UCLouvain

lmeca1210

2026

Description and analysis of mechanisms

5.00 credits	30.0 h + 30.0 h	Q2

Teacher(s)	Contino Francesco ;Fisette Paul ;
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: · AA1.1, AA1.2, AA1.3 · AA2.1, AA2.2, AA2.3 · AA3.1, AA3.2 · AA5.1, AA5.5, AA5.6 · AA6.2, AA6.4
Evaluation methods	Successful completion of the written examination is essential to demonstrate the skills and knowledge defined in the learning outcomes for the teaching unit. If the written examination is passed, the final grade for the course will be the average of three parts weighted as follows: - 60%: individual mark at the end of the written examination in session, covering the theoretical lectures and the kinematic and dynamic analysis assignment; - 25%: manufacturing plan and justification during an interview at the end of the term (group mark); - 15%: assignment on kinematic and dynamic analysis (group mark); Attitude in the engine dismantling laboratory may be taken into account in the form of a bonus or penalty of 1 point (out of 20), as assessed by the supervisors. In the event of failure of the written exam, the final grade of the course will be that of the written exam. If a student retakes an exam after failing it in January or June, the final grade will be the grade earned during the last session. For example, a student who earned a 9/20 in January and then a 7/20 during the second session will have a final grade of 7/20. Please note: given the organisation of part of the course, it is impossible to present the production plan and assignment parts (group marks) in the August/September session. The mark obtained (or absence) at the June session is final (RGEE Article 78). Translated with DeepL.com (free version)
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		