

Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
|-------------|------------------|----------|--------|----------|-----|--------|------|
| MAT261 | Linear Algebra I | 3 | 5 | 0 | 0 | 5 | 7 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | French |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | Teaching the fundamentals of linear algebra |
| Content | Real numbers, Complex numbers, Vector spaces, Finite dimensional vector spaces, Basis, Dimension, Direct sum, Linear transformations, Matrices, Change of basis, Row and column spaces |
| References | Axler, Sheldon J, Linear Algebra Done Right. |

Theory Topics

| Week | Weekly Contents |
|------|--|
| 1 | Fields |
| 2 | Vector spaces-Subspaces |
| 3 | Basis-Dimension |
| 4 | Direct sum |
| 5 | Linear transformations-Image-Kernel |
| 6 | Matrix of Linear transformations-Matrices |
| 7 | Exam-Change of Basis |
| 8 | Inversibles matrices-Elementary matrices |
| 9 | System of Linear Equations |
| 10 | Subspaces of row and column- Rank-Theorems about ranks |
| 11 | Determinant |
| 12 | Cofactor and Cramer methods |
| 13 | Gauss method |
| 14 | Calcul of determinant |