BIO-382 **Neuroscience for engineers**

Cursus	Sem.	Type
Life Sciences Engineering	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Remark

pas donné en 2020-21

Summary

This optional course provides students who consider a specialization in Neuroengineering during their Master with a very broad overview of the many practical applications in the field. It should ensure these students to be well informed when choosing their specialization.

Content

- **General Introduction & Visual system** (Blanke)
Exercises: To virtual reality (Blanke)
- **Vision: Perception, Neurophysiology, Neuroimaging** (Herzog)
Exercises: Computer Vision (Herzog)
- **Hodgkin-Huxley model: from Ion channels to Mathematics** (Gerstner)
Exercises: Neuron modelling (Gerstner)
- **Large scale modelling of the brain**
Exercises: Blue Brain (Schürmann)
- **Systems: Audition**(BMI professor)
Exercises: Cochlear Implants (External)
- **Systems: Somatosensation and Optogenetics** (Petersen)
Exercises: Optogenetics (Petersen)
- **Neuroprosthetics: Artificial Arms** (Blanke)
Exercises: Neuroprosthetics (Blanke)
- **Neuroprosthetics: BCI and EEG** (Blanke)
Exercises: Brain-Computer Interface (Millan)
- **Brain metabolism and Neuroimaging**
Exercises: Physics of Brain imaging (Gruetter)
- **MRI in humans**(Hadjikhani)
Exercises: Diffusion Tensor Imaging (Thiran)
- **Memory**(Sandi)
Exercises: Memory (Sandi)
- **Language and Summary** (Blanke)
Exercises: Aphasia (Blanke)

Resources

Ressources en bibliothèque

-