

## The Systems Engineering Toolkit™ Intensive In-Company Program for Engineering Workforce

*The System Engineer's Toolkit is designed to provide the engineering workforce with practical principles and applications that enable the workforce to more effectively execute engineering tasks within a project organization. Systems engineering is a well-developed body of knowledge, techniques, and methodologies in general use throughout technically complex industries. Its goal is the efficient production of high-quality products that meet the requirements of customers. The Toolkit reviews all aspects of the process—from initial definition of mission requirements to test, verification, and fabrication of the product—from planning through execution.*

### Program Parameters

- Offered exclusively to organizations for their employees
- Tailored to the challenges of each organization
- Ten (four-hour) sessions equal to (4) CEUs of credit
- Individuals who complete the course may apply the experience toward the UCSD Extension Professional Certificate in Systems Engineering
- Minimum 15 participants per program

### Outline of Instructional Topics

#### Project Engineering Overview

- Systems engineering process
- Engineering "V" and spiral process
- Program planning and control

#### Management, Control and Organization - I

- Organizational structure
- Work breakdown structure
- Schedule and cost control
- Cost as an independent variable (CAIV)

#### Management, Control and Organization - II

- Configuration management
- Data management
- Risk management

#### System Requirements

- Importance of performance objectives
- Requirements analysis
- Requirements allocation
- Requirements traceability

#### System Synthesis and Functional Allocation

- Basics of the functional analysis process
- System functional allocation
- Interface requirements and specifications
- System test and validation methodology
- Importance of modeling and simulation

#### System Architecture and Interface Definition

- Basics of the system design process
- HW/SW design and functional allocation
- System integration and test
- System factory acceptance testing

#### System Specialty Topics

- Reliability and availability
- Maintenance and logistics support
- Application of 6-sigma/CMMI/ISO standards

#### Application of Systems Thinking Concepts

- Importance of systemic and analytical views
- Identification of high leverage points (HLP)
- Reinforcement and balancing structures
- Cooperative and competitive structures

#### Program Elective (select one)

- Systems Verification & Validation
- Agile Software Development
- Systems Thinking and Proposal Support

#### Final Session

- Effective product development techniques
- Project organizational structures
- In-class project presentations
- Final exam



### Fee:

- Instructional fee \$1,625 per participant, includes materials
- Minimum 15 participants

### Customization

You may be able to modify/change sessions to attain your specific learning objectives. Contact us to learn more about these possibilities.

### Information

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