Nuclear engineering

As of 2008, two thirds of all cancer patients have and will receive radiation therapy, which has proven to be one of the most effective ways to fight the deadly disease (“ Statistics." : About Radiation Therapy"). Ever since radiation was discovered in 1896, researchers have sought to use it for the benefit of the people, and radiation therapy is only one example. Nuclear engineering is a wide field that covers important subjects of study from the disposal of nuclear fuel and waste to the maintenance of systems such as nuclear reactors, plants, and even weapons (Shiori, “ Nuclear Engineering Education"). Although the amount of advances has been minimal over the years, nuclear engineering is still a stable field of study and necessary for a highly civilized country to prosper. First off, the tasks that need to be completed before even becoming a nuclear engineer start with graduate education; a master’s degree, which involves substantial work in math, physics, and engineering design is a necessity (Shiori, “ Nuclear Engineering Education"). Both private and government jobs frequently require a doctorate in nuclear engineering. However, the typical educational requirements for an operating engineer are less severe, as one qualification is a bachelor’s degree in nuclear engineering, while others with only high school diplomas train in the U. S. Navy Nuclear Power Plant Program (“" Nuclear Engineer" Job Description - Part 1."). The tasks of a nuclear engineer vary significantly, depending on the field of study one decides to focus on. However, similar to most engineers, nuclear engineers are usually immersed in highly technical environments for work (“" Nuclear Engineer" Job Description - Part 1."). Additionally, outside of the lab, the engineers often work in cautious, extended teams; safety from the dangers of nuclear radiation is a top priority for anyone overseeing work while exposed to

radiation, and a nuclear engineering working on the field should be able to initiate corrective actions and order plant shutdowns in emergency situations. Safety concerns are also essential to engineers working to optimize the performance of existing plants in utility companies, as they are working inside the nuclear plants. Nuclear engineers also monitor nuclear facility operations in order to identify any design, construction, or operation practices that violate safety regulations and laws or that could endanger the safety of operations. Researchers, on the other hand, who tend to be creative if they plan on prospering in the field, work in large, bureaucratic work environments (Shiori, “ Nuclear Engineering Education"). The ability to adeptly perform experiments (such as an experiment that may yield information that could add to acceptable methods of waste disposal and nuclear material usage) is crucial for any researcher (Shiori, “ Nuclear Engineering Education"). As of now, the field is lacking of breakthroughs, with the exception of radio-medical, nuclear disposal, and theoretical atomic research, which are all part of a small percentage in the field (“ NuclearEngineering"). Power plant construction has halted and almost ended the evolutionary nuclear power research. The once-booming experimental field, atomics weapons design, has also lost much of its funding in the 1990s (Shiori, “ Nuclear Engineering Education"). Yet, the field does continue to offer extremely stable and secure professional employment ever since its humble beginnings as a development in modern science. Before we utilized radioactivity for a wide array of fields of study, the story of nuclear engineering begins in 1896, when the French physicist Henri Bequerel discovers the radiation in uranium (“ NuclearEngineering"). However, Enrico Fermi, in 1942, discovered the tools of the modern profession when he

successfully created a chain fission reaction. Nuclear progress was mostly military in the 1940’s and 50’s, with the major events during the times being the bombings of Hiroshima and Nagasaki ("" Nuclear Engineer" Job Description - Part 1."). The progress in nuclear engineering seemed to falter after the research in weapons was halted. No new nuclear power plants have been built in the United States since 1978, even though nuclear energy is the second largest source of energy in America, being only second to coal, though demand for nuclear engineers to operate and maintain existing plants should remain steady ("" Nuclear Engineer" Job Description - Part 1."). The demand of nuclear engineers is small, but the pool of nuclear engineers is just as minute. When one hears of the phrase “ nuclear engineer", only a couple of major topics may come into mind: old fashioned atomic bombs, radiation therapy, nuclear waste, and power plants. This is because the field has not expanded over the past few years due to lack of funding. Nonetheless, the highly-demanding field of study known as nuclear engineering may not be as popular as its sister branches in the engineering tree, but if one sticks to the rigorous studies and safety precautions of a nuclear engineer, the work is stable, relatively pays off, and pays off. Works Cited Ishino, Shiori. NUCLEAR ENGINEERING EDUCATION –HISTORY, CURRENT STATUS AND FUTURE NEEDS–. N. p.: Department of Nuclear Engineering, Tokai University,, n. d. PDF. "" Nuclear Engineer" Job Description - Part 1." Nuclear Engineer Job Description, Duties and Jobs. N. p., n. d. Web. 11 Oct. 2012. . " NuclearEngineering." NuclearEngineering. N. p., n. d. Web. 10 Oct. 2012. . " Statistics." : About Radiation Therapy. N. p., n. d. Web. 10 Oct. 2012. .