

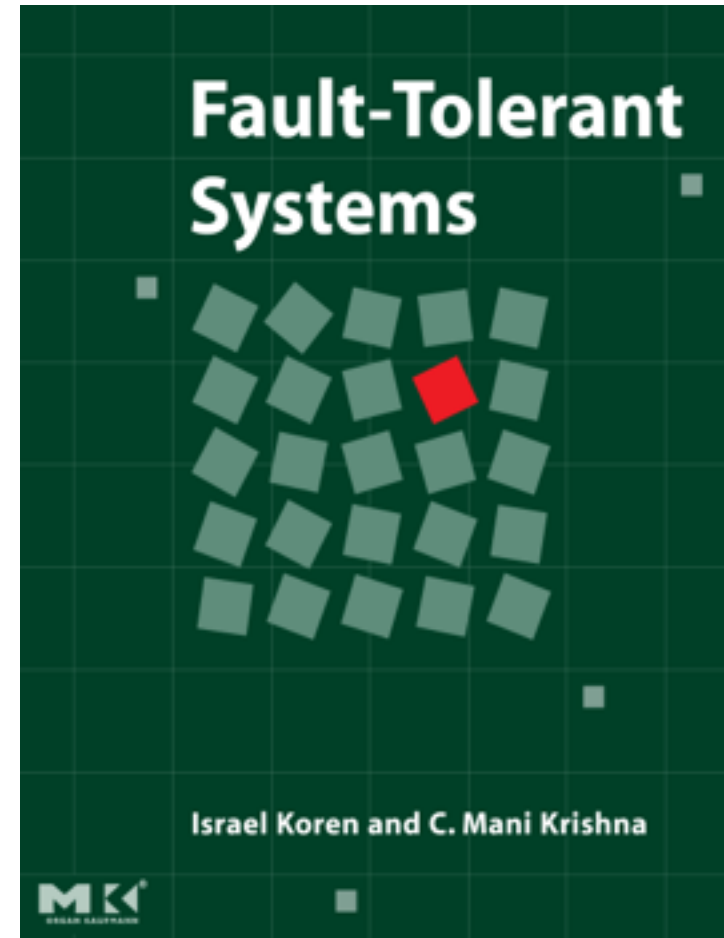
# 02228 Fault-Tolerant Systems

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- **New: Cloud Computing** topics and projects
- Contact
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    - Phone: 4525 3732
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- On the web:
  - CampusNet (CN)
  - Wiki page: <http://dtu.cnwiki.dk/02228>

# Literature

- Textbook:  
Israel Koren and C. Mani Krishna,  
**Fault-Tolerant Systems**  
Morgan Kaufmann  
– Full text available online
- A. Avizienis, J.-C. Laprie et al., Fundamental Concepts of Dependability
- Neil Storey, Safety Critical Computer Systems, Chapters 3 (“Hazard Analysis”) and 4 (“Risk Analysis”)
- **K. Chandrasekaran, Essentials of Cloud Computing, Chapters 2(“Cloud Computing Fundamentals”) and 3 (“Cloud Computing Architecture and Management”)**



# Lectures and examination

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- Lectures
  - See “Calendar” on CN and the lecture plan and reading list on the course wiki
  - Lecture notes: available on CampusNet as a PDF file the day before
  - Two invited lectures from the industry
  - Last lecture is used for the project presentations
- Examination
  - Project report, 7.5 ECTS points
  - **Important:** write “who did what” in the report

# Project

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- Milestones: see deadlines on CN/Assignments
  - **Milestone #1:** Topic presentation
    - Group members; max 4 students / group
    - 10 minutes presentation of your project topic
  - **Milestone #2:** Final project report
    - No page limit or special formatting required, but be concise and **avoid plagiarism**
    - Examples from previous years available on CN
  - **Milestone #3:** Poster presentation
    - Poster templates and examples available on CN

# Project, cont.



# Project, cont.

- Topic categories
  1. Literature survey
    - See the “references” and “further reading” in the course literature
  2. Architecture/framework or tool case-study
    - Select a commercial or research architecture/framework or tool and use it on a case-study
  3. Software implementation
    - Implement a technique,  
e.g., error detection or fault-tolerance technique
- Suggested topics on the course wiki:  
<http://dtu.cnwiki.dk/02228>

# Project, cont.

- Examples of last years' projects
  - Fault-tolerant cloud computing architectures
  - Fault-tolerance in Hadoop
  - Data replication study
  - ARIANE 5: Flight 501 Failure
  - Hamming Correcting Code Implementation in Transmitting System
  - Application of a Fault Tolerance to a Wind Turbine
  - Guaranteed Service in Fault-Tolerant Network-on-Chip
  - Google cloud architecture
  - Reliable message transmission in the CAN, TTP and FlexRay
  - Raft consensus algorithm

# Project deliverables

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## 1. Literature survey

- Written report
  - Structure
    - Title, authors
    - Abstract
    - Introduction
    - Body
    - Conclusions
    - References

## 2. Tool case-study

- Case-study files
- Report
  - Document your work

## 2. Software implementation

- Source code with comments
- Report
  - Document your work