Topics Agile Software Engineering

Introducing the Course
- Introduction of the participants and the course
- Introduction of the case used in assignments (autonomous vehicles)

Connecting Principles and Practices to Built-In Quality
- SAFe House of Lean, SAFe Core Values, Agile Manifesto, SAFe Principles
- XP Practices
- Quality, Application Quality (external and internal)

Accelerating Flow
- Value Stream, Delays, Loopbacks
- Business Value, Benefit Hypothesis, MMF

Applying Intentional Architecture
- Systems Thinking, Solution Context
- Agile Architecture, Architectural Runway
- Context Diagram, Test Doubles

Thinking Test-First
- Shift Testing Left, Inverted Test Pyramid
- Agile Testing Matrix
- Non-Functional Requirements
- DevOps / Continuous Delivery Pipeline

Discovering Story Details
- INVEST
- Scenarios, Acceptance Criteria, Stories, Use Cases
- Personas
- Agile Estimation
- Splitting Stories
- Story Maps
- Assumptions and Risks

Creating a Shared Understanding with Behavior-Driven Development (BDD)
- Behavior-Driven Development, Gherkin
- Domain Terms
- Business Tests and Scenario Tests
- UI Testing
- Test Doubles

Communicating with Models
- Why Models?
- Static Models (Entities, Relationships, Composition, Aggregation, Association, Dependency, Implements, Inheritance)
- CRC (Class Responsibility Collaboration) Cards
- Dynamic Models (Sequence Diagram)
- State Models

Building Systems with Code Quality

- Cohesion and Coupling, Splitters and Lumpers
- Inheritance, Delegation
- Non-Redundancy, Abstraction, Encapsulation, Abstract Data Types
- Code Readability, Assertive Code, Inquisitive Code, Stateless Services, Immutable Objects
- Coding Standards, Collective Ownership

Building Systems with Design Quality

- Interface-Oriented Design (SOLID)
- Separation, Programming by Intention
- Differentiation versus Synthesis
- Design Patterns (Strategy, Factory, Dependency Injection, Adapter, Mediator, Proxy/decorator)

Implementing with Quality

- Test-Driven Design
- Test Doubles and Test Data
- Refactoring (Extracting, Renaming, Moving)
- Emergent Design

Course Review

- Summary of the Course

Becoming a Certified SAFe Professional

- SAFe Community Platform
- ASE exam and certification