



PHARMACEUTICAL PLANTS AND PRODUCTIONS

Study Program location: Bergamo

Duration: 2000 Hours

Goal of the program:

The Pharmaceutical Plants program trains a specialist who works in developing, design and industrialization of pharmaceutical plants, from the technical bases to all aspects of operation and maintenance with a particular focus on integrated systems (Industry 4.0).

The specialist will have on the one hand a wide range of professional characteristics substantial in the mastery of hard skills related to the design, construction, technical and operational maintenance of chemical pharmaceutical plants, on the other hand in the ability to promote the design of the computer integration of the instruments.

Career opportunities (Possible Departments):

- Technician of management and management of Pharmaceutical Plants
- Maintenance Technician of Pharmaceutical Plants
- Commission in technician and Qualification/Validation of Pharmaceutical Plants
- Pharmaceutical Plant Design
- Technical Office Documentation and Manuals pharmaceutical Plants
- Technical-Commercial of Pharmaceutical Plants



SUPERIOR SPECIALIST FOR PHARMACEUTICAL PLANTS AND PRODUCTIONS			
REALIGNMENT	Name of the discipline	Hours	
	GENERAL CHEMISTRY STOICHIOMETRIC FUNDAMENTALS	32	
	ORGANIC CHEMISTRY	32	
	MATHEMATICAL PHYSICS	48	
	ETHICS, SOFT SKILLS OF BUSINESS COMMUNICATION	12	
	ENGLISH LANGUAGE	40	
	FUNDAMENTALS OF COMPUTER SCIENCE	48	
	Total realignment hours	212	
MODULES	Name of the discipline	Hours	
	<u>ECONOMICS AND BUSINESS ORGANIZATION</u>		
	MARKETING	32	
	BUSINESS PLANNING	16	
	CIRCULAR ECONOMY AND TECHNOLOGY TRANSFER	48	
	BUSINESS ORGANIZATION, PRODUCTION MANAGEMENT, LOGISTICS – INDUSTRY 4.0	42	
	SAFETY AND ENVIRONMENTAL LEGISLATION	16	
	<u>BASIC CHEMISTRY</u>		
	GENERAL CHEMISTRY	30	
	ORGANIC CHEMISTRY	30	
	INSTRUMENTAL CHEMICAL ANALYSIS AND MATERIAL CONTROL	48	
	PHYSICAL CHEMISTRY OF COLLOIDS AND INTERPHASES	48	
	CHEMICAL AND PHARMACEUTICAL LABORATORY	50	
	TECHNICAL AND MEDICAL GASES	30	
	<u>MATHEMATICS AND APPLIED PHYSICS</u>		
	MATHEMATICAL METHODS FOR CHEMISTRY	50	
	CHEMICAL PLANT CONTROL INSTRUMENTS	72	
	LINEAR SYSTEMS	48	
	THERMODYNAMICS	40	
	HEAT TRANSFER	32	
	TRANSPORT PHENOMENA	48	
	<u>PHARMACEUTICAL PLANTS</u>		
	CURRENT GOOD MANUFACTURING PRACTICES	18	
	TECHNOLOGICAL PLANTS FOR THE PRODUCTION OF STERILE AND NON-STERILE FORMS	30	
	PROCESS PLANTS FOR WASHING, DISINFECTION AND STERILIZATION	30	
	AIR TREATMENT SYSTEMS, CLEAN ROOMS AND CONFINED ENVIRONMENTS	20	
	PHARMACEUTICAL GRADE WATER AND STEAM PLANTS	24	
	PACKAGING, INSPECTION AND STORAGE AND TRANSPORT PLANTS FOR PHARMACEUTICAL PRODUCTS	18	
	VALIDATION OF COMPUTERIZED SYSTEMS AND DATA INTEGRITY FOR PHARMACEUTICAL PLANTS	24	
	INSTRUMENTATION FOR CALIBRATIONS AND VALIDATIONS OF CHEMICAL AND PHARMACEUTICAL PLANTS	18	
	QUALITY RISK MANAGEMENT FOR THE CHEMICAL AND PHARMACEUTICAL INDUSTRY	12	
	GMP INSPECTIONS OF CHEMICAL PHARMACEUTICAL PLANTS	18	
	<u>TECHNOLOGIES 4.0</u>		
	SYSTEM INTEGRATION INDUSTRY 4.0	40	
	INNOVATIVE PHARMACEUTICAL TECHNOLOGIES	30	
	2/3D CAD/CAM	48	
	INDUSTRIAL AUTOMATION	48	
	CHEMICAL PLANTS 4.0	72	
	FINITE ELEMENTS AND THEIR APPLICATIONS	46	
		Total	1.176
	TRAINING		824
	Total with training	2.000	