



## Requirements Engineering

Presented by the Graduate School of Technology Management, University of Pretoria

5 CPD points from ECSA

Almost all system failures can be traced back to a problem with the system's requirements. Such failures are usually attributed to poor requirements engineering practices and requirements management. In many instances engineers believe that they have developed "good" requirements without realising that they have in fact not developed requirements at all but instead have confused requirements with a solution. Even worse, many a system is the result of poor understanding of the actual need or problem that must be solved by the system. No wonder then that so many projects end in failure.

This course will provide delegates with the necessary insight, understanding and skills to effectively elicit a customer's need and convert this into feasible and realistic system.

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## Course content

Requirements Engineering 3 days	Managing Specifications 2 days	Writing Effective Specifications 2 days
<ul style="list-style-type: none"> <li>Identifying who the stakeholders are; stakeholder analysis.</li> <li>Analysing the customer's need; elicitation techniques.</li> <li>The requirements analysis process; how does it fit into the system life cycle?</li> <li>Requirement types.</li> <li>What constitutes a requirement?</li> <li>Transforming a customer need to an engineering requirement.</li> <li>Overview of different requirements engineering tools.</li> <li>Analysing risk.</li> <li>Case studies.</li> </ul>	<ul style="list-style-type: none"> <li>Specification tree; how to develop one.</li> <li>Specification planning and plans.</li> <li>Reviewing a specification; checklists.</li> <li>Configuration and change control.</li> <li>Maintaining traceability.</li> <li>Case studies.</li> </ul>	<ul style="list-style-type: none"> <li>Why does a specification matter?</li> <li>Impact of poor specifications on tenders and contracts.</li> <li>Introduction to specification types.</li> <li>Structuring a specification; what should a specification contain?</li> <li>Appropriate language and style; terminology to avoid.</li> <li>Good specification processes.</li> <li>Allocating responsibilities; who remains accountable?</li> <li>Case studies and practice sessions.</li> </ul>

## Learning outcomes

After successfully completing these three modules, delegates will be able to

- understand the importance, roles and purpose of writing clear and unambiguous specifications
- understand the contractual implications of poor specifications
- be able to develop a specification hierarchy
- be able to define a project-specific process of moving from project requirements to specifications, including the implied translation process from requirement to specification
- be provided with a framework of what constitutes good specifications
- understand what constitutes good specifications
- understand the tools and processes needed to properly structure and develop specifications
- know most common types of specifications
- be able to organise and manage appropriate specification reviews
- be able to manage the change of specifications as the project progresses, and
- know appropriate specification standards.

## Course fees

**R22 600.00 per delegate (VAT incl.)**

Course fees include all course material, lunch and refreshments.

## Accreditation and certification

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This course is accredited by the Engineering Council of South Africa (ECSA) and course participants will be eligible to claim 5 Continuing Professional Development (CDP) points.

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## Course presenters



### Dr Jörg Lalk (PrEng)

Senior lecturer  
University of Pretoria Graduate School  
for Technology  
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Dr Lalk participated in the founding of the university's new Institutional Research Theme on Energy. His research interests include systems engineering and the techno-economic modelling of energy systems. He boasts more than 30 years' experience in systems engineering, engineering management, project management and the management of strategic technology programmes in the aerospace, automotive, ICT, consulting and energy industries.

## Memberships

- Senior member of the IEEE (Institution of Electrical and Electronic Engineers)
- Founding member and past-president of the South Africa Chapter of INCOSE (International Council of Systems Engineers)
- Associate-Director for Technical Review of INCOSE

## Registration and enquiries

### Course coordinator

Marinda Prinsloo  
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### Prof Adelia Carstens

Director of the Unit for Academic  
Literacy  
Faculty of Humanities

Prof Carstens is NRF rated and has published more than 50 papers in peer reviewed publications, delivering more than 50 papers at national and international conferences. She specialises in designing and developing curricula for undergraduate and postgraduate courses in academic and professional communication. Her research foci include disciplinary writing in higher education, multimodal meaning making, narrative inquiry into student and career narratives, and multilingualism as a resource in literacy and cognition.



### Gerrit Prinsloo

Part time lecturer  
Lecturing "Introducing to Systems  
Engineering and Product Life Cycle-  
Requirement Management"

Gerrit Prinsloo has extensive technical experience working for companies such as Iscor, Sasol, Denel and Armscor. Prinsloo has made contributions in product planning and project manager, project management of ERP and operations and production management. Gerrit worked on the Pebble Bed Modular Reactor (PBMR) as the Engineering Configuration Manager using his exposure of B2B intelligence, knowledge management, ERP & QMS business systems and product life cycle management experience.

He currently consults for companies such as Eskom, Necca, and CSIR.

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