## Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
|---|---|---|---|---|---|---|---|
| MAT115 | Foundations of mathematics | 1 | 4 | 0 | 0 | 4 | 6 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | French |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | To introduce the subjects and technics of pure mathematics |
| Content | Logic, Proof methods, Notion of set, Family of sets, Product of sets, Relations, Functions, One to one, surjective functions, composition of functions, equivalence relation, equivalence classes, quotient sets, Order relations |
| References | Deschamps et Warusfel , Mathématiques 1ère année, Cours et exercices. Gary Chartrand, Albert D. Polimeni, Ping Zhang, Mathematical Proofs: A Transition to Advanced Mathematics |

## Theory Topics

| Week | Weekly Contents |
|---|---|
| 1 | Introduction to logic |
| 2 | Introduction to logic |
| 3 | Set theory |
| 4 | Set theory |
| 5 | Relations |
| 6 | Relations |
| 7 | Mid-term examination |
| 8 | Functions |
| 9 | Functions |
| 10 | Cardinalities of sets |
| 11 | Cardinalities of sets |
| 12 | Mid-term examination |
| 13 | Proof in group theory |
| 14 | Proof in group theory |