








5.00 credits

30.0 h + 30.0 h

Q1

Teacher(s)	Mouraux André ;Verleysen Michel ;
Language :	English
Place of the course	Louvain-la-Neuve
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>With respect to the AA referring system defined for the Master in Biomedical Engineering, the course contributes to the development, mastery and assessment of the following skills :</p> <p>1</p> <ul style="list-style-type: none"> • AA1.1, AA1.2, AA1.3 • AA2.1, AA2.2, AA2.3, AA2.4 • AA3.2 • AA6.1, AA6.2, AA6.3
Evaluation methods	<p>The assessment consists of two parts.</p> <p>1) An assignment to be completed during the semester, which is the subject of questions in the oral examination;</p> <p>2) An oral examination on the course and practical sessions.</p> <p>Part 1) counts for 20% of the final assessment points, part 2) for 80%.</p> <p>The oral examination may be converted into a written examination depending on external circumstances, including the number of students enrolled in the course.</p>
Teaching methods	Ex-cathedra course organized physically if sanitary conditions permit, and broadcasted or recorded if required by sanitary rules. Practical sessions on computers. Meetings with biomedical instrument users and/or manufacturers (hospitals, pharmacology industry, and instrument manufacturers) if feasible according to sanitary rules.
Content	<ul style="list-style-type: none"> • specifics of measurements and instruments in clinic and biology • electric and magnetic stimulation and recording • use of other energy types (indications, methods and interest) • safety notions (patient and user protection, asepsis and sterilization, device compatibility) • application examples, especially those requiring a mathematical analysis (ECG, EEG, evoked potentials, etc..) • descriptive methods of data analysis • single- and multi-variable analysis • linear and non-linear regression • classification • principal components analysis • frequency analysis of signals, spectrum and sampling
Inline resources	Course: LGBIO2020 - Bioinstrumentation (uclouvain.be)
Bibliography	Les transparents présentés lors des exposés théoriques, de même que quelques articles scientifiques de référence, sont disponibles sur Moodle.
Other infos	/
Faculty or entity in charge	GBIO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Chemical and Materials Engineering	KIMA2M	5		
Master [120] in Electrical Engineering	ELEC2M	5		
Master [120] in Computer Science and Engineering	INFO2M	5		
Master [120] in Electro-mechanical Engineering	ELME2M	5		
Master [120] in Statistics: Biostatistics	BSTA2M	5		
Master [120] in Biomedical Engineering	GBIO2M	5		
Master [120] in Chemistry and Bioindustries	BIRC2M	5		
Master [120] in Mathematical Engineering	MAP2M	5		