

Study programmes: PhD studies – Astronomy and Astrophysics			
Course name: Theory of motion of artificial Earth satellites			
Lecturers: Stevo Šegan			
Status: Optional			
ECTS: 9			
Attendance prerequisites: None			
Course aims: Obtaining advanced and specific knowledge of the dynamics of the artificial satellite motion			
Course outcome: After completing the course, student has advanced knowledge in the field of dynamics of satellite motion (i.e. Orbital perturbations, orbital transfers, orbital rendezvous etc.) and is capable to do independant scientific research.			
Course content: Earth gravity field; Central forces field; First integrals of osculating orbits; Equations of osculating motion; Euler elements of osculating orbits and their differential equations; perturbations due to zonal harmonics; perturbations due to tesseral and sectorial harmonics; Lunisolar perturbations; Conservative and dissipative forces; Perturbations due to atmospheric drag; Perturbations due to radiation pressure; Other perturbations; Orbital manoeuvres; Satellite lifespan; Orbital debris; Conventions and statistics.			
Literature: King-Hele: Satellite orbits in an atmosphere; Andrea Milani et al.: Non-gravitational perturbations and satellite geodesy; E.P. Aksenov: Teorija dvizenia iskustvenih sputnikov Zemlji; S. Herrik: Astrodinamics (t.1-3); V.V. Beleckij: Ocerki o dvizenii nebeskih tel; G.N Dubosin: Dvizenie iskustvenih sputnikov Zemlji; J. Lazovic: Teorija kretanja ZVS			
Number of hours: 10	Lectures: 4	Tutorials: 6	
Teaching and learning method: Frontal, Group, Practical work			
Assessment (maximal 100 points)			
Course assignments	points	Final exam	points
Lectures	20	Written exam	0
Exercises / Tutorials	30	Oral exam	20
Colloquia			
Seminars	30		