

## Graph Neural Network

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**Subject area:** Computer Science/ICT

<b>University:</b>	CTU
<b>Level:</b>	MA all years, PhD
<b>Teaching mode:</b>	hybrid: some students participate online, other students attend real-life
<b>Instructor(s):</b>	Miroslav Čepek

### Short description

This course covers advanced techniques and methods for graph machine learning and advanced graph analysis. In lectures we will cover topics ranging from advanced graph analysis, graph vector representation for machine learning, graph generation to techniques for interpretability of found machine learning models. In tutorials the course allows students to get hands-on experience with different methods. The final project allows students to employ graph machine learning on real data.

### Full description

<https://courses.fit.cvut.cz/NI-GNN/>

### Learning outcomes

Students will understand and get hands on experience with advanced graph analytics and machine learning techniques working with graph data.

### Recommended in particular for students of the following study programmes

Machine Learning, Data Science, Artificial Intelligence

### General information

<b>Contact hours per week:</b>	2
<b>Total workload:</b>	100 (in student hours for the whole course)
<b>ECTS credits:</b>	4
<b>Language:</b>	English

<b>Course start date:</b>	20 February 2023
<b>Course end date:</b>	28 May 2023
<b>Add. info about start date:</b>	Start course date refers to starting date of spring semester at CTU. Schedule will be available 1 or 2 weeks before semester starts.
<b>Weekly teaching day/time:</b>	
<b>Time zone:</b>	CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)
<b>Further information:</b>	Lectures will be recorded and made available for later reference. The tutorials will be partially spend on explaining code examples of given technique and in the second part will be spend on individual work on exercises and consultations.
<b>Prerequisites:</b>	Machine Learning Course (covering artificial neural networks and deep learning).
<b>Activities and methods:</b>	Lectures, Self-study, Tutorial sessions
<b>Presence on campus:</b>	

## Final examination

<b>Form:</b>	written exam and project
<b>Date:</b>	
<b>Location/format:</b>	
<b>Re-sit possibility:</b>	yes
<b>Transcript available:</b>	end of semester
<b>Add. info/requirements:</b>	The final examination will be a written test on topics from the course. The final grade will be also determined by student's project.

## Registration

To register for this course, follow the registration requirements of your **home university** as specified here: [www.euroteq.eu/courses-registration](http://www.euroteq.eu/courses-registration).

## Administration

<b>Number of places:</b>	25
<b>Minimum participants:</b>	not specified

**Internal course code:** NI-GNN

**Contact:** Miroslav.Cepek@fit.cvut.cz

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*This course is part of the EuroTeQ Engineering University joint course catalogue 2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit [www.euroteq.eu](http://www.euroteq.eu) or get in touch with the above-mentioned point of contact.*