Robotic for Education Times

Prof (Dr.) Bharat Raj Singh,
Director,
School of Management Sciences, Lucknow

Robotics is an amalgamation of several engineering disciplines viz: Mechanical Engineering, Electrical Engineering and Computer Science that encompasses: Design, Construction, Operation and Application of Robots with computer systems for their control, sensory feedback, and information processing. A *robotics engineer* normally acts as a creator of *robots* and *robotic* systems.

1. **How is Robotics useful as a stream?**

   Robotics Stream is a specialization of robotics and its intrinsic operation involving computer programming, mechanical devices / tools being in operation with equipment like electric motor etc. The 21st century is a more demanding stream for robotics.

2. **What is the kind of demand or response towards this course in your institute?**

   In our Institute, students work on projects of Innovation and Improvements and many batches / teams constantly pine for Robotics and show interest in knowing the technology and its intricacy. They have developed projects like: Fire-Fighting devices, Floor cleaning devices, Articulated Robotics for Bottling Plant, Elevators for the maintenance of sky-scrapers and placing the goods at malls etc.

3. **Scope of Robotics as a career option in the coming time.**

   The robotics has multiple career options in various streams: Medical, Army, Transportation, Manufacturing, Production, Un-conventional Manufacturing Processes e.g., Electric Welding, Painting Shops etc. and many from the field of Mechanical, Electrical, Medical, Computer Science etc., engaged for designing and making of Robots.

4. **What kind of jobs one likely to get after pursuing robotics?**

   Since Robotics is an interdisciplinary course in India, B.Tech graduates from multiple disciplines have ample opportunities in India and in foreign countries such as:

   i. **Space Research** Organizations (ISRO and NASA),
   ii. **Banking** for Operation, Investing stocks and Managing properties,

iii. **Investigation** through police and other agencies to detect bombs, explosives and its defusal,

iv. **Medicine:** Neural Networks Model to mimic human brain and opening plenty of jobs opportunity in research works.

v. **Production and Assembly Floor:** Robotics jobs are also available in high precision welding and riveting, toxic wastes and under water explorations to prevent pernicious human conditions.

vi. **Entertainment:** Robotics gaming industry provides many brainy games like: PCs, X-Box and Play stations are extensively in use.

5. **What kinds of students are best suited for robotics?**

B.Tech graduates from Electrical Engineering, Mechanical Engineering, Computer Science & Engineering, and Instrumentation Engineering are best suited for Robotics.

6. **What is the extent of salary that one can draw after pursuing robotics?**

Robotics offers top salary for legible candidates. Since, the demand of Robotics professionals are much higher in the field of Medicine, Space Research, Police, Banking, etc., the robotic engineers at working overseas get much lucrative packages. In India, robotics engineers' salary starts from 5-6 lakhs per annum with additional perks.

Globally, robotics is the most intelligent devices replacing human work in the 21st century. International Federation of Robotics states: There will be 12% growth in robotics between 2015 to 2017 as compared with US & Europe of 6%. The highest growth is in China, Japan, and Australia at 16%. In 2014, in China used 1, 80, 000 robots, whereas 12,000 were used in India. At the end of 21st century, machinery work shall be taken up by Robots. Japan is developing robots replacing human mind.

In India robots are practically utilized by manufacturing companies like: more than 400 in Hyundai at Perubedur, 437 in Ford at Sanad Unit and about 1000 in Maruti Suzuki at Gurgaon & Manesar.

Thus, bearing huge scope for covering up the gaps of Robotics, there is enormous need to introduce new syllabi comprising multi-disciplines of robotics in the leading engineering colleges / institutes of India.