



SIAA

SIAA PROFESSIONAL CERTIFICATION

APPLICATION PACK

(Systems Engineering Skills Group)

How do I apply?

The components of professional certification available through the SIAA in relation to Systems Engineering comprise:

- Introduction to Simulation Certificate
- Simulation Practitioner Certificate (Systems Engineering)
- Simulation Currency Certificate (Systems Engineering)
 - Note that the Simulation Currency Certificate is presented biannually as an endorsement of either the Introduction to Simulation Certificate or the Simulation Practitioner Certificate.

An Application Proforma that can be used to apply for any of these components is provided at Annex A. The following sections of this Application Pack provide detailed information about the components of professional certification currently available through the SIAA. Please note that a Simulation Advanced Practitioner Certificate is currently under consideration by the SIAA.

Do I fit into the 'Systems Engineering' Skills Group?

Systems Engineering is an interdisciplinary approach to the realization and successful deployment of technical and highly complex systems. In broad terms, it focuses on defining the right solution followed by ensuring successful deployment of the defined solution.

Definition of the right solution focuses on understanding customer needs, and the required functionality, early in the development cycle. It commences with extracting and documenting these needs and conducting requirements analysis to transform these needs into technical specifications. These technical specifications are then used to design the architectural framework for the solution. Design synthesis follows, with identification of developmental and non-developmental elements. Detailed design then occurs to describe how the developmental elements of the solution are to be implemented.

Deployment then focuses on building and implementing the solution, in accordance with the defined design and any other constraints on the overall solution space and on the transition of the built solution into operational use and eventual disposal.

Verification and Validation activities span the developmental life-cycle, ensuring the integrity of the solution, both in terms of meeting customer requirements and being true to the architectural and design framework established as part of the definition phase. . Even within these subsets there is a

broad scope for interpretation. For example, Solution Definition might be limited in some instances to just 'Design' to replace or provide pre-defined functionality, while in other circumstances it might include detailed 'Needs and Requirements Analysis'.

Simulation Systems Engineering is typically associated with the following types of simulation environments, but is equally applicable to many other implementations:

- Full Flight simulators such as those employed by Defence, Commercial Airlines and Civilian Aviation
- Procedural simulators and trainers such as those used in medicine
- Software applications or tools used for analysis or development.

Annex B lists typical basic entry level qualifications for Systems Engineering; however, the application of this wide range of specialist skills to simulation may take many forms and involve an even wider range of philosophies, methodologies, and instruments. Consequently, it is not practicable to define specific knowledge, skills and attitudes as criteria for the certification of simulation professionals in this skill group.

Indeed, the SIAA Professional Certification Status Report dated 15th November 2006 states:

“The SIAA Simulation Professional Certification Program is intended to provide professional certification only and not technical certification. That is to say, certification granted under the SIAA program will not be certifying that someone can perform specific technical tasks, although many of the endorsed courses will offer such qualifications. Rather, the scheme will offer guidance to individuals on pathways to advance their professional skills and will recognise the steps taken (eg courses and workplace experience) to advance in the field.”
(p.2)

Still, some organising concept is required to define what we mean by a 'Systems Engineering Skill Group'. One avenue to such a definition is to adopt a broadly applicable model of the work undertaken by simulation professionals who identify themselves with the field of 'systems engineering'. For example, viewed from an engineering perspective, the terms: Analysis, Design, Development, Implementation/Manufacturing, Through-life-support (TLS) and Verification & Validation (V&V) have long been in popular use to generally describe the continuum of Systems Engineering tasks. Adopting these terms as an organising concept provides a basis for defining "...pathways to advance ... professional skills and ... recognise the steps taken..." (from the above extract). Readers should note that these terms are not used here to represent any specific philosophy or methodology of learning and instruction, but rather as simple labels for the wide range of instructional systems tasks that are potentially applicable a simulation workplace.

So, if you consider yourself to be, or aspire to be, involved in engineering aspects of simulation Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V, then the Systems Engineering Skill Group applies to you.

Introduction to Simulation Certificate

Award of the Introduction to Simulation Certificate is subject to satisfactory completion of the following program or equivalent workplace experience:

A common program for all applicants comprised of the Introduction to Simulation in Australia Seminar, conducted by the SIAA, and completion of an endorsed training course or activity that applies an individual's established expertise and skills to the field of simulation. Certification at this level recognises a basic understanding of the field of simulation and an appreciation of how one's own expertise and skills can be applied to this field.

The respective criteria for applicants who rely on the defined program and applicants who rely on workplace experience are as follows:

1. **Defined Program.** Completion of the SIAA Introduction to Simulation Seminar and associated assessment activity, and either:
 - a. partial or full completion of an endorsed training course (refer to Annex B); or
 - b. completion of a course where evidence can be provided that an individual's established engineering expertise and skills in one or more aspects of the Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V are applied to the field of simulation and awareness is developed of when advice should be sought from more experienced simulation professionals.
2. **Workplace Experience.** The applicant has performed the following to the satisfaction of a person authorised by the SIAA PD Committee (in accordance with the Application for Introduction to Simulation Certificate at Annex C):
 - a. demonstrated an understanding of basic terms and concepts in the field of simulation;
 - b. demonstrated an understanding of the role and activities of the SIAA and general applications of simulation in Australia;
 - c. identified and understood common engineering issues in the application of one or more aspects of the Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V to simulation; and
 - d. demonstrated an appreciation of when the advice of simulation professionals more experienced in systems engineering should be sought.

Simulation Practitioner Certificate

Award of the Simulation Practitioner Certificate is subject to satisfactory completion of the following:

Demonstration of effective application of an individual's technical competencies to the field of simulation, including independent planning, management and conduct of simulation workplace tasks involving well-established industry practices.

In relation to the Systems Engineering Skill Group, possession of applicable technical competencies may be evidenced by completion at a focused Systems Engineering course, or through a relevant higher qualification diploma or degree.

In addition to provision of evidence of applicable technical competencies, applicants must meet criteria related to either a combination of coursework and workplace experience, or solely workplace experience (where the workplace experience is considered to have offered an applicant exposure to the establishment and/or support of one or more simulation environments).

The respective criteria for applicants who combine coursework with workplace experience and applicants who rely solely on workplace experience are as follows:

1. **Combined Coursework and Workplace Experience.** The following criteria must both be satisfied:
 - a. Completion of an endorsed training course (refer to Annex B) that develops abilities to independently plan, manage and conduct engineering tasks involving the application of one or more aspects of Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V to simulation.
 - b. Confirmation of the ability to independently plan, manage and conduct engineering tasks involving the application of one or more aspects of Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V to simulation in the workplace to the satisfaction of a person authorised by the SIAA PD Committee (in accordance with the Application for Simulation Practitioner Certificate at Annex D).

2. **Workplace Experience Alone.** The following criteria must be satisfied through evidence presented to a panel of peer professionals (as appointed by the SIAA PD Committee):
- a. Workplace application of one or more engineering aspects of Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V to simulation in an operational simulation environment, and with supervision and performance review by a person authorised by the SIAA PD Committee.
 - b. Confirmation of the ability to independently plan, manage and conduct engineering tasks involving the application of one or more aspects of Analysis, Design, Development, Implementation/Manufacturing, TLS and V&V to simulation in an operational simulation environment, to the satisfaction of a person authorised by the SIAA PD Committee (in accordance with the Application for Simulation Practitioner Certificate at Annex D).

Simulation Advanced Practitioner Certificate

This level of professional certification is currently under consideration.

Simulation Skills Currency Certificate

Award of the Simulation Practitioner Certificate is subject to:

Ongoing professional development of instructional systems knowledge and skills in relation to the field of simulation.

Applicants must undertake professional development activities (Endorsed and/or Non-Endorsed) that have a total value of at least 24 Currency Units¹ (CUs) per two calendar-year period, with at least 8 CUs being approved as specifically pertinent to the Systems Engineering Skill Group.

Non-Endorsed Professional Development Activities. Applicants may request recognition of professional development activities that have not been endorsed by the SIAA. These activities must maintain knowledge and skills and/or provide understanding and experience of developments in the field of simulation. An Application for Recognition of a Non-Endorsed Course/Activity is provided at Annex D. Note that the CU value of Non-Endorsed Professional Development Activities will be determined by the SIAA PD Committee on a case-by-case basis.

Privacy and Confidential Information

Applicants' contact details will be included in the SIAA's mailing database to enable communication of SIAA news and activities. For further information on the SIAA's Privacy Policy, refer to www.siaa.asn.au/privacy.html.

Applicants should be aware that their Applications will be forwarded to relevant members of the SIAA's Certification Skills Groups. Each member has signed a Non-Disclosure Agreement to ensure that information is not inappropriately used or distributed. However, applicants should carefully consider including commercial-in-confidence information which may be assessed by a Member who is employed by a competitor to the applicant's employer.

¹ As a general 'rule-of-thumb', a relevant one-hour activity would equate to one CU.



Professional Certification Program Application Proforma

Type of Application	Skills Group
	<i>(Select one or more. Optional if application is for Enrolment Only.)</i>
<input type="checkbox"/> Enrolment Only	
<input type="checkbox"/> Enrolment and Introduction to Simulation Certificate (also complete Annex C)	<input type="checkbox"/> Instructional Systems <input type="checkbox"/> Maintenance Support
<input type="checkbox"/> Enrolment and Simulation Practitioner Certificate (also complete Annex D)	<input type="checkbox"/> Human Factors <input type="checkbox"/> Project Management
	<input type="checkbox"/> Systems Engineering <input type="checkbox"/> Policy

Personal Details (* Required Fields)

Title/Rank: _____

Surname/Family Name* : _____

Given Names/Other Names* : _____

Preferred Name: _____

Position Title: _____

Organisation: _____

Street No. and Name/PO Box/Other Address Details* : _____

Suburb/City* : _____

State* : _____

Postcode/Zipcode* : _____

Country: _____

Telephone* : _____

Facsimile: _____

Mobile: _____

Email* : _____

Signature of Applicant* : _____

Date* : _____

Fees and Payment

The following fees cover enrolment in the Professional Certification Program, initial certification and an entitlement to attend the SIAA Introduction to Simulation in Australia Seminar (or receive Seminar materials in electronic format):

Enrolment, Initial Certification and Seminar Fee \$595.00

Payment may be made by Cheque, Direct Deposit or Credit Card at the time of enrolment in the program.

Cheques/Money Orders should be made payable to:

Simulation Industry Association of
Australia Ltd
C/- Simcon Services Pty Ltd
PO Box 226
Lindfield, NSW 2070
Australia

Direct Deposit Payments can be made to:

Bank: Commonwealth Bank of
Australia
Branch Address: 48 Martin Place,
Sydney, NSW 2000
Account Name: Simulation Industry
Association of Australia Limited
Account Type:
Business Cheque Account
BSB: 062 000
Account No: 1139 5366

I have forwarded a cheque/money order for my
enrolment fee of AUD \$.00

If paying by credit card, please complete the details below:

Card Type: _____

The SIAA cannot process Amex, JCB or Diners payments.

Card Number:

Expiry Date: /

Name on Card: _____

Card Signature: _____

Terms and Conditions

Terms and Conditions of the SIAA Professional Certification Program can be viewed at the SIAA Website. Applications are accepted on the understanding that the applicant agrees to be bound by the Terms and Conditions.

Annex B
Endorsed Training Courses – Systems Engineering

Simulation Introductory Certificate Endorsed Courses

Refer to the SIAA Guide to Simulation Professional Development in Australia for details and contacts regarding the listed courses.

Provider	Course Title
Simulation Industry Association of Australia	Introduction to Simulation in Australia Seminar
	Nominated half and one-day Workshops conducted at the annual SimTecT Conference See www.simtect.com for details
Conferences such as the Interservice/Industry Training, Simulation and Education Conference (IITSEC) and ITEC (International Training and Education Conference)	Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee. See www.iitsec.org and www.itec.co.uk for details
Conferences such as the Simulation Technology & Training (SimTecT) Conference held under the auspices of the Simulation Industry Association of Australia	Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee. See www.simtect.com for details
Conferences such as the Systems Engineering and Test & Evaluation (SETI) conference held under the auspices of the Systems Engineering Society of Australia	Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee. See http://www.sesa.org.au/
Note: Formal endorsement of courses is currently underway. The following are not yet endorsed, but are provided as an indication of the type of courses that could be cited in Professional Certification Applications as evidence of relevant expertise and skills.	
Project Performance International	Systems Engineering for Technology-Based Projects & Product Developments (5 days)
Queensland University of Technology	Bachelor of Engineering (Aerospace Avionics) (EE48) With a Minor in Systems Engineering
University of New South Wales (ADFA)	Introduction to Systems Engineering
	Systems Engineering Practice
	Systems Thinking and Modeling

Simulation Practitioner Certificate Endorsed Courses

Provider	Course Title
Conferences such as the Interservice/Industry Training, Simulation and Education Conference (IITSEC) and ITEC (International Training and Education Conference)	Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee. See www.iitsec.org and www.itec.co.uk for details
Conferences such as the Simulation Technology & Training (SimTect) Conference held under the auspices of the Simulation Industry Association of Australia	Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee. See www.simtect.com for details
Conferences such as the Systems Engineering and Test & Evaluation (SETE) conference held under the auspices of the Systems Engineering Society of Australia	Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee. See http://www.sesa.org.au/
Note: Formal endorsement of courses is currently underway. The following are not yet endorsed, but are provided as an indication of the type of courses that could be cited in Professional Certification Applications as evidence of relevant expertise and skills.	
Project Performance International	Systems Engineering for Technology-Based Projects & Product Developments (5 days)
Queensland University of Technology	Bachelor of Engineering (Aerospace Avionics) (EE48) With a Minor in Systems Engineering
University of New South Wales (ADFA)	Introduction to Systems Engineering
	Systems Engineering Practice
	Systems Thinking and Modeling

Simulation Currency Certificate Endorsed Courses and Activities

Provider	Course/Activity
<p>Conferences such as the Simulation Technology & Training (SimTecT) Conference held under the auspices of the Simulation Industry Association of Australia</p>	<p>Attendance at Keynote and Paper presentations during the conference</p> <p>Half and one-day Workshops conducted at the annual SimTecT Conference</p> <p>See www.simtect.com for details</p>
<p>Conferences such as the Systems Engineering and Test & Evaluation (SETE) conference held under the auspices of the Systems Engineering Society of Australia</p>	<p>Relevant half and one-day Workshops conducted at the annual conferences, as endorsed by the SIAA PD Committee.</p> <p>See http://www.sesa.org.au/</p>
<p>Conferences such as the Interservice/Industry Training, Simulation and Education Conference (IITSEC) and ITEC (International Training and Education Conference)</p>	<p>Attendance at Keynote and Paper presentations during the conference, as endorsed by the SIAA PD Committee.</p> <p>Relevant half and one-day Workshops conducted at the annual conferences</p> <p>See www.iitsec.org and www.itec.co.uk for details</p>



SIAA

Application for Introduction to Simulation Certificate

Applications can be made on the basis of completion of coursework or possession of equivalent workplace experience. Please complete either Part A for coursework or Part B for workplace experience.

Part A: Coursework

SIAA Introduction to Simulation Seminar (* Required Fields)

Date Attended*:

(Note: Seminar assessment activity must have been successfully completed)

Other Endorsed Course

Course Name*:

Date Completed*:

(Please attach copy of completion certificate or other evidence of attendance)

Non-Endorsed Course/Activity

Please complete and attach Annex E.

Part B: Workplace Experience

Workplace Referee Details (* Required Fields)

Title/Rank:

Surname/Family Name*:

Given Names/Other Names*:

Position Title:

Organisation:

Street No. and Name/PO Box/Other

Address Details*:

Suburb/City*:

State:

Postcode/Zipcode*:

Country:

Telephone*:

Mobile:

Email*:

Please attach testimonial and/or documentary evidence that the candidate has demonstrated the following abilities in a simulation workplace:

- I. identified and understood common issues in the application of one or more aspects of the analysis, design, development, instruction/implementation and evaluation of education or training to simulation, and**
- II. demonstrated an appreciation of when the advice of simulation professionals more experienced in instructional systems should be sought.**

Evidence must include written details of tasks and projects undertaken, and for each task and project a discussion of:

- The nature of the task or project
- A description of the role of the Applicant in the task or project
- The Workplace Referee's assessment of the effectiveness of the applicant in:
 - i. identifying and understanding common issues in the application of one or more aspects of the analysis, design, development, instruction/implementation and evaluation of education or training to simulation, and
 - ii. demonstrating an appreciation of when the advice of simulation professionals more experienced in instructional systems should be sought.

Written material produced from tasks and projects may be submitted as evidence. Where this is not practical, applicants are to ensure that sufficient documentary evidence is provided to allow a determination to be made. To ensure that adequate information is provided, a submission with a minimum of 500 words and a maximum of 1,000 words is suggested.

Candidate Signature*:

Date:

.....
.....

Workplace Referee Signature*:

Date:

.....
.....

Terms and Conditions

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SIAA

Application for Simulation Practitioner Certificate

Applications can be made on the basis of completion of combined coursework and workplace experience or workplace experience alone. Please complete Parts A and B for combined coursework and workplace experience or Part B for workplace experience alone.

Part A: Coursework

Endorsed Course (* Required Fields)

Course Name*:

Date Completed*:

(Please attach copy of completion certificate or other evidence of attendance)

Non-Endorsed Course/Activity

Please complete and attach Annex E.

Part B: Workplace Experience

Workplace Referee Details (* Required Fields)

Title/Rank:

.....

Surname/Family Name*:

.....

Given Names/Other Names*:

.....

Position Title:

.....

Organisation:

.....

Street No. and Name/PO Box/Other
Address Details*:

.....

Suburb/City*:

.....

State:

.....

Postcode/Zipcode*:

.....

Country:

.....

Telephone*:

.....

Mobile:

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Email*:

.....

Please attach testimonial and/or documentary evidence that the candidate has demonstrated the following abilities in a simulation workplace:

- III. Independent planning, management and conduct of tasks involving the application of one or more aspects of the analysis, design, development, instruction/implementation and evaluation of education or training to simulation, and
- IV. Application of one or more aspects of Analysis, Design, Development, Implementation or Evaluation to routine simulation tasks.

Evidence must include written details of tasks and projects undertaken, and for each task and project a discussion of:

- The nature of the task or project
- A description of the role of the Applicant in the task or project
- The Workplace Referee's assessment of the effectiveness of the applicant in demonstrating:
 - i. Independent planning, management and conduct of tasks involving the application of one or more aspects of the analysis, design, development, instruction/implementation and evaluation of education or training to simulation, or
 - ii. Application of one or more aspects of Analysis, Design, Development, Implementation or Evaluation to routine simulation tasks.

Written material produced from tasks and projects may be submitted as evidence. Where this is not practical, applicants are to ensure that sufficient documentary evidence is provided to allow a determination to be made. To ensure that adequate information is provided, a submission with a minimum of 500 words and a maximum of 1,000 words is suggested.

Candidate Signature* :

Date:

Workplace Referee Signature* :

Date:

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Application for Recognition of a Non-Endorsed Course/Activity

Application for Recognition of a Non-Endorsed Course/Activity (* Required Fields)

Name/Title of Course/Activity*:

.....

Course/Activity Provider:

.....

Briefly describe the course/activity and how it satisfies criteria for the level of certification you are seeking (please attach material describing the course/activity if available)*:

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Briefly detail your role in the course/activity and your hours of involvement (please attach completion certificate or other evidence of your involvement)*:

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.....
.....

Applicant Signature*:

.....

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