



<b>Module</b>	<b>Pharmaceutical Sciences Technologies</b>
<b>Code</b>	MLS_S23
<b>Degree Program</b>	Master of Science in Life Sciences (MSLS)
<b>Cluster</b>	Bio/Pharma
<b>Specialization</b>	Applied Biosciences
<b>ECTS Credits</b>	4
<b>Workload</b>	120 h: Contact 56 lessons = 42 h; Self-study 78 h
<b>Module Coordinator</b>	<p><b>Name</b> Origène Nyanguile</p> <p><b>Phone</b> +41 27 606 8651</p> <p><b>Email</b> Origene.Nyanguile@hevs.ch</p> <p><b>Address</b> HES-SO Valais, Sion</p>
<b>Lecturers</b>	<ul style="list-style-type: none"> <li>• PhD. Origène Nyanguile, HES-SO Valais / Wallis</li> <li>• PharmD. Philippe Buthier</li> <li>• Guest lecturers</li> </ul>
<b>Entry Requirements</b>	Bachelor of Science in Life Technologies (orientation Biotechnology or Analytical Chemistry) or in a related course of study (Bachelor level).
<b>Learning Outcomes and Competences</b>	<p>After completing the module, the student will have an end to end overview of Drug Products manufacturing processes from development stages to manufacturing activities in Pharmaceutical Industry.</p> <p>The aim of this master is to be as close as possible to the industrial practices and to give to the student an overview of activities performed in pharmaceutical Industry. Most of the lectures will be given by experts who are currently working in different key positions inside Pharmaceutical Industries.</p> <p>The student will be able:</p> <ul style="list-style-type: none"> <li>• To study the process of bringing a new pharmaceutical drug to the market, from Drug Substance discovery to Drug Product manufacturing</li> <li>• To understand the basic of pharmaceutical manufacturing technologies, excipients and equipment used</li> <li>• To understand the organization within the pharmaceutical industry</li> <li>• To understand the working methodologies used by the pharmaceutical Industry</li> </ul>

<p><b>Module Content</b></p>	<ul style="list-style-type: none"> <li>• Drug discovery, hit to lead optimization,</li> <li>• Drug Product definition (different dosage forms),</li> <li>• Pharmaceutical Packaging Overview,</li> <li>• Pharmaceutical solid dosages manufacturing processes and control strategy description,</li> <li>• Pharmaceutical liquid and semi-liquid dosages manufacturing processes and controls description</li> <li>• Pharmaceutical Product Development and continuous improvements</li> <li>• Pharmaceutical Product Manufacturing Activities, visit of Drug Products manufacturing site and discussion with key people of the organization</li> <li>• Main Excipients used in Pharmaceutical Industry, DCI, trade names, suppliers, description and regular utilization.</li> <li>• Case studies on one Drug Product from development stage to industrial technical transfer.</li> </ul>
<p><b>Teaching / Learning Methods</b></p>	<p>Lectures, seminar-style work, practical work, and exercise. Active participation in the module is requested</p>
<p><b>Assessment of Learning Outcome</b></p>	<p>The reports and presentations related to practical work or for seminars must be validated to gain access to the module examination.</p> <ul style="list-style-type: none"> <li>• Final examination (written): 100 % of the final grade</li> <li>• Reassessment: written exam</li> </ul>
<p><b>Bibliography</b></p>	<ul style="list-style-type: none"> <li>• The Practice of Medicinal Chemistry: <i>Camille Georges Wermuth</i></li> <li>• Handbook of Pharmaceutical Excipients sixth edition : <i>Raymond C. Rowe, Paul J. Sheskey, Siân C. Owen, American Pharmacists Association</i></li> <li>• Handbook of Pharmaceutical Granulation Technology: <i>Dilip M. Parikh</i></li> <li>• Pharmacie galénique : formulation et technologie pharmaceutique : <i>Prof Werhlé</i></li> <li>• Phi 41 : groupe IMT</li> <li>• ICH guidelines, European Pharmacopoeia.</li> <li>• SUPAC Guidelines from FDA,</li> <li>• European Pharmacopoeia,</li> <li>• United States Pharmacopoeia.</li> </ul>
<p><b>Language</b></p>	<p>English</p>
<p><b>Comments</b></p>	
<p><b>Last Update</b></p>	<p>04.05.2020 / Origène Nyanguile &amp; Philippe Buthier</p>