

Study programmes: Bachelor studies – Astronomy and Astrophysics				
Course name: Practical methods of astronomical observations				
Lecturers: Stevo Šegan				
Status: Optional				
ECTS: 5				
Attendance prerequisites: None				
Course aims: Acquiring general and specific knowledge from classical and modern astronomical practice. Student is trained for practical work and high experimental mobility, especially from the standpoint of modern communication.				
Course outcome: Upon completion of the course, the student has the necessary knowledge about the theory and practice of astronomical instruments, astronomical experiment in general, astronomical observation in particular. The student independently performs an astronomical experiment and uses the professional instrument for this purpose. Work in the field and in laboratory conditions.				
Course content: Modernization of classic instruments. Photoelectric instruments and accessories. Adaptive optics. CCD technique. Computerization and digitization. Processing images and characters. Interplanetary (cosmic) internet. Historical methods of determining position and time. Methods for determining the clock condition with particular reference to the method of meridian passages. Methods for determining the latitude with particular reference to the Talkot method. Methods for determining the geographical longitude with particular reference to the time signal method. Methods for absolute and relative determination of rectascension and declination of stars with a Fundamental Meridian Instrument. Methods for the relative determination of rectascension and declination with the equatorial. Methods of photographic determination of rectascension and declination by astrograph. Proper motion of the stars. 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: Practical astronomy, script 2. S. Šegan: Lectures about modern astronomy, «Лекције по реду и без реда» 3. David Vallado: Fundamentals of Astrodynamics and Applications (2007), W. Schlosser et al.: Challenges of Astronomy (1998.) 4. J. V. Wall, C. R. Jenkins, Practical Statistics for Astronomers, Cambridge, 2003 Astronomical Almanac				
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	10			