

Name	Pharmaceutical operations
ECTS credits	5
Year / Semester	II/1°
Specific learning outcomes	<i>On successful completion of this module students should know basic knowledge of the design and operation of pharmaceutical units and of the steps of development of dosage forms through to the final product and submission to the Health authorities for Production licence and marketing.</i>
Contents	<p>I. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP)</p> <p>II. Pharmacopoeia</p> <p>III. Pharmaceutical operations</p> <p>1-Grinding of solids</p> <p>2-Granulometry</p> <p>3- Powders Mixtures</p> <p>4-Dissolution</p> <p>5-Filtration</p> <p>6-Dispersions: solution, suspension, emulsion</p> <p>7-Granulation</p> <p>8-Sterilization</p>
Teaching and learning methods	<i>Face to face, 45 hours</i>
Teaching techniques	<i>Practical classes, 45 hours</i>
Assessment methods	<p><i>Written.</i></p> <p><i>A first-term written test and a second-term written test are not foreseen.</i></p> <p><i>The first-term written test will be devoted to the assessment of the level of achievement of pharmaceutical operations 1, 2, 3 and 4</i></p> <p><i>The second term written test will be devoted to the assessment of the level of achievement of pharmaceutical operations 5, 6, 7 and 8.</i></p>
Assessment criteria	<p>On successful completion of the course students will be able to understand the concept and the importance of particle size and particle shape in drug formulation. Understanding of the mechanism of basic pharmaceutical operations including size reduction, mixing, separation processes, filtration, drying and freeze-drying, its importance in drug formulation and practical application on a laboratory scale. The teaching with lecture presentation is enhanced with practical classes using drugs and excipients of pharmaceutical specifications.</p>
Assessment metrics	<i>Attribution of a final grade</i>
Criteria of attribution of the final grade	<p><i>The grade goes from 1 (minimum) up to 20 (maximum). The minimum threshold to pass is 7. To pass the exam students should obtain the minimum evaluation in all the assessments.</i></p> <p><i>The final grade will be determined according to the following rules:</i></p> <ul style="list-style-type: none"> - <i>Written exam: 50%</i> - <i>term written test: 20%</i> - <i>Practical classes : 30%</i>
Preparatory course units	N.A.

Didactic material	<p>Pharmacie galénique : formulation et technologie pharmaceutique, <u>PWehrlé</u> , MALOINE. 2012</p> <p>Pharmacie galénique BP, <u>O Allo</u>, P Blanc, M Dalmasso et J Reynier, PROPHYRE. 2013</p> <p>Aide-Memoire de Pharmacie Galenique, L Jammes, 2012</p>
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