Contemporary Radar System Design and Signal Processing

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Overview

A course on radar systems is very pertinent in the current phase of technical development both nationally and internationally. Fall in hardware prices and the advent of many open-source initiative has made it possible to bring down the design costs and hence this new upsurge in the investigation of new radar systems. Internationally, there has also been an increased interest in launching radar satellites. Almost every major space agency is planning to launch a radar satellite in the next five years. In the national arena, radar system design has been one of the fortes of DRDO and ISRO. DRDO has designed some of the earliest phased array radar systems in the world. Given this background it is clear that India has a traditional forte in the domain of radar system design. However indigenous development requires the feeding of well exposed smart engineers into the domain of radar system design. This has been a major problem, of late, because of the reduced interest and preparedness of engineering graduates in this area. The proposed short course will aspire to tackle both these issues to some extent.

This course aims at introducing the attendees to the interesting area of radars. Radar is a complicated system which involves almost all the sub-branches of electrical and electronics engineering. It will consist of three parts. Part one will comprise of a basic introduction to various subsystems of radar. In part two the attendees will be introduced to some of the major signal processing algorithms used in radar systems. In the last part the art of radar system design will be discussed. In this they will be taken through an example problem of radar system design.

Modules	**A: Basic Blocks of Radar : Jan 11** **B: Radar Signal Processing : Jan 12 – Jan 13** **C: The Art of Radar System Design : Jan 14 – Jan 15** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ you are an electronics engineer or research scientist interested in designing radar for any usage. ▪ you are an entrepreneur and want to venture into the design of radar systems. ▪ you are a postgraduate student or faculty from academic institution interested in learning how to do research on radar system or subsystem. ▪ you are an undergraduate student desirous of gathering some exciting knowledge and some hands-on design experience over the winter vacation.
Learning Outcomes	By the end of the course, the attendees will be able to: • Identify different subsystems of a working radar system; • Analyse the system performance of a radar system based on its link budget analysis; • Appreciate the major signal processing steps that happen in most of the common radar systems; • Design the blocks of an air traffic control or synthetic aperture radar system given its user requirements; • Design some basic radar signal processing algorithms given its system requirements.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $500** **Industry/ Research Organizations: Rs 20,000** **Academic Institutions: Rs 5,000** **Students: Rs 2,000** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis. Also group discount is available for groups of 3 or more persons.

The Faculty

Prof. Amit Kumar Mishra has been a radar researcher since 2003. He has worked in a different organizations and projects (both in India and abroad) related to radar system design and signal processing. He has taught postgraduate level course on radar system design and signal processing for more than six years in South Africa (University of Cape Town) and Australia (Australian National University). In his eight years of academic career he has published more than 18 journal papers in the area of radar system design and signal processing and is inventor or co-inventor in more than six patents.

Course Co-ordinator

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Registration

For registration send a mail to above address with subject "GIAN course on Radar".
The registration fees can be paid to
Account Name:**IIT HyderabadR&D**
Account Number:**30859878032**
IFSC code:**SBIN0014182**
Name of the Bank:**SBI**
Account type:**Current**
and a scanned copy of the receipt should be included in the registration mail along with the registration form.
Last date for registration is **9th January 2016 and acceptance is on first-come-first basis.**

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