



# Phased Array Radar

**Dates:** 14–16 April 2010

**Presenter:** Mr Robert T. Hill, USA

**Venue:** Technology Park Conference Centre,  
Mawson Lakes SA

## Teaching Arrangements:

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)

Group and PhD student discounts available. Please enquire.

## How to Register

To register fill out the registration form (overleaf) and

- fax it to +61-8-8343-8711

or

- scan and email it to [industryeducation@nicta.com.au](mailto:industryeducation@nicta.com.au)

## Cancellation Policy

At least **4 weeks** notice is required for cancellation of a place in a short course for full reimbursement. If cancellation is later than 4 weeks then the place can either be given to another person or the registrant can be provided with a credit towards other NICTA training.

For details of further courses please see our web site:

[www.nicta.com.au/short\\_courses](http://www.nicta.com.au/short_courses)

or contact the NICTA Industry Education Manager.

## 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.

**Target Audience:** 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.

Mr. Hill is a distinguished lecturer for the IEEE, being also a member of its Radar Systems Panel and, formerly, of its Aerospace and Electronic Systems Society Board of Governors for many years. He has published numerous conference papers, magazine articles and chapters of books, and is the author of the radar, monopulse radar, airborne radar and synthetic aperture radar articles in the McGraw-Hill Encyclopedia of Science and Technology and of the radar entries in their technical dictionary. He is a Fellow of the IEEE.

## 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 +61-8-8343-8711 or
- Scan and email it to [industryeducation@nicta.com.au](mailto: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: +61-8-8343-8710  
Email: [anne-marie.eliseo@nicta.com.au](mailto: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 14-16 April 2010.**

PLEASE PRINT

Date: \_\_\_\_\_

Title: \_\_\_\_\_ First Name: \_\_\_\_\_ Surname: \_\_\_\_\_

Position: \_\_\_\_\_ Organisation/Division: \_\_\_\_\_

Postal Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Facsimile No: \_\_\_\_\_ Email: \_\_\_\_\_

Dietary preference: \_\_\_\_\_

Course Fees:  Full fees: AU\$1980 (incl. GST)  
(Please register by **Mar 31<sup>st</sup>**.)

### 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, Innovation House, First Ave, 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  
Email address of card holder: \_\_\_\_\_

**Electronic Funds Transfer**  
Please advise by email to Annette Van Bramer  
[annette.vanbramer@nicta.com.au](mailto: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	140410

**FAX the form to +61-8-8343 8711 or EMAIL it to [industryeducation@nicta.com.au](mailto:industryeducation@nicta.com.au)**

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- Send an email to [comments@nicta.com.au](mailto:comments@nicta.com.au) or
- Phone NICTA's Industry Education Manager on +61 8 8343 8710.