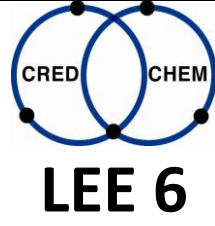
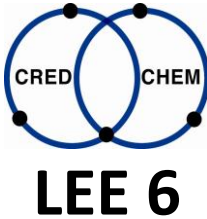


Field of action	Working in the laboratory					
Learning outcome unit	6 - Chemically producing inorganic and organic substances					
EQF level	Competence level A: EQF level 3 Competence level B: EQF level 4 Competence level C: EQF level 5					
Relations to national qualifications	BG	CZ	DE	IT	SK	
	Chemist-technologist	Chemist, chemical technician	Chemical laboratory technician		Chemical technician, chemical laboratory technician, chemical technician for special organic analyses, chemical technician for special inorganic analyses, chemical laboratory assistant	
Learning outcomes						
Competence¹	Skills			Knowledge		
Competence level A (EQF level 3) <ul style="list-style-type: none"> - produces substances by using the standard laboratory methods and adapts these methods to the given conditions 	<ul style="list-style-type: none"> - accepts orders for production of substances and plans all further processing steps until supplying the product - selects methods, respective laboratory equipment and necessary chemicals (solvents...) depending on the property/structure of the substances and handles them accurately, carefully and expertly - evaluates results and calculates respective values - prepares and evaluates the analysis expertly (corresponds to competence of learning outcome 1 and 2) 			<ul style="list-style-type: none"> - knows substances (properties, structure, R/S statements) - knows relationship between measurand and determinant and respective methods (knows steps of action) - knows respective equipment/ apparatuses and their functioning/ operation 		
Competence level B: (EQF level 4) <ul style="list-style-type: none"> - deals with problems typical for the methods 	<ul style="list-style-type: none"> - analyses the problem, develops solution approaches by applying specialist knowledge and decides how to solve the problem - reflects on whether the problem was actually solved 			<ul style="list-style-type: none"> - knows dependence of reaction process (conversion, reaction rate) on reaction conditions - knows reactions which the methods are based on 		
Competence level C: (EQF level 5) <ul style="list-style-type: none"> - optimises methods according to context in cooperation with the team 	<ul style="list-style-type: none"> - works as part of the team, is actively involved in the work process and thus brings the work process forward - communicates with others about scientific and technological content (application of specialist knowledge) and about the work process 			<ul style="list-style-type: none"> - knows structural characteristics of a material which are responsible for its properties <p>knows kind of reaction with corresponding mechanism and reaction equation (knows relationship between structure of reactants, reaction mechanism and reaction result)</p>		

¹ The competence levels build upon each other.

Field of action	Working in the laboratory				
Learning outcome unit	6 - Chemically producing inorganic and organic substances				
Countries	BG	CZ	DE	IT	SK
Which CREDCHEM learning place offers the learning outcome unit?	Technical School for Ecology and Biotechnology Sofia	Technical School Usti n. Labem	Saxon Education Company for Environmental Protection and Chemical Occupations Dresden ltd.		Secondary Technical School Novaky, Secondary Technical School Bratislava
How many learners can be admitted?	8	3	3-4		10
At which competence level is the learning outcome unit offered?	A, B	A, B, C	A		A, B, C
In which language is the mobility taught?	Bulgarian/ German	English	English/German		English/German
Which methods are used?	Production of inorganic and organic substances				
The following occupational tasks² (which can also be used for imparting the learning outcomes) have been exemplarily analysed in preparing the LEE:					
Production of copper, sulphanilic acid, soap					
Production of acetylsalicylic acid					
Production of benzocaine					
The following examination tasks were designed for the competence levels indicated:					Competence level
Production of acetylsalicylic acid					A, B, C
Production of benzocaine					A, B, C
Production of ethyl acetate					A, B
Production of an azo dye					A, B
Production of benzoic acid					A, B

² Occupational and examination tasks can be downloaded at www.credchem.eu.