**ELT6052: XỬ LÝ TÍN HIỆU SỐ NÂNG CAO**

Drafted: 12/11/2019

Thầy giáo: Nguyễn Linh Trung, 0961200679, [linhtrung@vnu.edu.vn](mailto:linhtrung@vnu.edu.vn)

Time: Tuesday, 6:00pm – 9:00pm; Room: E3-707

**A/ Course content:**

1. Review DSP [Lecture 1, 12/11]

Knowledge modules:

1. Tool #1 of 1980-2000: *Image analysis*. Application: Modern image filtering with edge preservation (2013)



1. Tool #2 of 1970-1980: *(Random) signal detection and estimation*. Application: Electroencephalography (EEG) epileptic spike detection (2018).
2. Tool #3 of 2010-present: *Modern subspace estimation and tracking*. Application: Video separation using subspace tracking (2019).

**B/ Schedule:**

1. Planned by the university: 10/11/2019 – 10/02/2020
2. Revised: 12/11/2019 [Review], 03/03 [Tool #1]
3. Final exam:

**C/ Method of teaching, learning & assessment:**

1. For each module,
   1. Lecture 1 (Teaching; fundamental knowledge): a lecture on fundamental knowledge of the underlying tool is given, by slides.
   2. Required reading (Self-study; application, synthesis, analysis): Students are given a paper to read at home. Requirements: to associate what has been learnt with the application in the paper, to understand how the tool evolves over time with different state-of-the-art methods.
   3. Lecture 2 (Interactive learning): discuss about the paper in the class.
   4. In-semester assessment: during the discussion in lecture 2, students are to reflect their understanding of the fundamental knowledge. A maximum of 10% of the total grade is given. (A total of 40% is given for each student for 4 modules out of 5).
2. Final exam (60%) – ORAL:
   1. Each student is given a paper 2 weeks in advance to read at home, different from the papers of the other students.
   2. In the exam, the student will present, by slides, his/her understanding about the paper (application, the underlying model, state-of-the-art methods, performance, comparison); A maximum of 50% of the total grade is given.
   3. The student will also give his/her reflections about the paper. A maximum of 10% of the total grade is given.