

ICARUS 2010 - An Undergraduate Research Conference

26 - 28th March 2010

ICARUS is the Indian Conference for Academic Research by Undergraduate Students. It is the first Indian conference that aims to capture the original work of undergraduate students from all disciplines of science and engineering. It showcases and rewards the original research carried out by undergraduates from across the nation.

The first ICARUS 2010 was hosted by IIT Kanpur. It was conducted with an Open Theme. The four primary events of the conference were – Sanshleshan, Adbhut, Joojho and Margdarshan. More than 200 students from some of the best colleges of the country participated in the conference.

Sanshleshan (Oral Paper Presentation)

A total of 27 papers were presented from different fields of engineering and sciences. The presentations were judged by IITK faculty.

Adbhut (Poster Presentation Session)

The idea behind Adbhut was to promote the hands-on-minds-on research in our education system. Only those posters were showcased which showed a substantial amount of application based thought process and implementation. In all, there were 7 posters. Each poster dealt with an interesting and a challenging theme. The themes included ways for visually challenged people to sense the environment better, inculcating artificial intelligence in robots, overcoming traffic congestion, conservation of water using guitar strings, producing light energy by cheap infrared sensors, use of a protein for storing memory by utilizing the structural changes that occur upon exposure to light, and problems women have in handling cell phones which are usually kept in purses.

Joojho (Brainstorming Session)

A problem that has been puzzling the industry for a while was put across to a chosen group of students who were selected to include a varied but coherent skill set. The problem was:

Waste electrical and electronic equipment (WEEE) is estimated to be the fastest growing waste stream, amounting to 5% of the total municipal solid waste (MSW) and growing at three times the rate of the total MSW stream. WEEE offers numerous attractive reclamation opportunities but safe and efficient separation of all of the components remains a challenge. In many of the present dismantling practices used to reclaim precious metals there is significant risk of exposure to toxic materials. More advanced and automated methods of disassembly and reclaim are indeed being developed but are not mature. Cost effective and environmentally clean technologies developed to manage WEEE will likely enjoy steady growth.

The purpose of the session was to find a solution for this problem. Though they couldn't find a satisfactory solution, working on an industrial problem was a great experience for them.

Margdarshan (Lecture Series)

In this session, there were talks by eminent personalities in science and technology.

Dr. R. Chidambaram, the Principal Scientific Advisor to the Government of India and former Director of BARC, emphasized the need of motivation to make India a 'Developed country' in the fullest sense of the term and a 'Global Innovation Leader'. His message to the students was 'your work should be directed towards relevance or excellence, preferably both'.

Dr. K. L. Chopra, Former Director, IIT Kharagpur, and President, Society for Scientific Values, spoke at length about the emergence of many ethical issues (relating to administration, practice and use of science) and the significant changes that the last five decades have seen in the structure and practice of science.

Prof. Vijay Singh, National Coordinator, Science Olympiads at the HBCSE, Mumbai, spoke about how the NIUS (National Initiative for undergraduates in Science) program of HBCSE (TIFR) is involved in initiating and guiding students over an extended period for proto-research, preparing and editing lecture notes, and promoting undergraduate research.

Dr. Roddam Narasimha, India's foremost Aerospace scientist and a world renowned fluid dynamicist, spoke on 'Evolution of Science and Engineering Education in India and its future'. He highlighted the importance of introductory courses in the academic

curriculum. He also enumerated the contributions of institutes like the IITs and IISc to the research scenario in India.