Statistics. In , 53, people were employed in the U.

Chapter 9 : So what does a civil engineer do, exactly? | Guardian Careers | The Guardian

The role of a civil engineer could be quite complex, so you should know about it before you try to become one. In some places, civil engineering is also known as construction engineering or structural engineering.

Rate it using the stars above and let us know what you think in the comments below. Construction is one of the oldest activities in the world. Some lasting examples of construction projects are the pyramids in Egypt, the Taj Mahal in India, and the Eiffel Tower in Franceâ€"all which remain awe-inspiring examples even today. In the United States, the construction industry is generally more concerned with the building and construction of structures like houses, offices, apartments, factories, roads, and bridges. Scope Broadly divided into three major segments, the construction industry includes general contractors, heavy and civil engineering contractors, and specialty trade contractors. In , there were about , construction companies in the United States. Of these, 57, companies were involved in heavy and civil engineering construction work. Overall in , the construction industry accounted for around 7 million jobs in the country. Civil engineers form an important component of the heavy and civil engineering construction industry. Civil engineers provide innovative and cost-effective solutions to a variety of construction-related problems. Civil engineers design, plan, and execute a wide range of construction projects like roads, bridges, buildings, airports, dams, and sewage systems. Construction projects encompass a variety of government, defense, public, and private programs on a national as well as international scale. The construction industry employs a substantial number of civil engineers. Areas and Employment Patterns Civil engineering makes use of major disciplines such as structural, water resource, construction, environmental, transportation, and geotechnical engineering. These fields are not static and defined; they are dynamic and diverse. A substantial percentage of civil engineers usually work at sites which may be in different geographical areas than their organizational headquarters. Though civil engineering involves substantial project execution, it is not essential that all civil engineers be involved in only construction or project-based programs. Many civil engineers also hold administrative and supervisory positions with a variety of government and private employers. Still other civil engineers are employed to do research, design, and teach. Civil engineers can also find work as independent consultants for a variety of construction projects. They can consult for public and private enterprises or work alongside government, defense, or civil construction authorities. Consultant civil engineers usually provide services like site investigation, feasibility studies, problem solving, cost estimates, and construction scheduling. They also interact with a variety of professionalsâ€"architects, geologists, survey engineers, and othersâ€"to complete projects according to established standards. Civil engineers need to be good team players with solid technical skills. In order to be able to offer their services directly to the public, engineers must possess licenses. After obtaining licenses, they can use the Professional Engineer PE designation. To obtain a license, civil engineers should have Accreditation Board for Engineering and Technology ABET degrees and at least four years of relevant experience. Additionally, they should successfully pass relevant state examinations. Licensing ensures that individuals possess the ability and competence to practice as civil engineers. Salaries usually vary depending upon individual skills, experience, and employers. Salaries also depend upon geographical locations and costs of living. Depending on the employer, benefits can include flexible hours, sharing of profits, retirement benefits, holiday, paid leave, and continuing education opportunities. To summarize, the construction industry offers strong employment opportunities for civil engineers. Civil engineers can look forward to prosperous futures in the construction industry. Civil Engineering Resources www.