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Mechatronics: The gateway to the national development

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Technology is all pervading in today's world. Hence, learning and development of technological skills is very important. This can be achieved with a paradigm shift of using Technology based science education. Most gadgets and equipment today are mechatronic devices. Mobile technology is one such example which has made tremendous impact on our life style. Mechatronics is a design practice in applying mechanical engineering, control theory, computer science, electronics and electrical engineering, sensor and actuator technologies to improve products or processes. This technology has produced many new products and provided powerful ways of improving the efficiency of the products. The lecture will discuss about the present scenario, the research experience and the future trends in this area. The applications of Mechatronics in the fields such as medical, material handling, military, rescue operations and industry automation will be discussed. Some of the facilities at IIT Kanpur useful in realizing these research trends will be touched upon. On-line courses on robotics and mechatronics for teachers of IIT's, NIT's and Government Engineering colleges have been under consideration for making Mechatronics more popular and penetrating. This will in turn foster the government mandate of Digital India. Another aspect of mechatronics being explored is in providing the hands-on technical education for students through numerous workshops. This is proving to be fruitful in generating the technological awareness and interest. Mechatronics being the applied subject is very challenging with many entrepreneur potentials. Graduate students, women and men alike, can come forward to initiate small-scale business in one of the many aspects of the mechatronic product, these are: over-all design process, mechanical design, manufacturing, programming, electronics and electrical control, sensors design and fabrication, to name a few. Government is also promoting the establishment of startups and facilitating the overall process. In my opinion, national development in every sense is through the use and development of technologies and the gateway to this progress leads through the Mechatronics.

Recent Publications

1.Anjali V Kulkarni and V K Jain (2015) Design and Development of an Electrochemical Spark Micro Manufacturing Equipment. *International Journal of Mechanical Engineering and Robotics Research*; 4(4): 368-372.

2.Jain V K, Suthar V and Kulkarni A V (2015) Fabrication of tapered micro-pillars on titanium alloy using electric discharge micromachining. Int. *J. Precision Technology*; 5(2): 97-113.

Biography

Anjali Vishwas Kulkarni is working as Principal Research Engineer at the Centre for Mechatronics, IIT Kanpur. She has completed her PhD in Electrical Engineering. She has written two book chapters and has published several papers. She has reviewed several papers for various international journals. She holds Membership of IETE, ISAMPE and RSI.

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