Elenco dei moduli di dottorato per l’anno 2013-14

MODULO A

<table>
<thead>
<tr>
<th>Titolo:</th>
<th>Silicon RFIC Design</th>
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</thead>
<tbody>
<tr>
<td>Docenti:</td>
<td>Federico Alimenti, Paolo Mezzanotte</td>
</tr>
<tr>
<td>Contatto docente:</td>
<td>[federico.alimenti, paolo.mezzanotte]@unipg.it</td>
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<tr>
<td>Periodo delle lezioni:</td>
<td>giugno 2013</td>
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**PROGRAMMA**

- Introduction to CAD tools for RFIC design
- Electromagnetic simulation of passive components in Silicon Technologies
- State-of-the-art design techniques of Power Amplifiers in CMOS technologies: Part I
- Introduction to RFIC packaging and electromagnetic design
- State-of-the-art design techniques of Power Amplifiers in CMOS technologies: Part II
- Introduction to layout design
- Live CAD session with EM structures simulations
- Live CAD session with CMOS Power Amplifier simulations
- Final test – verification of the learning objectives
PROGRAMMA

- Introduction: Course Introduction
- Issues in Model-Based Fault Diagnosis
- Fault Detection and Isolation (FDI) Methods based on Analytical Redundancy
- Model-based Fault Detection Methods
- The Robustness Problem in Fault Detection
- System Identification for Robust FDI
- The Residual Generation Problem and techniques
- Fuzzy Logic and Neural Networks for Residual Generation and Fault Diagnosis
- Output Observers for Robust Residual Generation
- Unknown Input Observer (UIO) design
- Kalman Filtering and FDI from Noisy Measurements
- Residual Robustness to Disturbances and Uncertainties
- Machine learning techniques.
- Progetto e realizzazione di filtri,
- filtraggio a la Kalman,
- esempi in matlab ed applicazioni alla fusione sensoriale.
## MODULO C

<table>
<thead>
<tr>
<th>Titolo: Compressione di dati multimediali</th>
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<tbody>
<tr>
<td>Docente: Fabrizio Frescura</td>
</tr>
<tr>
<td>Contatto docente: <a href="mailto:fabrizio.frescura@unipg.it">fabrizio.frescura@unipg.it</a></td>
</tr>
<tr>
<td>Periodo delle lezioni: maggio-giugno 2013</td>
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### PROGRAMMA

- **Prerequisiti**
  - Probability and random processes
  - Mathematical preliminaries for transforms, subbands, and wavelets
- **Argomenti del corso**
  - Introduzione
  - Mathematical preliminaries for lossless compression
  - Huffman coding
  - Arithmetic coding
  - Dictionary techniques
- **Attività di laboratorio**
Titolo: Applied Information Security
Docente: Pier Luigi Rotondo (IBM)
Contatto docente: pierluigi.rotondo@it.ibm.com
Periodo delle lezioni: settembre 2013

PROGRAMMA

- Lesson #1 Information Security
  - Course presentation
  - The current status of Information Security – Reports on vulnerabilities, current attacks and threats
  - Computer Security vs Information Security
  - Emerging threats
- Lesson #2 A sample industrial approach to Information Security - Identity Management
  - People security. Identity and Access management. Practical demostration of a real Identity Management solution
  - Single Sign-on (SSO).
- Lesson #3 Application and Data security
  - Application security, web-application security. Main threats affecting webenabled applications.
  - Application testing. Source code analysis.
  - Practical demostration of a real Web Application Vulnerability assessment
  - OWASP and their main projects.
  - Data security, Database security and Data masking.
- Lesson #4 Identity Management
  - Single Sign-on (SSO)
  - Practical demostration of a real Indentity Management solution
  - Governance Risk and Compliance (GRC). Privacy.
  - Security Information and Event Management (SIEM). Demo of a real SIEM system to automatically check compliancy with set security policies.
  - Security Intelligence.
  - Cloud Security.
  - Security as a Service (SaaS)