



# SYSTEMS ENGINEERING - PROFESSIONAL DEVELOPMENT PROGRAMME (SE-PDP)

## ***Course Descriptions***

The SE-PDP addresses a fundamental need of many Organisations. With a shortage of senior Systems Engineers and Lead Systems Engineers, how can their teams rapidly increase their SE maturity and capabilities in a low risk, cost effective and fully customised professional development programme.

The SE-PDP is structured to be delivered over four on-site training sessions, covering three main areas of Systems Engineering:

1. End-to-end complex systems development (6-days)
2. Integrating specialities / quality attributes applicable to the Customer (3-days)
3. SE Matrix Management & Leadership (3-days)

The SE-PDP is only offered in-house and is highly customisable to project teams and their organisations.

## ***Learning Outcomes***

- Identify common attributes and causes of complexity.

- Master the application of Systems Engineering methodologies to complex system developments.
- Master key technical management competences required for Senior Systems Engineers, technical matrix leaders.
- In a moderated workshop develop sustainable solutions in the System of Systems context.

### ***Who Should Attend?***

- Systems engineers
- System architects
- System analysts
- Project managers
- Product owners
- Engineering teams

### ***Course Rates***

Please contact us for a customised offer.

### ***Duration***

12 days

### ***Delivered By***



Seb Klaves

Sebastian has authored and reviewed numerous publications and likes to implement systems engineering principles.

After working at the Institute of Transport Science of RWTH Aachen as research

associate, he worked at the German Aerospace Centre as Project Officer and as Project Systems Engineer at Bombardier.

Currently, Sebastian is heading the RAMS department at Siemens' Mobility division. He is actively involved in the committee of the Swiss Society of Systems Engineering, is a certified Systems engineering professional and is giving systems engineering training at Siemens.

Sebastian enjoys approaching organisational and technical challenges with a 'rock solid' systems thinking approach.



Mike Johnson

Mike has worked leading challenging product development roles predominantly in the Space and Defence Industries since completing his Masters degree in Photonics and Optoelectronic devices at the University of St Andrews, UK.

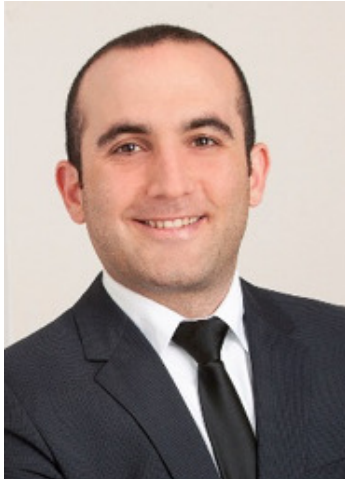
He has worked predominantly in the roles of Systems Engineer, leading technical developments involving inter-disciplinary teams often consisting of Mechanical, Electrical, Technology, Software and Optical Engineers. He worked at RUAG Space, Zürich for five years. During this period he moved into management, leading the Systems Engineering group in the product unit Optoelectronics and Instruments. In addition he gave Systems Engineering training courses to the employees across the whole company, training circa 100 Engineers from a beginners to an advanced level.

Having moved to Roche Diagnostics International to lead the Systems Engineering team in Rotkreuz, Switzerland, he is now passionately applying his experience and knowledge of Systems Engineering to the Healthcare industry.

He is passionate about product development and especially the application of Systems Engineering. He is one of the founders of the Swiss Society of Systems Engineering (SSSE) and regularly attends Swiss based IET and INCOSE lectures/seminars. He is the organiser of SWISSED, Switzerland's annual

conference on Systems Engineering. In addition, he is the co-founder of SE-Training GmbH, specialising in high quality delivery of Systems Engineering training courses in Switzerland.

Chartered Engineer (IET 97325920) and Chartered Systems Engineering Professional (CSEP).



Mohammad Chami

Model based systems engineering expert with a solid academic and industrial experience in modelling languages, processes, developing and deploying methods for system modelling and customising its tools.

Other qualifications:

- Mohammad holds two master's degrees in Electronics and Mechatronics, and the OMG Certified Systems Modelling Professional Certificate (OCSMP)
- Has the Bombardier Recognition of appointment as "Engineering Management, Processes, Methods and Tools" Expert
- Is a member of INCOSE and actively participating in its chapters GfSE, SWISSED and other activities (e.g. OMG, NOSE, AFIS, MODELS).
- Author or co-author of numerous publications and gave various presentations and talks at international conferences.



**Marco Di Maio**

Marco has had many roles in Systems Engineering: Professor at a technical university, and Consultant for and Employee in the development of complex systems. He was the managing director of projectglobe - a boutique consultancy firm specialising in Model Based Systems Engineering (MBSE) and Information Management (IM) to support innovation driven engineering projects. Major customers are the fusion research community, the automotive industry, and 3D laser-welding and robotics companies.

Marco holds a PhD in nuclear engineering and a Masters in Operational Research. In his role as research fellow at Europe's largest fusion laboratory, JET near Oxford, he devised a novel diagnostic system, which earned him a world-wide patent. Marco then worked for the automotive industry managing product development and launch projects for the emerging markets of Eastern Europe and Russia before co-founding projectglobe with the purpose to devise novel methodologies, frameworks and tools that combine MBSE with IM to enable effective innovation and product development.

Together with partners from industry and academia, projectglobe have developed CLOSE - a Closed-Loop MBSE methodology based on robust semantic reference model. This model allows to automatically generate the required engineering artefacts in the correct format for SE teams and domain experts alike. The loop is closed by so-called "Experimentable" Digital Twins that provide in-the-loop feedback for all developers throughout the whole product life cycle. CLOSE runs on projectglobe's fractal data engine and thus allows for unlimited scalability in managing all project information.



Sandra Roth

Sandra is a leadership, team and change management coach with a decade of experience in R&D as a usability engineering expert, user experience leader and SW development department head in a global medical device manufacturer.

Sandra has a M.Sc. in Psychology, a Ph.D. in Human Computer Interaction and holds several coaching degrees.



Marco Serra

Marco's professional experience, built over almost 30 years of working with clients in North America, Europe and Southern Africa, spans diverse roles in the aerospace, automotive, defence and energy industries. For example, as Systems Engineer Marco was involved in the initial conceptual development and technology transfer assessment of a sample handling and analysis system intended to receive and analyse material returned to Earth on Nasa's Mars Sample Return Mission. Marco also spends significant time consulting in the Oil & Gas and Energy industries providing system and component design support, conducting failure investigations, providing technical expertise in legal disputes, validating system designs, and developing analysis methodologies for complex fluid-mechanical simulations. More recently, Marco has been working on the

thermomechanical design of optical terminals for inter-satellite communications.

Marco holds a Masters Degree in mechanical engineering from the University of Pretoria, South Africa (1993). He also holds a Masters Degree in Engineering and Management from the Massachusetts Institute of Technology, USA (2002), with a focus on Systems Architecture, Systems Engineering, and System and Project Management.



Gordon Woods

Gordon has a wealth of experience in requirements management, driving innovations in the defence, aerospace and nuclear and rail industries. He has previously worked on fast jets, military drones, UK and US tank system and trainers, satellite systems and nuclear submarines. For the last eight years he has specialised in supporting requirements management in rail projects including HS2 and East West Rail in the UK; High Speed Rail, Mass Rapid Transit, Light Rail Transit projects in Malaysia; the Qatar metro and tram projects; the Riyadh metro and lately the NEOM Backbone railway projects in Saudi Arabia.

He has brought his own unique style to the elicitation and specification of requirements, the Verification and Validation of the design products and safety assurance, all within a progressive assurance environment.



Kevin Howard

Dr Kevin Howard has more than 40 years' experience in engineering. He initially worked in radar and radio frequency systems, and for the last 25 years has focused on Systems Engineering and managing complexity. He has been Chief Engineer for a range of systems ranging from military vehicles to space-based sensor systems. He has been VP Systems Engineering for a Global organisation providing safe city and big data technology. He now provides Systems Engineering consultancy, and as Engineering Director helped establish Optima Systems Consultancy Ltd as one of the leading Systems Engineering specialists providing consultancy to the defence and energy sectors around the world.

Kevin has a PhD in Optimising Complex Systems, supported by Post Graduate qualifications in Psychology and Business Administration. He is a Chartered Engineer, an external examiner for Cranfield University.