LFSAB1801

2016-2017

Critical History of Science and Technology

3.0 credits	30.0 h	2q

Teacher(s) :	Francis Laurent ; Riche Jacques ; De Grave Patricia ; Vanderburgh David (coordinator) ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	> http://icampus.uclouvain.be/claroline/course/index.php?cid=FSAB1801
Prerequisites :	None
Main themes :	The course considers fundamental developments with respect to: the emergence of science as "pure" understanding of Nature the evolution of the relationship between science and technology the social, cultural and economic context of these developments The course is intended to stimulate understanding of engineering today as a product of history as well as being a driving force in contemporary life. The course will question and measure the disciplinary autonomy of the scientific method, and investigate the factors that influence or have influenced its development. Finally, it will place science, technology and society in a critical perspective.
Aims :	Contribution of the course to the program objectives: Regarding the learning outcomes of the program of Bachelor in Engineering, this course contributes to the development and the acquisition of the following learning outcomes: -- LO 1.1 -- LO 2.3, 2.6, 2.7, 2.8 -- LO 4.1, 4.2, 4.3, 4.4 -- LO 5.1 Specific learning outcomes of the course: More precisely, at the end of the course the students will be able to -- Enumerate several major stages in the historical development of science and technology since the Renaissance; -- Consider scientific and technological development as occupying a certain historical "space", and contextualize them as such; -- Characterize a scientific or technological innovation, distinguishing the innovative elements from those that are based on previous knowledge ; evaluate a process of reasoning for its conformity to the classical scientific method. Cross-disciplinary Learning Outcomes: -- Describe and analyze an innovation in a clear, precise and critical manner, such as to convince a reader of its scientific and/or technological importance; -- Use a scholarly approach to bibliographical references appropriate to the subject at hand *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	An essay, produced in groups of two, concerning the historical context of a recent scientific or technological innovation (40%) Written examination with open questions requiring short answers (60%)
Teaching methods :	Illustrated lectures, supplemented by two interactive sessions in which historical experiments are discussed and re-enacted.
Content :	Introduction (2h) Interactive session: Music, movement, method (2h)

	Measure, time, and music (2h) Laws of collision and the principle of relativity (2h) Logical and mathematical methods: the squaring of the circle (2h) Interactive session : the various forms of energy (2h) The conservation of energy : Mayer, Helmholtz (2h) Analogies in physics : heat, elasticity, electricity (2h) Darwin, Taylor, robots : management of energy (2h) Modernity, 20th-century heritage + discussion of essay assignment (2h) Modernity, 21st-century perspectives (2h)
Bibliography :	Slides and notes available on iCampus
Faculty or entity in charge:	BTCI

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Bachelor in Engineering	FSA1BA	3	-	