COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	

Faculty: Faculty of Science	

Course ID: ÚGE/ GNS/15	**Course name:** Global Navigation Satellite Systems

Course type, scope and the method:
 Course type: Lecture / Practice
 Recommended course-load (hours):
 Per week: 2 / 2 **Per study period:** 28 / 28
 Course method:

Number of ECTS credits: 5

Recommended semester/trimester of the course: II. (Master)

Course level:

Prerequisities:

Conditions for course completion:
The evaluation is based on a combination of the continuous control at the exercises and final exam. The continuous control is carried out during the exercises teaching in the form of tasks on the individual work with a share of 30 % of the final evaluation. To the final exam can sign student who obtained the evaluation at the minimum level of 16 % in the exercise. The resultant rating is a weighted average of the evaluation from the continuous control (maximum 30 %) and final exam (maximum 70 %). The credits will be awarded only to student who achieves rating at least at the grade level of E, i.e. he achieves the raiting of at least 51 %. achieves the evaluation at the minimum level of 51 % in the final evaluation.
For the final evaluation of the subject, the evaluation scheme applies: A (100-90 points), B (80-89 points), C (70-79 points), D (60-69 points), E (50-59 points), FX (0-49 points).

Learning outcomes:
To acquire basic theoretical knowledge and practical experience of the global navigation satellite systems (GNSS) for a data collection methodology for geoinformatics.

Brief outline of the course:
GNSS in the context of geography and geoinformatics. GNSS, their nature and division. GPS - operating principle, the principles and characteristics; structure of GPS and its applications; surveying GPS technology, GPS instrumentation, data collection and transmission observed GPS data. The European satellite navigation system Galileo; positioning, navigation and timing services of the system Galileo; Galileo infrastructure; structure and applications of Galileo. Overview of other GNSS (GLONASS, BNSS, EGNOS, WAAS, MSAS, QZSS, IRNSS etc.).

Recommended literature:
DODEL, H., H. HÄUPLER, H., 2009. Satellitennavigation. 1st edition. Heidelberg-Dordecht-London-New York: Springer, 548p. ISBN 978-3-540-79446-1.
KAPLAN, E.D., HEGARTY, Ch.J., 2017. Understanding GPS/GNSS. 3rd ed. Boston/London: Artech House. 993p. ISBN 978-1-63081-058-0.
GROVES, P., 2008. Principles of GNSS: Inertial and Multisensor Integrated Navigation Systems. London: Artech House, 536p. ISBN 9781580532556.
HOFMANN-WELLENHOF, B., H. LICHTENEGGER and E. WASLE, 2008. GNSS – Global Navigation Satellite Systems: GPS, GLONASS, Galileo, and more. Wien: Springer-Verlag, 518p. eBook ISBN 978-3-211-73017-1, Softcover ISBN 978-3-211-73012-6.

LEICK, A., 1995: GPS Satellite Surveying. 2nd ed. New York: John Wiley & Sons, Inc., 560p. ISBN 0-471-30626-6.

LEICK, A., L. RAPOPORT, D. TATARNIKOV, 2015. GPS Satellite Surveying. 4th ed. 840p., Hoboken: John Wiley & Sons. ISBN 978-1-118-67557-1.

SEDLÁK, V., P. LOŠONCZI a I. PODLESNÁ, 2009: Družicové navigačné systémy. (in Slovak). [Satellite navigation systems]. Košice: VŠBM Košice, 75p. ISBN 978-80-89282-31-9.

SEDLÁK, V . a P. Lošonczi, 2011. Družicové navigačné systémy a ich bezpečnostné aplikácie. (in Slovak) [Satellite navigation systems and their security applications]. Košice: VŠBM Košice, 120p. ISBN 978-80-89282-66-1.

SEDLÁK, V., 2012. Globálne navigačné satelitné systémy pre bezpečnostný manažment. (in Slovak) [Satellite navigation systems for security management]. Košice: VŠBM Košice, 126p. ISBN 978-80-89282-83-8.

SEDLÁK, V., 2017. Globálne navigačné satelitné systémy. (in Slovak) [Global navigation satellite systems]. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach, 157p. ISBN 978-80-8152-554-4. Available at: https://unibook.upjs.sk/sk/geografia/899-globalne-navigacne-satelitne-systemy; http://geografia.science.upjs.sk/index.php/study/ucebnice-skripta-studijne-materialy

SEDLÁK, V., 2019. Globálne navigačné satelitné systémy pre geoinformatiku. (in Slovak) [Global navigation satellite systems for geoinformatics]. Košice: Univerzita P. J. Šafárika v Košiciach, ISBN 978-80-8152-770-8.

TEUNISSEN, P.J.G., O. MONTENBRUCK, 2017. Handbook of Global Navigation Satellite Systems. 1328p., Cham: Springer. ISBN 978-3-319-42926-7.

GEO INFORMATICS Journal, Vol. 2008-present.

Course language:
Slovak

Notes:
without notes

Course assessment
Total number of assessed students: 92

Course assessment is visible only in case of include the course to some study plan.

Provides: doc. RNDr. Ján Kaňuk, PhD.

Date of last modification: 19.08.2020

Approved: