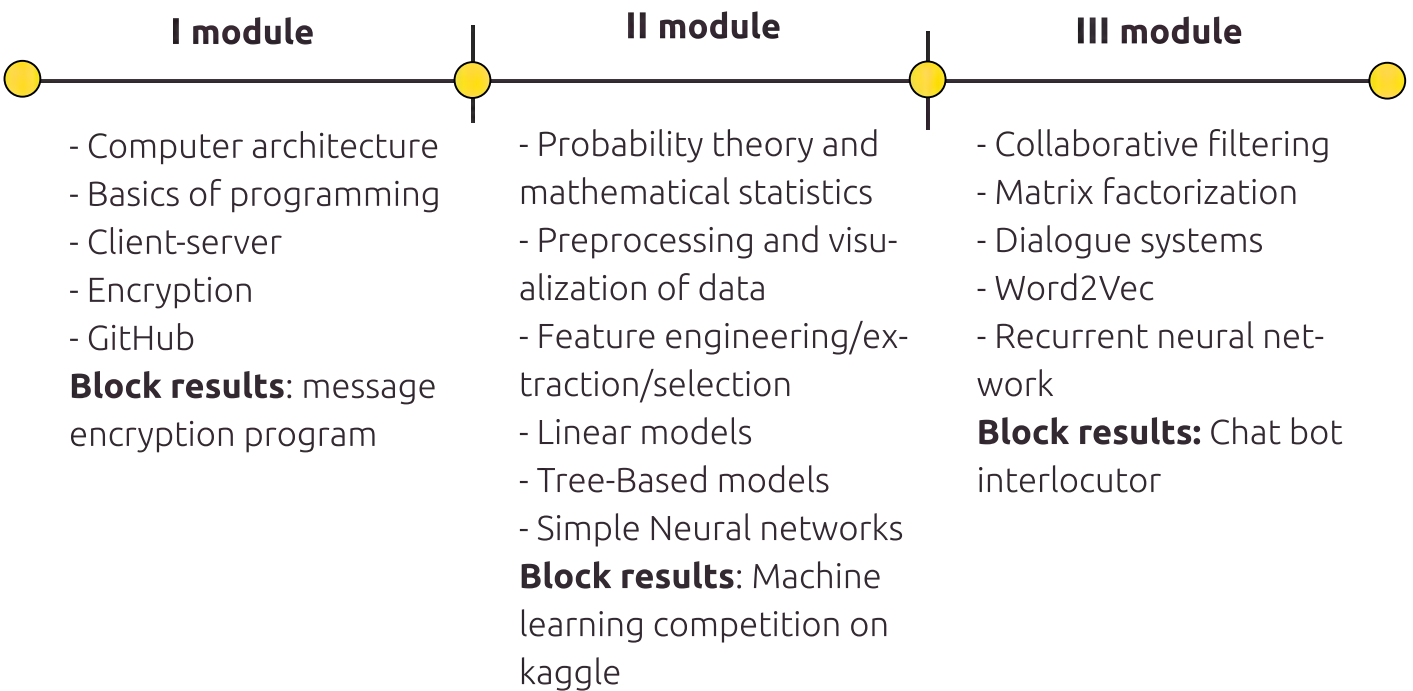Faculty: **IT**
Course: **Machine Learning**
Age: **14-16 years**
Term of education: **14 months - 2 academic years**

FIRST YEAR (7 months):

I module

- Computer architecture
- Basics of programming
- Client-server
- Encryption
- GitHub
Block results: message encryption program

II module

- Probability theory and mathematical statistics
- Preprocessing and visualization of data
- Feature engineering/extraction/selection
- Linear models
- Tree-Based models
- Simple Neural networks
Block results: Machine learning competition on kaggle

III module

- Collaborative filtering
- Matrix factorization
- Dialogue systems
- Word2Vec
- Recurrent neural network
Block results: Chat bot interlocutor

SECOND YEAR (7 months):

IV module

- Convolutional neural networks
 - Image recognition
- Object detection
- Segmentation
- Style transfer
- Backpropagation algorithm
Block results: Media processing bot

V module

- Training 8bit game character
- In-depth study of mathematics
- Information search, principles of working with big data
Block results: Program for walkthrough Atari game

VI module

- Work on a diploma project using machine learning technologies