## The Teacher

**John Favaro** has more than 25 years experience in software engineering and software quality. He developed the training material for the European Space Quality Standards, and recently co-authored an article in the first conference on automotive safety in Valencia, Spain on issues in introducing ISO 26262 into organisations. He has given this course at several national and international venues in Europe and the USA and participates actively in industrial projects implementing the standard in automotive Tier 1 and Tier 2 organisations. A graduate of Yale and the University of California at Berkeley, he is an Associate Editor in Chief of *IEEE Software Magazine*.

## The Company

Since 1974, INTECS has been operating at the forefront of the software market, where safety, reliability, innovation, and quality are essential ingredients for success. INTECS provides leading-edge software technologies to support the major European and Italian organisations in the design and implementation of advanced electronic systems for Defence, Space, and Civilian markets.

Intecs is ISO-9000 certified since 1994. Currently it holds **ISO 9001:2008** quality certification for software development in Defense, Space, and Civilian domains. Moreover, Intecs Defence and ATC Divisions are positively appraised at **CMMI® Maturity Level 3**.

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CMMI® Level 3 Rated
Appraised by BUSINESS STRATEGY

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## General Information

### Location

Courses may be arranged in-house at the customer site upon request.

### Contact


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intecs
the Brainware company

# ISO 26262

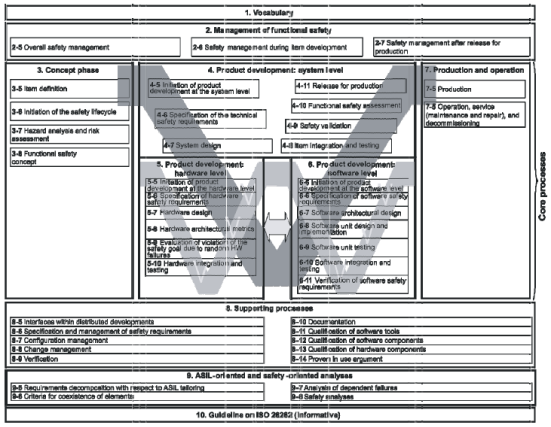
# Road Vehicles Functional Safety

***A three-day intensive course***

## The ISO 26262 Standard

ISO IS 26262 is the adaptation of IEC 61508 to comply with needs specific to the application sector of E/E systems within road vehicles. This adaptation applies to all activities during the safety lifecycle of safety-related systems comprised of electrical, electronic, and software elements that provide safety-related functions.

With the trend of increasing complexity, software content and mechatronic implementation, there are increasing risks from systematic failures due to software. ISO 26262 includes guidance to avoid these risks by providing feasible requirements and processes.




## The Course

A comprehensive and intensive three day course provides participants with all the major features of the standard, together with an overview of implementation techniques. The course provides discussion on how to apply the rigor required by the standard to the development project but with attention to costs and time to market.

## Intended audience

System Engineers & Software Engineers (Development and Verification), Quality Engineers, Configuration Managers, Test Engineers, and Project Managers.

## Course Outline

### Day 1

**Introduction to ISO 26262**

- History and status
- Legal implications
- Relationship to IEC 61508, MISRA

**Introduction to the 26262 safety lifecycle**

- Overview of the lifecycle
- Concepts and terminology
- Introduction to lifecycle phases

**Hazard analysis in ISO 26262**

- Item definition and management
- Hazard identification & safety goals
- Automotive safety integrity levels (ASIL)
- Practical issues in ASIL determination

**Functional safety concept**

- Derivation of safety requirements
- The safety requirements hierarchy
- Safety architecture and ASIL allocation

### Day 2

**System Level Functional Safety**

- Technical safety requirements and the technical safety concept
- SW/HW subsystem allocation
- System validation

**Production and operation**

- Planning for production and operation
- Tools and test equipment
- Hardware / software assembly
- Field monitoring / user manual

**Functional safety at hardware level**

- Requirements on hardware development
- Requirements on failure rates
- Hardware component qualification

**Hardware metrics**

- Details of ISO 26262 fault model
- Hardware architecture metrics
- Metrics calculation example
- Probability of violation of safety goal due to random errors (two methods)

### Day 3

**Safety-related software development**

- Reference phase model for software development
- Coverage of the entire V-lifecycle
- Model based development
- Software Configuration and Calibration
- Digital hardware

**Supporting processes**

- Configuration / change management
- Software tool qualification
- Principles of ASIL decomposition
- Freedom from Interference
- Dependent failures analysis

**Implementing ISO 26262 in practice**

- Proven in use arguments
- Safety-element-out-of-context
- Distributed development
- The safety case

**Functional Safety Management**

- Safety management and culture
- Concepts of independence
- Relationship to SPICE and other standards
- Costs of ISO 26262 implementation