Dependability of Computer Systems

Component
École Nationale Supérieure d'Électrotechnique d'Électronique d'Informatique d'Hydraulique et des Télécommunications

In brief

- **plugin.odf-inp:PLUGINS_ODF_COURSE_NBHOURS_TXT:** 10
- **Code:** NEGC10C

Presentation

Objectives

Introduction to the basic concepts, assumptions and techniques for the design, the implementation and the evaluation of dependable computing systems, in general, and fault tolerant systems in particular. Illustration using several examples of dependable systems and experimental evaluation results.

Description

The lecture is composed of five section:

– Introduction, definitions and basic notions (fault prevention, fault tolerance, fault removal, fault forecasting) and measures.

– Fault tolerance techniques (fault assumptions, basic techniques, replication strategies) and architectural solutions

– Validation techniques, in particular, by fault injection (principles, robustness analysis, examples of tools and experimental results)

– Examples of dependable systems (real-time micro-kernel based systems, A320, B777, ELEKTRA)

– Software testing and verification/validation

Pre-requisites

Algorithmics, operating systems principle, real-time computing, C/C++ programming, computer architecture

Useful info

Place

Toulouse