



Course Syllabus for  
 DAUSY National Ph.D. Program in Autonomous Systems  
 (year 2022-23)

Course title	Navigation systems for autonomous systems
Scientific Discipline Sector	ING-INF/04
Hours of instruction	15 hours
CFU	1,5 CFU
Semester, period	January-February 2023 , Oct/Nov 2023
Goal	The course will address various aspects of navigation systems for autonomous vehicles covering inertial and non-inertial navigation techniques and sensors. Each lesson will consist in lectures and real world examples.
Syllabus	Introduction to the Navigation problem. Reference frames. Inertial sensor technologies: gyroscopes and accelerometers. Non-inertial sensors: magnetometers, GPS etc. Navigation Equations Integrated inertial navigation systems. Notions of visual-based navigation. Examples.
Bibliography	Robert M. Rogers "Applied Mathematics in Integrated Navigation Systems" AIAA Education Series, AIAA, ISBN 978-1-56347-927-4, 2007 <a href="https://doi.org/10.2514/4.861598">https://doi.org/10.2514/4.861598</a> Slides and support material from lecturer.
Examination method	Final examination with homework.