Probability and Stochastic Processes (5 ECTS)

Lecturer: t.b.d

Semester: SS 2023   **Duration:**   1 Semester **Academic offer:** yearly (summer semester)

On-site teaching: 60 hours **Self-study:** 90 hours   **Language:**   English

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Courses:

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  - o   Lecture (2 hours/week)
  - o   Exercises (2 hours/week)

Content:

Continuous probability theory

Event space, probability space, continuous random variable, probability density, distribution function, characteristic variables, stochastic processes, orthogonality, uncorrelatedness, white noise, Gaussian processes, stationarity, ergodicity, power density spectrum, linear systems, random processes

Learning goals and competencies:

The students

• examine the basic terms and methods of stochastics mentioned above

• calculate the above characteristic quantities and expected values

• examine the basic terms and methods for stochastic processes mentioned above

• calculate the above characteristic quantities and expected values for stochastic processes

• appreciate the advantages of regular follow-up and deepening of the lecture material

Recommended literature:

A. Hoffmann, B. Marx, W. Vogt, Mathematik für Ingenieure 1,2, Pearson
K. Finck von Finckenstein, J. Lehn et. al., Arbeitsbuch für Ingenieure, Band I und II, Teubner
R.G. Brown, P.Y.C. Hwang, Introduction to Random Signals and Applied Kalman Filtering, John Wiley & Sons