**Content**

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
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| MAT305 | Physics I | 5 | 3 | 0 | 0 | 3 | 5 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | French |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | Ability to question and initiation to physics methodology based on the concepts and principles of classical mechanics. Analyze different situations and physical phenomena based on the fundamental principles of classical mechanics: describe the translation and rotation movement of bodies, apply the concepts and laws of dynamics to the analysis of the movement of bodies.<br>Tools: vector equation projection, polar coordinates, vector derivative and vector product (simple cases) |
| Content | Mechanics (kinematics, dynamics in Galilean frame of reference, work and energy, change of frame of reference) |
| References | - Physics for Scientists and Engineers by Serway and Jewett (Cengace Learning,9th Edition,2014)<br>- Fundamentals of physics (Halliday and Resnick)<br>- L'Univers Mécanique (Valentin) |

**Theory Topics**

| Week | Weekly Contents |
|---|---|
| 1 | Basic notions, Mathematics, Physics and Measurements |
| 2 | Vectors |
| 3 | 1 Dimensional Motion |
| 4 | 2 Dimensional Motion |
| 5 | Laws of Motion |
| 6 | Circular Motion and Other Applications of Newton's Laws |
| 7 | Midterm 1 |
| 8 | Energy of a system |
| 9 | Conservation of Energy |
| 10 | The Law of Gravitation |
| 11 | Midterm 2 |
| 12 | Linear Momentum and Collision of 2 Bodies |
| 13 | Rotation of a rigid object about a fixed axis |
| 14 | Angular Momentum |