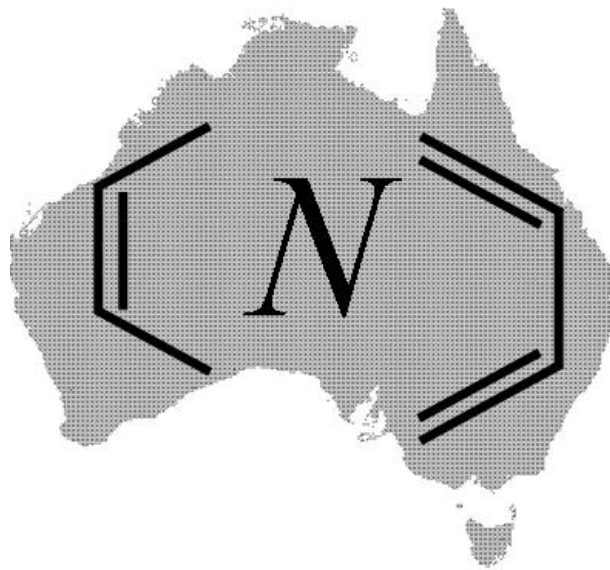


*Australian Institute of High Energetic Materials*  
ABN: 68 126 426 917

**JavaSE6/Level-1**

# **Java SE 6**

**Workshop for Intensive Professional  
Development of Engineers and  
Engineering Technologists**



**Workshop Guide**

2010/2011

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# **Workshop Outline**

## **Workshop synopsis**

This Workshop is intended to provide intensive overview in programming using Java SE 6 for beginners. Utilising the most recent JDK release along with Eclipse IDE, the students are going to have an intensive overview of core java concepts and programming techniques.

Students with no previous programming experience will learn how to plan and create their own interactive java applications.

## **Learning outcomes**

At the conclusion of the workshop, students will be able to:

1. Have deeper understanding of Java programming language
2. Describe and use core language features of Java
3. Learn and implement best coding practices and follow java code conventions
4. Perform basic I/O
5. Have solid understanding of control structures, functions, arrays etc
6. Understand and apply the basic concept and terminology of Object Oriented Programming
7. Understand and design console applications using Eclipse Integrated Development Environment(IDE).



## Continuing Professional Development (CPD) policies of Engineers Australia<sup>1</sup>

Continuing Professional Development (CPD) is essential to maintaining up-to-date technical skills and knowledge of processes, technology and legislation. CPD enables engineers to attain and maintain Chartered Status<sup>2</sup> within the Engineers Australia<sup>3</sup>.

CPD activities recognised by the Engineers Australia include<sup>4</sup>:

“Short courses, workshops, seminars and discussion groups, conferences, technical inspections and technical meetings, including Engineers Australia meetings, where these are delivered or facilitated by recognised practitioners in the field”

CPD does not have to be obtained through Engineers Australia, however, short courses/workshops/conferences/technical meetings, etc., count towards CPD if these courses, etc., are delivered or facilitated by recognised practitioners in the field<sup>5</sup>.

### CPD Requirements<sup>6</sup>:

Chartered Professional Engineers, Chartered Engineering Technologists and Chartered Engineering Officers should be aware of their obligation under Bye-law 24 of the Royal Charter to meet the Continuing Professional Development Policy.

### Objectives

CPD activities are to extend or update a practitioner's knowledge, skill or judgement in their area of or areas of practice and enable them to:

- maintain technical competence;
- retain and enhance their effectiveness in the workplace;
- be able to help, influence and lead others by example;
- successfully deal with changes in their career; and
- better serve the community.

### Minimum and Specific Requirement

A practitioner's CPD records must document a minimum of 150 hours of structured CPD over a three-year period. For all practitioners, of the 150 hours:

- at least 50 hours must relate to the practitioner's area(s) of practice;
- at least 10 hours must cover risk management;
- at least 15 hours must address business and management skills; and
- the remainder must cover a range of activities relevant to the practitioner's career & interests.

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<sup>1</sup> Continuing Professional Development, Engineers Australia, online:  
<http://www.engineersaustralia.org.au/education/continuing-professional-development/continuing-professional-development.cfm> (last visited on 28.08.2009)

<sup>2</sup> Chartered Status represents:

- the highest standards of professionalism;
- leadership;
- up-to-date expertise;
- quality and safety; and
- the ability to undertake independent practice.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.



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For engineering academics and teachers; in addition to the 150 hours, practitioner's must demonstrate at least 40 hours industry involvement in any three-year period. (If the industry involvement satisfies the other CPD criteria, it may be included as part of the submitted CPD hours. Otherwise, the industry involvement is an additional requirement.).

### **Compliance of the Workshops for Intensive Professional Development organised by the Australian Institute of High Energetic Materials with the CPD policies of Engineers Australia**

The Workshops for Intensive Professional Development organised by the Australian Institute of High Energetic Materials fully comply with the CPD policies of Engineers Australia:

- The workshops are organised and delivered by an internationally recognised group of scientists. A minimal requirement to deliver a workshop within the Australian Institute of High energetic Materials is a possession of a Postgraduate Degree and at least 3 years of industrial practice. Most of our lecturers are Visiting Professors from the best internationally recognised universities. All Visiting Professors are Doctors of Philosophy and/or Science with decades of successful scientific, engineering and educational career behind them;
- The objectives of the workshops are to provide the participants with in-depth knowledge and top level technical competence in their area of professional activities. In most cases, the topics of the workshops are not covered in any of the undergraduate university courses in Australia;
- The teaching material is well supported with practical examples; it aims improvement of the business and management skills of the participants, and whenever it is necessary, it covers areas of risk management;
- In average, Workshops for Intensive Professional Development can contribute with 40 to 70 hours to the CPD records of the participants. Whenever it is in a reasonable conjunction with the main teaching material, 10-15% of the time is spent on topics that aim improvement of the business and risk management skills of participants.



## **Workload**

<b>Lectures and practical sessions</b>	From Day 1 to Day 5 9 Modules, each consisting of 2 hours of lectures and 2 hours of practical sessions and individual assignments Starting time: 9am Finishing time: 6pm (lunch break: 1pm to 2pm) Total: 36 hours
<b>Final exam</b>	2 hours
<b>Private study</b>	Lecture revisions and additional research and reading
<b>Total</b>	40 hours

## **Workshop prerequisites**

-General computer competency and familiarity with application programming

## **Continuous improvement**

Australian Institute of High Energetic Materials strives for the highest possible quality in teaching and learning. To monitor how successful the Institute is in providing quality teaching and learning we regularly seek feedback from our students and staff.

Feedback is welcome at any time throughout the duration of the workshop. A Workshop Evaluation Survey will be carried out at the end of the workshop. Students are strongly encouraged to complete the survey as it is important tool to improve the quality of teaching. The feedback is anonymous and provides the Institute with evidence of aspects that students are satisfied and areas that need improvement.



# Teaching and Learning Method

The workshop consists of 9 Modules, each consisting of 2 hours of lectures and 2 hours of practical sessions and individual assignments, distributed in 5 business days. Enrolment in this workshop requires full time commitment of the students. Students are required to attend all lectures and to participate in the practical sessions. There will be an assignment to complete after each practical session. These assignments will be marked at the end of the sessions, and every assignment will contribute with 5% to the final marks. A final 2 hour exam will be carried out at the end of the workshop. The final exam will contribute with 55% to the final marks. To achieve a pass in the workshop, students must achieve an overall mark of 75% or above. A **Proficiency Certificate**<sup>7</sup> will be issued to those students who have successfully completed the workshop.

## Workshop allocation

The workshop will be carried out in one of the PC Laboratories of Building 60, Monash University, Clayton Campus, Victoria.

# Workshop Resources

## Prescribed text(s) and readings

### -Murach's Java SE 6

by Joel Murach and Andrea Steelman

ISBN-10: 1-890774-42-1; ISBN-13: 978-1-890774-42-4

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<sup>7</sup> A Proficiency Certificate is a type of professional certificate issued by the Australian Institute of High Energetic Materials, which reflects on specialised knowledge and skills attained in the Workshops. A Person can obtain a Proficiency Certification by completing the following requirements: (i) meeting full time attendance requirements; (ii) completing all tests and assignments scheduled for the Workshop; and (iii) successfully passing the final exam.



## Workshop schedule

Module	Lecture	Practical Session
<b>1</b>	<ul style="list-style-type: none"><li>- Introduction to Java programming language</li><li>- Algorithms, Primitive Data Types</li><li>- Basic I/O</li></ul>	Familiarisation with the Eclipse IDE, Design techniques and tips, Hello World project
<b>2</b>	<ul style="list-style-type: none"><li>- Variables and Constants</li><li>- Class/Objects</li><li>- Basic I/O</li><li>- String and Math Class</li><li>- Casting</li></ul>	Relevant Exercises
<b>3</b>	<ul style="list-style-type: none"><li>- Boolean expressions</li><li>- Comparing Primitive data types and strings</li><li>- Selection Statements</li><li>- Conditional operators</li></ul>	Relevant Exercises
<b>4</b>	<ul style="list-style-type: none"><li>- More on control statements</li><li>- Repetition</li><li>- Validation</li></ul>	Relevant Exercises
<b>5</b>	<ul style="list-style-type: none"><li>- Modularisation</li><li>- Flow of control</li><li>- Scope</li></ul>	Relevant Exercises
<b>6</b>	<ul style="list-style-type: none"><li>- Object Oriented Programming</li><li>- Classes and Objects</li><li>- Flow of control</li></ul>	Relevant Exercises
<b>7</b>	<ul style="list-style-type: none"><li>- Methods</li><li>- Access modifiers</li></ul>	Relevant Exercises
<b>8</b>	<ul style="list-style-type: none"><li>- Object References</li><li>- Inheritance</li></ul>	Relevant Exercises
<b>9</b>	<ul style="list-style-type: none"><li>- More on inheritance</li><li>- Arrays</li></ul>	Relevant Exercises