Study programmes: Bachelor studies – Astronomy and Astrophysics	
Course name: Ephemeris astronomy 2	
Lecturers: Stevo Šegan	
Status: Optional	
ECTS: 6	
Attendance prerequisites: None	

Course aims: Acquisition of general and specific knowledge in the construction and distribution of short-term materialization of inertial systems: Algorithms of almanacs and catalogs. Student is well trained for the effective determinantion of kinematic-dynamic and physical parameters (features) of celestial bodies, systems and cosmos as a whole.

Course outcome: The student has the necessary theoretical and practical knowledge of calculating the kinematic-dynamic and physical parameters (features) of celestial bodies, systems and cosmos as a whole. At the same time, the student independently performs an astronomical (thought) experiment on the basis of all current (learned) experiences using the tools of mathematics and computing.

Course content: Asteroids. Natural satellites. Moon. Occultation. Methods and technology. Modeling and visualization. Applications. Historical overview: Astronomical clocks and time basis. Principles of Ephemeris Astronomy: Mathematical, Physical, Computational, Combined and Complex. Modern methods of materialization of inertial and quasi-inertial systems. Short and long base-Radiointerferometry, satellite astrogeodesy and cosmic astrometry. Perspectives and development of catalogs HIPPARCOS, TYHO, GAIA ..., as examples of a series of materialization of short-term systems;; systems: GPS, GLONASS, ..., families of above-ground and family of cosmic bases and frames. Laser terrestrial gyroscopes, superfluid helium interferometers. NTP and PTP timing systems and protocols.

Literature:
1. S. Šegan: Astronomske efemeride, monografija (2006)
2. S. Šegan: Set of lectures: «Lekcije po redu i bez reda»,
3. Kenneth Seidelmann: Explanatory Supplement to the Astronomical Almanac (1992), IAU Resolution I, II, III (2006)..

Number of hours: **4+**	Lecures: **2**	Tutorials: **2**	Laboratory: **–**	Research: **–**

Teaching and learning methods: Frontal / Individual / Group

Assessment (maximal 100 points)			
Course assignments	**points**	**Final exam**	**points**
Lectures	15	Written exam	-
Exercises / Tutorials	30	Oral exam	20
Colloquia	15	Written-oral exam	-
Essay / Project	30		