

# Registration Form:

Name: \_\_\_\_\_

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Workshop:  Robotics  Microfabrication  
 Introduction to Photonics  Sensors

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Please post, fax or electronically submit your completed form and payment to Bandwidth Foundry Pty Ltd:

Fax: (02) 8374 5301  
Email: info@bwfoundry.com  
Post: Bandwidth Foundry Pty Ltd.  
102 National Innovation Centre  
Australian Technology Park  
Eveleigh NSW 1430  
Inquiries: (02) 8374 5300

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## Technology Workshops



**Industrial Robotics**  
**Microfabrication**  
**Photonic Sensor Technology**  
**Introduction to Photonics**

## What it's about:

The Photonics Manufacturing Technology Access Program is an initiative of Australian Photonics and AusIndustry with the goal of diffusing state-of-the-art manufacturing techniques to Australian businesses. Regular hands-on workshops in the fields of industrial robotics, microfabrication, photonic sensor technology, and an introduction to photonics will be held over the next two years in Sydney and Melbourne locations. Normally valued at over \$1500 each, places will be offered on a first-come-first-served basis for a small fee to cover the cost of consumables. Places are limited, so enrol now and don't miss this amazing educational opportunity.

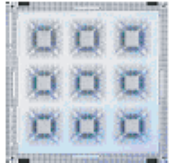
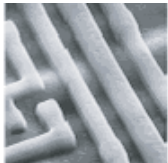
## Who should attend:

The workshops are directed towards professional and technical people who wish to gain a practical insight into new technology fields in a short period of time.

## Locations:

Bandwidth Foundry Laboratories  
Room G03, Biotechnology Building  
Australian Technology Park  
Eveleigh, NSW, 1430.

Microelectronics and Materials Technology Centre  
Royal Melbourne Institute of Technology  
Swanston Street, Building 12, Level 9  
Melbourne, Victoria, 3000.



## Workshop overviews:

### Industrial Robotics

A three-day course on industrial robotics will be run at the Bandwidth Foundry laboratories at the Australian Technology Park in Sydney. The course will consist of hands-on learning exercises and background theory lectures. Attendees will learn about robot safety, jogging the robot, input-output control, different robot coordinate systems, entering programs, defining tool centre points, defining new coordinate systems, off-line programming, and control of the robot from a PC. Attendees who complete the course will attain a grasp of the fundamentals of operating an industrial robot and will be able to write simple programs for practical applications.

### Microfabrication

A three day course on microfabrication will be run at the Microelectronics and Materials Technology Centre (MMTC), RMIT University, Swanston St. Melbourne. The course will consist of lectures and practical work in microfabrication and photolithography, by which fine features can be patterned for microelectronic or photonics devices. Laboratory work for this course will require the participants to work in a cleanroom environment to fabricate a metal oxide semiconductor (MOS) from a bare silicon substrate, and also to fabricate a polymer waveguide. Topics covered will include clean room operation, photolithography, oxide layer formation, doping silicon by diffusion, wet etching and dry etching, electrical and optical testing.

### Photonic Sensor Technology

A three-day course on photonic sensor technology will be run at the Bandwidth Foundry laboratories at the Australian Technology Park in Sydney. The course will address topics in photonic sensors of interest to a broad industrial based audience. Attendees will first be introduced to the optical components which form the building blocks of optical fibre sensor systems. They will then learn to write fibre Bragg gratings and use these gratings to measure temperature and strain using different interrogation techniques. Students will construct a multiplexed fibre Bragg grating strain sensor using an interrogation system based on chirped fibre Bragg grating filters. Interferometric techniques for fibre optic sensing will be investigated and a fibre optic gyroscope will be studied. Polarisation of light in optical fibres and highly birefringent fibres will be discussed and applied to building a temperature sensor.

### Introduction to Photonics

A three-day course on photonics will be run in the Bandwidth Foundry laboratories at the Australian Technology Park in Sydney. This course is aimed at industry professionals and technical staff, who may lack a strong background in optics or physics, but who wish to gain an overview of how this technology is likely to impact upon their own field of work. The course will consist of lectures to introduce the central principles interspersed with practical demonstrations of photonic device fabrication and characterisation. Topics will include basic optical principles, light-matter interactions, optical fibres, light sources, detectors, passive and active photonic devices, optical storage media, fabrication and measurement methods, optical networks, optical sensors, instrumentation, and laser safety issues. Practical demonstrations will include the fabrication of fibre Bragg gratings, the use of standard test equipment for device characterisation. Participants will perform hands-on exercises covering

- laser and optical fibre safety, interferometry and optical diffraction, optical fibre
- handling, stripping, cleaving, splicing, fibre test methods and instrumentation,
- optical time-domain reflectometry, and device characterisation.

## 2005 calendar:

### Industrial Robotics:

Dates: 9-11 February 2005, 13-15 April 2005, 15-17 June 2005.  
Location: Australian Technology Park, Sydney.  
Cost: General \$1,550. Exemption: \$110.

### Microfabrication:

Dates: 30 March - 1 April 2005, 11-13 May 2005, 13-15 July 2005.  
Location: RMIT, Melbourne.  
Cost: General: \$1,850. Exemption: \$110.

### Photonic Sensor Technology:

Dates: 16-18 March 2005, 26-28 May 2005, 27-29 July 2005.  
Location: Australian Technology Park, Sydney.  
Cost: General: \$1,550. Exemption: \$110.

### Introduction to Photonics:

Dates: 23-25 February 2005, 27-29 April 2005, 29 June - 1 July 2005.  
Location: Australian Technology Park, Sydney.  
Cost: General: \$1,550. Exemption: \$110.

