



Phased Array Radar

26-28 November 2007

Presenter: Mr Robert T. Hill

Mawson Lakes SA

Course Topics:

- **Phased Array Radar Introduction**
- **Antenna Principles**
- **Phased Array Design**
- **Beam Steering Logic**
- **Radar Systems Engineering**
- **Development and Acquisition of Phased Array Radars**
- **Concluding Discussion, Course Review**

About *Phased Array Radar*

This **three-day** course covers the principles and the technology of the phased array antenna itself as well as the overall radar system significance, design and operation made possible by the phased array. With this scope the course is valuable both for those interested in antenna theory and mechanisms applied to such antennas and also for the system engineer and project manager dealing with acquisition of such radars. Both surface-based and airborne multifunction radar applications are treated.

Technicians, engineers, scientists and managers involved in the selection and determination of equipment requirements. No formal prerequisites although some background in engineering is assumed. This course is not for operators.

Brief Course Outline

Phased Array Radar Introduction: Electromagnetic waves, radiation; Radar subsystems; Radar functions, types, characteristics; Antennas and electronic beam steering; Multifunction radar; Comparison of surface-based and airborne radar.

Antenna Principles: Microwave optics; Pattern formation, weighting functions; Sidelobes, blanking and cancellation; Ultra-low sidelobe antennas (ULSA); Sum and difference patterns; Electronic scan, the phased array.

Phased Array Design: Behavior with scanning; Feed systems; Radiating elements, phase shifters, time delay ; Digital beam forming; The active array; Sample systems.

Beam Steering Logic: Volume search; Track sampling; Dwells for special functions; Radar adaptivity, STAP.

Radar System Engineering: Functional allocation in multifunction radars; Specification of radar modes; Advanced radar modes: target identification and recognition, small targets, clutter; ABMD, AI and AEW modes; surface imaging, ground moving target problem.

Development and Acquisition of Phased Array Radar: Development challenges, some experiences; Quality assurance, the testing of phased arrays; Major developments underway - what to watch for.

Concluding Discussion, Course Review.

About the Presenter

Mr. Robert T. Hill received the BS (Iowa State University) and the MS (University of Maryland), both in EE, in 1957 and 1967. In 1960, after working in industry and as an Air Force officer, he began government civilian service, retiring in 1988, in the development of naval radar.

He began teaching professional seminars in 1975, continuing today with many sponsors worldwide. He chaired the IEEE international radar conferences in 1975, 1980, 1985 and 1990, and continues in the organisation of those and related conferences abroad. He has written chapters of books, conference papers and magazine articles, and writes radar entries for the McGraw-Hill Encyclopedia of Science and Technology.

The courses will be conducted from 9.00am to 5.00pm. Morning tea will be available at approximately 10.00am to 10.30am, lunch from 12.30pm to 1.30pm and afternoon tea at approximately 3.00pm to 3.30pm.

Registration Fee:
AU\$1980 (including GST)

Early bird rates: AU\$1683 (incl. GST)
register before 26th Sep 2007

Group and PhD student discounts available. Please enquire.

For details of further courses please see our web site:
www.nicta.com.au/short_courses
or contact the NICTA Industry Education Manager.

About NICTA and Short Course Program

National ICT Australia (NICTA) is Australia's ICT Centre of Excellence and was established to drive innovation through high quality research, research training and technology transfer. As a world-class research institute NICTA uniquely combines excellence in research, education, commercialisation and collaboration. We are working to ensure that Australia is well placed to benefit from the significant opportunities that ICT research delivers.

NICTA is funded by the Australian Government as represented by the Department of Communications, Information Technology and the Arts and the Australian Research Council through *Backing Australia's Ability* and the ICT Centre of Excellence program. NICTA members are the Australian Capital Territory Government, the New South Wales Government, the University of New South Wales and the Australian National University.

NICTA short courses offer scientists, engineers and managers technical training with a leading edge in areas such as telecommunications, transport, security, defence, logistics, e-government, mining, finance and biotechnology.

There will be ample opportunities for discussion and questions and answers. Morning and afternoon tea/coffee and a light lunch will be provided. Extensive workshop materials will be made available to participants.

How to register

Please complete the registration form below and

- Fax it to +61-8-8302-3115 or
- Scan and email it to industryeducation@nicta.com.au.

Send the form as soon as possible to secure your place.

For further information please contact
Anne-Marie Eliseo
Industry Education Manager
Telephone: +61-8-8302-3928
Email: anne-marie.eliseo@nicta.com.au

Registration Form and Tax Invoice* ABN 62 102 206 173

*Upon completion of this form, including the relevant payment, this form will become a Tax Invoice.

Please register me for Phased Array Radar on 26-28 November 2007.

PLEASE PRINT

Date: _____

Title: _____ First Name: _____ Surname: _____

Position: _____ Organisation/Division: _____

Postal Address: _____

Telephone No: _____ Facsimile No: _____ Email: _____

Dietary preference: _____

Course Fees: Early bird fees: AU\$1683 (incl. GST)
(Please register by **Sep 26th**.)

Full fees: AU\$1980 (incl. GST)
(Please register by **Nov 12th**.)

Method of Payment (please tick below):

Cheque (payable to National ICT Australia Ltd)

Please forward the cheque and a copy of THIS registration form to:

Anne-Marie Eliseo, Industry Education Manager, NICTA, SPRI Bld, Mawson Lakes Boulevard, Mawson Lakes SA 5095, Australia.

Credit Card: Credit Card No.: _____ Expiry Date: _____

Visa Master Card Name on card: _____

Amount: AU\$ _____ Signature: _____ Tick if receipt required

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Electronic Funds Transfer

Please advise by email to Annette Van Bramer
annette.vanbramer@nicta.com.au
when payment is made

BANK	Commonwealth Bank of Australia
ACCOUNT NAME	National ICT Australia Limited
BSB	062 900
ACCOUNT NUMBER	1032 4576
REFERENCE NUMBER	120607

FAX the form to +61-8-8302 3115 or EMAIL it to industryeducation@nicta.com.au

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