

# Group review: Systems and Control Engineering

(A summary)

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The Systems and Control Engineering group was reviewed on Dec. 2nd, 2014. The reviewers were: Prof. Soumitro Banerjee of IISER, Kolkata and Prof. Debasish Ghose of IISc, Bangalore. The Systems and Control group currently has 8 core faculty members with the current M. Tech. and Ph. D. strengths are 15 and 20 respectively. Over the past 5 years, the average strength of faculty members from other departments participating in the group's activities, in the form of guiding students and/or offering courses has been around 10. The research areas include: multi-agent systems and control, adaptive control, geometric mechanics and nonlinear control, optimization and optimization-based control, stochastic processes, game theory, information theory, robotics and embedded control, sliding mode control and applications, fractional-order modelling and control.

The review began with a brief presentation by the Convener, followed by a detailed presentation by two faculty members on the activities of the group in the past 5 years. This was followed up by a visit to the experimental facilities, following which there was an interaction with post-graduate students.

The reviewers praised the quality of the journals in which many of the group members had published their work, but at the same time, suggested that the attempt to publish in increasingly better quality journals must be sustained. The vibrant atmosphere of the group, as well as the remarkable quality of the recent recruits was commended. The proposed suggestions for improvement were: 1. An internal mechanism to implement faculty assessment, 2. emphasis on innovative, rather than routine implementation work, 3. more collaborations with international researchers, especially from the younger faculty members. The reviewers have suggested that the institute should provide more funding to the group to support the visits of eminent international researchers for short periods of time, as well as support short stints of stay (and travel) of the group's graduate students to reputed research groups outside the country.

The comments received from the reviewers have been discussed by the group and corrective action will be taken on the specific points mentioned. The action plan also includes hiring more faculty members, subject to receiving additional space from the institute. A revamp and rescheduling of graduate courses, both to keep abreast of developments and offer more flexibility to students to opt for the courses, will be undertaken. The group would also consider hiring additional administrative staff to facilitate functioning.