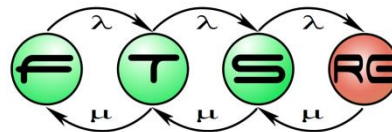# Introduction

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**Fault Tolerant Systems Research Group**

# Main topics of the course

- **Overview (2)**
  - Introduction, V&V techniques
- **Static techniques (1)**
  - Verifying source code
- **Dynamic techniques: Testing (7)**
  - Testing overview, Test design techniques
  - Test generation, Automation
- **System-level verification (3)**
  - Verifying architecture, Dependability analysis
  - Runtime verification

# Who is this course for?

| | |
|---|---|
| **Systems Engineer** | • Requirements, verifying specification |
| **Architect, Designer** | • Modeling and verifying designs |
| **Developer, Coder** | • Verifying source code, unit testing |
| **Test Designer** | • Test processes and techniques |
| **Test Engineer** | • Test automation, integration and system tests |
| **Safety Engineer** | • Safety analysis |

"Testing is destructive."

"Testing is just pushing buttons
and supplying values randomly."

"If your are not good for a
developer, you can be a tester."

"Testing is boring."

"I tested in the debugger…"

# V&V (and testing) in reality

## V&V (and testing) is creative!

How is this working?

How can I prove it works?

How should it work?

How can it fail?

## V&V (and testing) is constructive!

Testers are not breaking the SW (it was broken)

Testers help make the system better

Passion for quality

## V&V (and testing) requires a different mindset

Intuition

Attention to details

…

Systems level thinking

Specific knowledge

# V&V is context dependent!

**Telco**

- E2E, conformance…
- Protocol testing
- ITU, ETSI…

**Enterprise**

- Process-oriented
- Outsourcing
- Certification, ISTQB

**Critical systems**

- Safety
- Process, standards
- Documentation

**Startup, web**

- Agile, Lean…
- Experiment, measure
- Fast feedback

V&V

# Useful resources (download now!)

- **IEEE standards**
  - **24765-2010** Systems and SW engineering – Vocabulary
    - **SE VOCAB** – online searchable form
  - **29148-2011** Requirements engineering
  - 29119 Software testing
    - **Part 1** Concepts and definitions, **Part 2** Test processes, **Part 3** Test documentation, **Part 4** Test techniques
- **International Software Testing Qualifications Board (ISTQB)**
  - **Syllabi:** Foundation, Model-based Tester, Advanced Technical Test Analyst, Test Automation Engineer
  - **Glossary of Testing Terms**
- **Hungarian Testing Board (HTB)**
  - **Glossary** / Kifejezésgyűjtemény (Hungarian translation)

# Why is it useful for me?

- **Can I learn this elsewhere?**
  - ISTQB MBT course [2 days, 1000 EUR]
  - ISTQB Advanced TTA [3 days, 1200-1500 EUR]
  - …

- **Will I use it later? (Try searching for testing jobs!)**

# Useful events



HUSTEF

HUSTEF 2018

29-31 October | Budapest



TESZT&TEA

{tesztelőktől tesztelőknek}

**11 SEP**

Tuesday, September 11, 2018, 6:00 PM

## Teszt & Tea - Tesztelési piramis a gyakorlatban

Hosted by Péter Földházi J.

Kedves Kollégák! Az iskolakezdéssel az újabb meetup szezon is elindu
meginvitálni a Google Grundra, ahol előadóink a tesztelési piramis gy
alkalmazását mutatják be. Agenda: 1. Szikszai László (EPAM Systems)
teszt piramis? A teszt piramis egy fontos építőköve a hatékony teszte
amikor nem lehet megvalósítani a teljes teszt piramist, vagy épp csal