UCLouvain

lmeca1210

2023

Description and analysis of mechanisms

5.00 credits	30.0 h + 30.0 h	Q2

Teacher(s)	Contino Francesco ;Fisette Paul ;Raucent Benoît ;
Language :	French
Place of the course	Louvain-la-Neuve
Learning outcomes	**At the end of this learning unit, the student is able to :** In consideration of the reference table AA of the program "Masters degree in Mechanical Engineering", this course contributes to the development, to the acquisition and to the evaluation of the following experiences of learning: 1 • AA1.1, AA1.2, AA1.3 • AA2.1, AA2.2, AA2.3 • AA3.1, AA3.2 • AA5.1, AA5.5, AA5.6 • AA6.2, AA6.3
Evaluation methods	• For the theory course as well as for half of the points of the dimensioning mini-project, students will be evaluated individually in a written exam. • For the mini-projects and the laboratory, students will be evaluated as a group on the basis of the associated reports and an interview with the teachers. • The theory course counts for 60% of the points in the final grade.
Teaching methods	The activities are organized as follows: Eleven or twelve two-hour lectures for the theoretical part A one (or two) day laboratory conducted by small groups of students Two mini-projects, carried out in small groups, including introductory theory, restructuring and consultancy session
Content	The course aims at acquiring basic knowledge in kinematics and functional analysis of mechanisms. It is based on a theoretical course and on a practical and deductive approach. In the practical activities, students have to disassemble and reassemble a complex mechanical device (a car engine) which allows them to touch mechanical components, to study their interdependence and to analyze their functioning. Then, students must thoroughly analyze a mechanical sub-assembly. They must make a dimensional survey, a functional study and a dimensioning of all the components, which leads to the drawing of an operating diagram and shop drawings made with a CAD software. Finally, the students must dimension a component of the engine. The topics covered in the course are: reminders of three-dimensional kinematics, fundamental notions of kinematics of mechanisms, friction, arcing, operation of various assemblies and transmissions, disassembly and functional analysis of mechanisms, taking measurements of mechanical parts, making sketches and computer-aided technical drawings. Translated with www.DeepL.com/Translator (free version)
Inline resources	https://moodleucl.uclouvain.be/course/view.php?id=10634
Bibliography	**Des ouvrages de références obligatoires :** • Hazard C., Ricordeau A., Corbet C., Méthode Active de Dessin Technique, Casteilla, 2003 **Des ouvrages de références conseillés :** • Barlier C., Bourgeois R., Mémotech - Conception et dessin, Educalivre, 1998 • Fanchon J.L., Guide des Sciences et Technologies Industrielles, Nathan, 2004 • Heisler H., Vehicle and Engine Technology, Elsevier, 1999 • Jensen C., Helsel J., Engineering Drawing and Design, McGraw-Hill, 2000
Faculty or entity in charge	MECA

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Specialization track in Mechanics	FILMECA	5		
Minor in Mechanics	LMINOMECA	5		
Mineure Polytechnique	MINPOLY	5		