

MARINA PRISCIANDARO

PROGRAMME OF "IMPIANTI CHIMICI I" "CHEMICAL PLANTS I"		
<ul style="list-style-type: none"> • CODE: I0657 • TYPE OF COURSE UNIT: COMPULSORY FOR THE CHEMICAL ENGINEERING SPECIALIZATION • LEVEL OF COURSE UNIT (E.G. FIRST, SECOND OR THIRD CYCLE; SUB-LEVEL IF APPLICABLE): FIRST CYCLE • YEAR OF STUDY (IF APPLICABLE): SEMESTER: THIRD YEAR, SECOND SEMESTER 		
NUMBER OF ECTS CREDITS: 6 (WORKLOAD OF 60 HOURS OF TEACHING + WORK AT HOME; 1 CREDIT = 25 HOURS OF TOTAL ACTIVITIES)		
Teacher: Marina Prisciandaro		
1	Course objectives	<p>THE MAIN AIM OF THE COURSE IS TO PROVIDE METHODOLOGIES FOR THE SIZING AND OPERATION OF CHEMICAL PLANTS AND THE DESIGN AND ANALYSIS OF THE MAIN CHEMICAL ENGINEERING PROCESS SCHEMES, INCLUDING THEIR CONTROL AND ENVIRONMENTAL IMPACT.</p> <p>OBJECTIVES OF THE COURSE ARE ALSO TO PROVIDE ALL NECESSARY INSTRUMENTS FOR THE SCREENING OF PROCESSING ALTERNATIVES AND THE REDESIGN OF CHEMICAL PROCESSES FOR POLLUTION PREVENTION AND ENERGY SAVING.</p>
2	Course content and Learning outcomes (Dublin descriptors)	<p>THIS COURSE COMPRISES MANY OF THE STANDARD OPERATIONS IN CHEMICAL PLANTS SUCH AS GAS ABSORPTION, HEAT EXCHANGE AND IDEAL DISTILLATION. THE DESIGN AND OPERATION OF THESE DEVICES IS EMPHASIZED. COURSE CONTENTS INCLUDE: SIZING OF PROCESS EQUIPMENT FOR MOMENTUM, HEAT AND MASS TRANSFER LIKE PUMPS, COMPRESSORS, HEAT EXCHANGERS, TRAY AND PACKED COLUMNS; COST ESTIMATION.</p> <p>STUDENTS SHOULD HAVE:</p> <ul style="list-style-type: none"> - KNOWLEDGE OF FUNDAMENTALS OF MATHEMATICS AND PHYSICS, APPLIED TO SOLVE ENGINEERING PROBLEMS; - KNOWLEDGE OF THERMODYNAMICS AND FUNDAMENTALS OF MOMENTUM, HEAT AND MASS TRANSFER. <p>STUDENTS WILL BE ABLE TO:</p> <ul style="list-style-type: none"> - READ AND UNDERSTAND A PROCESS LAYOUT; - READ, UNDERSTAND AND USE DATABASES WITH CHEMICAL AND PHYSICAL PROPERTIES OF ORGANIC AND INORGANIC SPECIES; - SIZE DIFFERENT PROCESS EQUIPMENTS; - DESIGN A SIMPLE PROCESS PLANT WITH RELATIVE FLOWSHEET AND CONTROL LAYOUT; - CARRY OUT MASS AND ENERGY BALANCES ON PROCESS SCHEME; - EVALUATE ENERGETIC, ECONOMIC AND ENVIRONMENTAL PERFORMANCES OF DIFFERENT PROCESSES.
3	Prerequisites and learning activities	PREREQUISITES: MATHEMATICS; CHEMISTRY; PHYSICS; THERMODYNAMICS.
4	Teaching methods and language	<p>LECTURES AND EXERCISES. LANGUAGE: ITALIAN / ENGLISH</p> <p>REF. TEXT BOOKS</p> <p>KERN, PROCESS HEAT TRANSFER, MCGRAW-HILL</p> <p>ROBERT E. TREYBAL, MASS TRANSFER OPERATIONS, MCGRAW-HILL</p> <p>COULSON & RICHARDSON, CHEMICAL ENGINEERING, PERGAMON PRESS</p> <p>PERRY, GREEN, PERRY'S CHEMICAL ENGINEER'S HANDBOOK, MCGRAW-HILL</p>
5	Assessment methods and criteria	WRITTEN AND ORAL EXAMINATION.

