## Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ING241 | Probability | 3 | 3 | 0 | 0 | 3 | 4 |


| Prerequisites |  |
| :--- | :--- |
| Admission Requirements | $\square$ |


| Language of Instruction | French |
| :--- | :--- |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | This course, which is offered as a compulsory course in the program, will help students perceive the basic <br> concepts of probability theory and achieve proficiency in using the methods related to this discipline <br> (probabilities of events, rules regarding random variables and the concept of moment, transformations of <br> random variables, Gauss' suggestions). In this context, the objectives of the course are determined as <br> follows: <br> - Introduce the student to the concept of probability, especially random variables in relation to uncertain <br> events. <br> - To ensure that students master different probability distributions <br> - To enable students to benefit from probability theory in the problems they may encounter in the <br> business world, especially in the analysis of uncertainty. |
| Content | Week 1: Course introduction and introduction to probability <br> Week 2: Probability of an event, probability axioms, conditional probability, independent events, Bayes <br> theorem <br> Week 3: Random variables and probability distributions <br> Week 4: Probability distribution function, probability mass function, probability density function <br> Week 5: Expected value, variance and standard deviation <br> Week 6: Two and higher dimensional random variables |
| Week 7: Moments |  |
| Week 8: Midterm Exam |  |
| Week 9: Some important discrete distributions |  |
| Week 10: Some important discrete distributions (continued) |  |
| Week 11: Some important discrete distributions (continued) |  |
| Week 12: Some important sustained distributions |  |
| Week 13: Some important continuous distributions (continued) |  |
| Week 14: Some important continuous distributions (continued) |  |

## Theory Topics

| Week | Weekly Contents |
| :--- | :--- |
| 1 | Course introduction and introduction to probability |
| 2 | Probability of an event, probability axioms, conditional probability, independent events, Bayes theorem |
| 3 | Random variables and probability distributions |
| 4 | Probability distribution function, probability mass function, probability density function |
| 5 | Expected value, variance and standard deviation |
| 6 | Two and higher dimensional random variables |
| 7 | Moments |
| 8 | Midterm Exam |
| 9 | Some important discrete distributions |
| 10 | Some important discrete distributions |
| 11 | Some important discrete distributions |
| 12 | Some important continuous distributions |
| 13 | Some important continuous distributions |
| 14 | Some important continuous distributions |

