

Course Title	Deep Learning
Term	3
Inholland Faculty	Engineering, Design and Computing
Language of instruction	English
Cycle	First cycle/undergraduate/Bachelor level
Inholland Location	Diemen
Code Subjects	To be determined
Number of ECTS	15
Content subjects	<p>Topics covered in lectures and assignments:</p> <ul style="list-style-type: none"> • Introduction to neural networks and deep learning • Mathematical foundations of deep learning • Building a basic deep learning model in Tensorflow/Keras • Evaluating a model using Tensorflow/Keras • Image recognition using convolutional neural networks • Using pretrained networks • Sequence learning using recurrent neural networks • Text processing • Generative deep learning <p>Aspects covered in the project:</p> <ul style="list-style-type: none"> • Preparing a data set for deep learning • Selecting a model architecture and/or pretrained model • Training a model using Tensorflow/Keras • Optimizing a model using parameter tuning • Evaluating the value of a model
Lecturer(s)	To be decided
Learning outcomes	<p>After completing the minor the student is able to:</p> <ul style="list-style-type: none"> • Explain the working of a deep learning model • Choose an appropriate deep learning architecture for a real-world problem • Prepare data sets for deep learning using Python

	<ul style="list-style-type: none"> • Train fully connected, convolutional, and recurrent deep learning models using Tensorflow/Keras • Conduct experiments to evaluate deep learning models
Mode of delivery, planned activities and teaching methods	<p>The Deep Learning minor spans over a period of 10 weeks, from January 31, 2022 to April 8, 2022.</p> <p>Contact hours: 4 days (maximum) per week at school</p>
Prerequisites and co-requisites (if applicable)	<p>The minor is open for 3rd and 4th year bachelor students. The following skills are required:</p> <ul style="list-style-type: none"> • Python programming • Basic statistics • Basic algebra
Recommended or required reading and/or other learning resources/tools	<p>Francois Chollet, Deep Learning with Python, Manning Publications</p>
Assessment methods and criteria	<p>Written exam (3 EC)</p> <p>Individual Assignments (6 EC)</p> <p>Group Project (6 EC)</p>