A Short-Term Course on
Brain-Computer Interfacing for Rehabilitative Robotics
Sponsored by TEQIP-III, Jadavpur University and Technically Sponsored by IEEE Computational Intelligence Society, Kolkata Chapter

The department of Electronics and Tele-Communication Engineering, Jadavpur University organized a Short-Term Course on **Brain-Computer Interfacing for Rehabilitative Robotics** during March 27-29, 2018. The course was sponsored by **Technical Education Quality Improvement Program (TEQIP-III)** of Jadavpur University as part of an institutional twinning program between Jadavpur University (JU) and Rajasthan Technical University (RTU) and was also technically sponsored by IEEE Computational Intelligence Society, Kolkata Chapter.

Dean, FET, JU is offered a bouquet of flower by Anjali Shukla of Artificial Intelligence Lab.

The course includes 8 technical presentations and 2 laboratory sessions. The technical presentations include: 1) Introduction to Computational Neuroscience, 2) EEG and functional Near Infrared Spectroscopy (fNIRs) based Brain-Computer Interface (BCI), 3) Mind- Controlled Robots Using BCI, 4) EEG Based Cognitive Failure Detection in Driving, 5) Olfactory and Touch Perception, 6) BCI in Human Memory and Learning, 7) Introduction to Evolutionary Optimization and 8) Feature Selection in BCI. The Laboratory Session includes demonstration of 1)EEG and fNIRs based signal processing and classification, and 2) BCI based Robotics. The first 6 lectures were delivered by Prof. Amit Konar of ETCE department, JU and the last 2 lectures were delivered by Dr. Pratyusha Rakshit of ETCE dept., JU. The laboratory sessions were demonstrated by research scholars of Artificial Intelligence Laboratory, ETCE dept., JU.

The course was attended by 36 people, including Research Scholars and Faculties from different Engineering Institutes including RTU, IIT Kharagpur, IIEST Shibpur, Dept. of Neuroscience, Calcutta University, Institute of Radio Physics and Electronics, Calcutta University, Viswabharati University, Moulana Abul KJalam Azad University of Technology (MAKAUT), Institute of Enginnering and Management (IEM), Kolkata, and several departments of Jadavpur University, Kolkata.

The Short-Term Course began on March 27 at 11.00 AM with an inaugural session presided by Prof. Chranjib Bhattacharjee, the Dean FET and Coordinator, TEQIP-3, JU, followed by Prof. Sudipta De, the Nodal Officer (Academic), TEQIP-3, JU, and Prof. P. Venkateswaran, the HOD of ETCE department, JU. The first pre-lunch technical session started at 12 noon and continued up to 1.30 covering 2 deliberations by Prof. Amit Konar. The post-lunch session was also

covered by Prof. Konar on Mind-Controlled Robots and Cognitive Failure Detection in Driving. After a tea-break the Lab. Session on EEG and fNIRS was delivered by Ms. Lidia Ghosh and Mrs. Mousumi Laha. The lab session ended at 6 PM.

Prof. P. Venkateswaran, the HOD, ETCE, JU offering certificate to one candidate, in presence of Dr. Pratyusha Rakshit (leftmost) and Prof. Amit Konar (third from the left)

Prof. Sudipta De, the Nodal Officer (Academic), TEQIP-III) addressing the audience at the valedictory session

The second day includes one pre-lunch and one post-lunch session by Prof. Konar covering Olfactory/Touch Perception and BCI in Human Memory and Learning. After the technical presentations are over for the second day, the Lab. Session on Robotics and BCI-Robotics were conducted by Mr. Arnab Rakshit, Mr. Susenjit Ghosh and Ms. Sayantani Ghosh.

The third day began with two pre-lunch presentations on Evoluionary algorithms, and Feature Selection in BCI by Dr. Pratyusha Rakshit. The course ended with a valedictory session followed by certificate distribution to the participants.

Group photograph of course participants