## Physical Geodesy and Gravimetry I. (MSc)

## Detailed course programme 2024/25 Fall semester

## **Scheduled lectures**

L1 09.05	The gravity field generated by gravitation, centrifugal and tidal forces. Gravity field and acceleration. The relevance of gravity field in geodesy.
L2 09.12	Absolute and relative gravimetry. Calibration of gravimeters. Gradiometry.
L3 09.19	<i>Air-borne and satellite-borne gravimetry and gradiometry (CHAMP, GRACE, GOCE), basic concepts.</i>
<i>L4</i> 09.26	Processing and adjustment of terrestrial gravimetric measurements.
L5 10.03	Temporal non-tidal variations of the gravity fields.
L6 10.10	Mathematical and physical background of physical geodesy. Physical geodetic methods of geoid determination.
L7 10.17	<i>Geodetic reference frames. Determination of the parameters of a geodetic reference frame.</i>
L8 10.24	Description of the geoid by spherical harmonics, Stokes' series, calculation of the absolute deflection of the vertical.
L9 10.31	Application of the measurements of gradiometry.
L10 11.07	<i>Combined methods of geoid determination. Fundamentals of the gravimetric levelling.</i>
L11 11.14	Application of the Fast Fourier Transformation (FFT) method in physical geodesy.
L12 11.21	Conference of the Scientific Student Association
L13	Inversion methods of gravity field determination.
11.28	Basics of space-borne quantum gravimetry.
L14 12.05	Geodetic projections. National control networks. Geodetic informations: point descriptions, maps, etc.

## **Scheduled Practicals**

P1 09.10	Terrestrial gravimetry measurement.
P2 09.24	Measurement with torsion balance.
P3 10.08	1st mid-term test.
P4 10.22	<i>Determination of the parameters of a geodetic reference frame using gravity data.</i>
P5 11.05	Interpolation of the deflection of the vertical.
P6 11.19	Overview of the software used in physical geodesy.
P7 12.03	2nd mid-term test.

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