

Feed technology and manufacturing (2 CFU; 24 h)

Students will learn the principles of the general food law, sampling methods, feed additive authorization, undesirable substances, feed ingredients and raw materials allowed in feed formulation as well as labeling and claim rules. Moreover, students will learn how a feed mill works, its critical points and the main technologies applied to feed production.

Lectures

Acquired competences	Subjects	Specific contents	Number of dedicated hours
1. INTRODUCTION (TOT. 2 H)	<i>Introduction</i>	Introduction to the major international and domestic key players, the strategic role of a vet in a feed mill	2
2. FEED MILL OPERATION (TOT. 4H)	<i>Raw materials</i>	Quality of ingredients and raw materials Quality control and analysis Storage issues (temperature and humidity)	1
	<i>How to prepare feeds</i>	Grinding Horizontal and Vertical mixers Pelletting Packaging and storage	1
	<i>Practical training</i>	Visit to a feed mill	2
3. FEED TECHNOLOGY (TOT. 1H)	<i>Feed technology</i>	Flaking Extrusion Expansion Extraction Micronization Molasses-inclusion Fat inclusion	1
4. PRINCIPLES OF FEED LEGISLATION (TOT. 3 H)	<i>Principles of feed legislation and feed additive authorization Feed hygiene And Feed labeling</i>	Reg. CE 178/2002 Reg. CE 1831/2003 Reg. CE 183/2005 Reg. 767/2009	1
	<i>GMO and undesirable substances</i>	Reg. CE 1829/2003 Reg. CE 1830/2003 Dir. CE 32/2002	2
5. FEED INGREDIENT DESCRIPTION AND IDENTIFICATION (TOT.6 H)	<i>Ingredients providing proteins</i>	Distillers Soybean meal, rapeseed meal, sunflower meal.	2

		Soybean, fava bean, green peas, corn gluten feed, dehydrated milk, proteic potato and soy concentrate. Fish meal	
	<i>Ingredients providing energy And Fibrous ingredients</i>	Oat, corn, wheat, sorghum, rice, rye, triticale. Cereals by-products. Powder milk whey, animal fats, hydrogenated fats, mollasses, lin seeds, vegetable oils. Orange peels and pulp Sugar-beet pulp Alfalfa pellets Wheat bran Soybean hulls	2
	<i>Practical training</i>	Ingredients identification	2
6. BY-PASS TECHNOLOGIES(TOT.1H)	<i>Protection of ingredients and minerals</i>	Microencapsulation (coating, matrix embedding)	1
7. ADDITIVES (TOT.7H)	<i>Nutritional and technological additives</i>	Selenium AA Flavorants	3
	<i>Zotechnical additives</i>	Enzymes Probiotics Prebiotics	4

Syllabus