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SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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DEVISING OF BEIHANG UNIVERSITY'S SATELLITE COMMUNICATIONS LABORATORY AS AN EDUCATIONAL HUB IN INTERDISCIPLINARY AND INTERNATIONALLY TEACHING ENVIRONMENT

Abstract

Beihang University having more than 1500 international students and 27000 domestic students is one of the best universities in space technology and application fields in China. It offers the degrees in both English and Chinese. This paper deals with the Satellite Communications Laboratory (SCL) which is devised as a part of International Space Education Center located in Beihang University. International and domestic students in masters and PhD conduct experiments and research in intercultural environment. Having targeted both satellite communications and spacecraft engineering fields, a joint team of electronics and astronautics faculties has involved in the design. The designed architecture of this laboratory, explained in first section of this paper, has top-down systematic approach based on spiral model. Minimizing the implementation cost, the design team has considered use of COTS solutions, available on-campus facility such as a ground station, out-campus trip and international cooperation. Then, the paper illustrates the three learning groups' activities in of SCL including ground station technology and operation, Onboard communication payload and subsystem development and end-to-end verification. For instance, the ground station group has receiving stations in Ku- and S- bands and a full-duplex station in UHF and VHF bands to communicate with satellites in orbit. Furthermore, the teaching methods will be explained which are project based learning and adaptable to teaching period, student's field of study and their background. Students work in individual or as part of team should be resulted in product or service. Some of these products would be employed to enhance and to update the SCL's own-facilities according to the spiral model. In conclusion, the paper addresses the students have been thought in SCL and their contributions following lessons learned from different stakeholders including coordinators, teachers and students.