

## Course Syllabus

1. Course number and name: 020AL3CI4 Algebra 3.
2. Credits and contact hours : 4 ECTS credits, 2x1:15 course hours
3. Instructor's or course coordinator's name : Salim Salem,
4. Text book : X. OUDOT, Maths MP/MP\* Vuibert 2014
  - a. Other supplemental materials: Notes on certain topics from internet sites.
5. Specific course information
  - i. Catalog description: Inner product spaces, inner product, orthogonal vectors, orthonormal basis, orthogonal projection, total sequences, isometry in 2 and 3 dimensional Euclidian spaces, symmetric endomorphisms, geometry.
  - ii. Prerequisites: Algebra 2 (020AL2CI3)
  - iii. Required : Yes
6. Specific goals for the course
  - a. Specific outcomes of instruction
    - Identify, manipulate inner products
    - Characterize orthogonal vectors and orthonormal basis
    - Study and classify isometric applications.
    - Study symmetric endomorphisms.
  - b. KPIs addressed by the course.

RAP (KPI)	a1
Covered	x
Assessed	x
Give Feedback	x

7. Topics and approximate lecture hours :
  - Inner products and Inner spaces, Euclidian spaces, orthogonal vectors, Bessel inequality (4 Lectures)

- Total sequences, orthogonal projections , orthogonal polynomials (6 Lectures)
- Isometries in Euclidean spaces, classification of isometries in 2 or 3 dimensional spaces (6 Lectures)
- Orthogonal matrices (3 Lectures)
- Symmetric application and their matrices (4 Lectures)
- Parametric curves (5 Lectures)