Trends In Communications

Prof. Alessandro Vanelli-Coralli
University of Bologna
Objectives

- Provide an overview of the trends in all areas of communication systems from both the research and industrial point of view.

- Help final year students to have a better understanding of the world they will enter in a few months.

- Training on technical report writing and discussion (soft skills).
Focus on

- **Wireless systems**
  - 4G/5G
  - Broadband wireless access

- **System and network architectures**
  - Cloud/Virtualization/etc

- **Beyond Communications**
  - Space missions
  - Navigation and positioning

- **Transversal areas**
  - Devices, components, measurement instruments
  - The regulatory body role

- **Applications and trade offs**
  - Railway traffic management
  - Digital Divide

*Prof. Alessandro Vanelli-Coralli*
September 25, 2015
- “Introduction”, Alessandro Vanelli-Coralli

October 9, 2015
- “Evolution of Small Data Communications Networks” Gianluigi Liva (DLR)

October 16, 2015
- TBD

October 23, 2015
- “Next generation communication networks: an industrial perspective” - Sandro Dionisi (Telecom Italia)

October 30, 2015
- “The Digital Divide in the Wireless Era” Kussai Shahin (LepidaSpA)

November 6, 2015
- “5G Transport Networks”, Matteo Fiorani (KTH, Sweden)

November 13, 2015
- “5G Trends and Challenges”, Lorenzo Casaccia (Qualcomm Inc.)

November 20, 2015
- “Three great integrations in the ICT: the birth of the info sphere” Gabriele Falciasecca (University of Bologna)

November 27, 2015
- “Evolution of test and measurement equipment: drivers for change, challenges, opportunities”, Alessandra Lena (Keysight Technologies, Italy)

December 4, 2015
- “To regulate or not to regulate? The role of regulatory bodies in the evolution of wireless communications” Antonella Faniuolo (Ofcom)

December 18, 2015
- “Networks and fault-tolerant data center architectures in Rail Traffic Management Systems (TMS)” Alessandro Iommi (Alstom Ferroviaria, Italy)

To be confirmed
- Dr. Alessandro Lepere, Eutelsat
- Dr. Gabriella Coluccelli, Wind
Organizational Information

- **Attendance**
  - Presence registered at each seminar

- **Test**
  - Written report
  - Sent by email 7 days before discussion and paper copy at the discussion

- **Class material**
  - Seminars slides
    - Available on AMS Campus
    - Please register to
      - alessandro.vanelli.TIC_2015_16
      - www.dsa.unibo.it
  - Technical references
    - IEEE Xplore / Google Scholar / ResearchGate / ...
  - University library databases
  - Writing references
    - “The Only Grammar Book You'll Ever Need: A One-Stop Source for Every Writing Assignment” by Susan Thurman, Ed. Adams Media

- **Communications**
  - Announcements on the professor web site
    - www.unibo.it/docenti/alessandro.vanelli
  - Through the mailing list:
    - alessandro.vanelli.TIC_2015_16

- **Office hours**
  - email to: alessandro.vanelli@unibo.it

Prof. Alessandro Vanelli-Coralli
Final report [1/3]

- IEEE article template
  - bit.ly/ieee_templates
  - Two columns format

- Number of pages:
  - Max 4 including everything

- Structure
  - Title
  - Author
  - Abstract
    - Shall contain a brief summary of the content of the report, i.e., rationale, objectives, conclusions. No more than 1000 characters including blanks
  - Introduction
    - This shall introduce the subject and set the scene for what will follow
  - ...
  - Conclusions
    - Conclusions and considerations from the writer point of view
  - References
    - Source material

Prof. Alessandro Vanelli-Coralli
Final report [2/3]

Requirements:

- Information to be included
  - Title
  - Course title as Conference/Journal name
  - Author’s name, family name, and email address
  - Date

- Figures and table
  - Numbering and captioning
  - Reference in the text
    - Consider the use if “Fig. 1 reports…” instead of “The following figure reports…”

- Citations
  - Reference to the source material shall be included in the text according to the IEEE format
    - [1]…..

- No cut and paste
  - If quoting is necessary, then use the quote style (brackets, italic, and reference)
  - Plagiarism shall be avoided. Reports will be checked against plagiarism.
  - Plagiarism will represent a cause of final test failure
Language (English)

- KISS: Keep It Super Simple
- Use active forms
- Use positive statements
- Articles (singular/plural, countable/uncountable, definite/indefinite)
  - Singular nouns: always use an article (a/an/the)
  - Plural nouns: do not require it when indefinite
  - Uncountable nouns: only “the” can be used for definite nouns
  - See for example:
    - http://www.writing.utoronto.ca/advice/english-as-a-second-language/articles

- Punctuation
  - a blank goes after each punctuation marks, never before it
  - each new statement starts with a capital letter (not to be used after the semicolon)

- Typos and spelling errors shall be avoided (not accepted)
  - Use a spell checker

- Examples of use
  - i.e.,
  - e.g.,
  - List items are separated by commas:
    - Alessandro, Paolo, and Carlo
    - Alessandro and Palo
    - Alessandro and Paolo, Carlo, and Filippo
Discussion

Candidate students must be able to discuss their report and answer general questions about the selected subject in English.