

## Appendix A: ENGINEERING SPECIALIZATIONS



**Civil engineers** design, construct, and manage municipal infrastructure, highways, railways, transit systems, airports, harbors, bridges, tunnels and buildings. Civil engineers also ensure the availability of high quality water supply and sewage treatment facilities.



**Biomedical engineers** combine the discipline of mechanical engineering with human anatomy and physiology. Work in this area may include designing prostheses, developing movement systems for people with spinal injuries, and refining equipment for athletes in high-performance sports.



**Chemical engineers** apply principles of chemistry, mathematics and physics to the design and operation of industrial equipment and methods for the manufacture of chemical products. The fibers in clothing, soaps and detergents, leather, paints and plastics are all designed and produced by chemical engineers.



**Electrical engineers** are involved in the generation, production, transmission, distribution and application of electrical energy: the electricity that lights our homes, helps us cook our food, and powers our machinery. They also make very important contributions to telecommunications, television and computer technology.



**Industrial engineers** use their expertise in equipment, material, procedures, human resources and production methods to assist organizations in improving their efficiency, effectiveness and productivity. Industrial engineers are concerned with the management side of operations, while Manufacturing engineers focus on the Manufacturing process. The broad span of their knowledge allows them to work in almost every type of business.



**Material engineers** study the properties of existing materials, find new ways to work with them and develop new materials. Material engineers work in a variety of fields. For example, the petrochemical industry, automotive or aerospace industries. Still others might study all the materials related to housing- insulation, bricks, wood, cement etc.



**Mechanical engineers** use the principles of mathematics, material science, physics and economics to design, manufacture and maintain mechanical equipment. Our household appliances, ventilation systems, cars, ships and airplanes have been designed, tested and manufactured by mechanical engineers.