POLITECHNIKA GDAŃSKA
WYDZIAŁ ARCHITEKTURY

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Term: 5	Name ELECTIVE PROJECT	ECTS:
Type of studies: BSc	Daylight in architecture (neurodiversity+home)	Year: 2025/2026

DEPARTMENT OF URBAN DESIGN AND REGIONAL PLANNING

Project: 30 h Using e-platform NLITED educational content; http://lms.nlited.eu/,
Tutor: dr Natalia Sokol

BRIEF DESCRIPTION OF THE SUBJECT:
Students will become familiar with the different methods of daylight assessment within the built environment. Innovative daylight design is understood as a better user-centred and energy-efficient design strategy.
This year edition of the course will be focused on daylight design solutions for non-nondiverse and neurodivergent users and residential environment
Students are asked to take at least 1 course offered by the e-platform NLITED. Project NLITED: New Level of Integrated TEchniques for Daylighting Education (Project Ref: 2020-1-IT02-KA203-079527).

OBJECTIVES:

To familiarise students with the role and importance of daylight in shaping buildings and interiors and to develop practical skills in daylight simulation using Climate Studio (Radiance engine). Students will learn how to model rooms, assign material properties, apply occupancy schedules, and calculate daylight performance metrics according to European standards (K6_U02, K6_U03).

Proposed task:

- Define daylight: what it is, how it is measured, and how it works in buildings.
- Carry out a subjective assessment of daylight quality in a selected room.
- Build a digital model of the chosen room, including external obstructions.
- Assign optical properties (reflectance, transmittance) to surfaces based on measurements or informed assumptions.
- Run simulations for daylight provision, annual solar exposure (ASE), glare (DGP), and useful daylight illuminance (UDI).
- Compare simulated results with subjective assessments and discuss discrepancies.
- Formulate strategic conclusions for architectural design, including implications for neurodiverse users.

CONTENTS OF THE COURSE:

SEMINARS:

28 selected lectures from the NLITED e-platform (https://www.nlited.eu/) covering fundamentals of daylight, sources, daylight integration in design, and simulation tools. Introduction to EN 17037 Daylight in Buildings and its key performance criteria (illuminance, view, sunlight, glare). Students will be able to learn about various tools and design approaches to daylighting analysis within the built environment.

PRACTICE:

- Geometric modelling: Creating accurate room models, including furniture, façades, and neighbouring buildings within 200 m.
- Surface properties: Assigning reflectance and transmittance values (using material libraries or luxmeter-based measurements).
- Simulation setup: Configuring sensor grids (0.85 m height, 0.5 m inset), applying occupancy schedules, and adjusting Radiance parameters.
- Performance analysis: Running simulations for sDA, ASE, UDI, DGP, and comparing them with EN 17037 classifications.
- Reporting: Preparing a poster with optical property tables, simulation outcomes, point-in-time glare studies, and design conclusions.Sun and clear sky: Simulation tools - sunlight analysis results - exercises and consultations. How to assess sunlight hours? (hands-on class).
- Neurodiverse users- what we know and how to design for them?

EDUCATIONAL OUTCOMES:

Students can apply the sequence of daylight analysis (point in time or annual). They can analyse the results of daylight simulations and, based on them, introduce design changes to their projects regarding daylight provision to the building and placement of apertures.

REMARKS:

It is a hands-on course. Elementary computer skills and a laptop with internet access are helpful for each class. The idea is to integrate daylight analysis into the students' projects, so please have your projects.
Students work in teams!