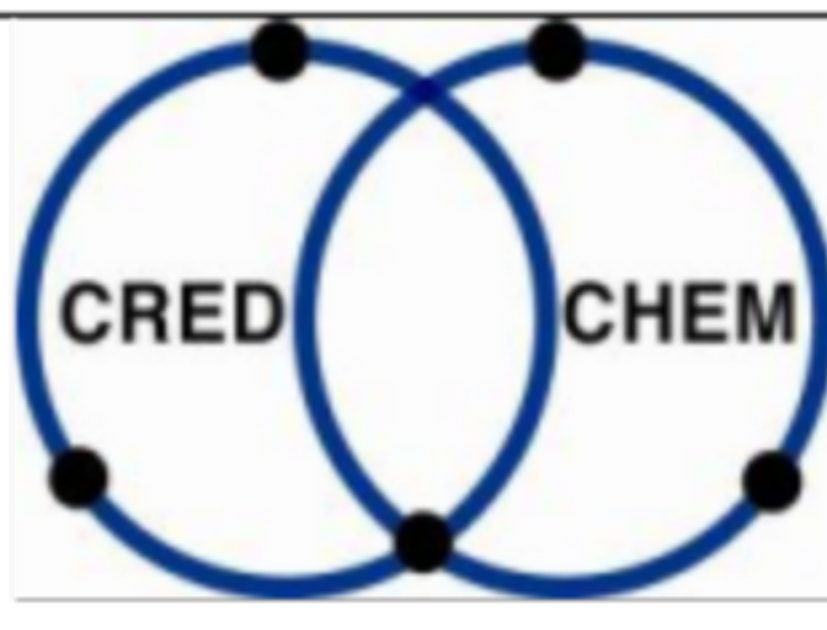
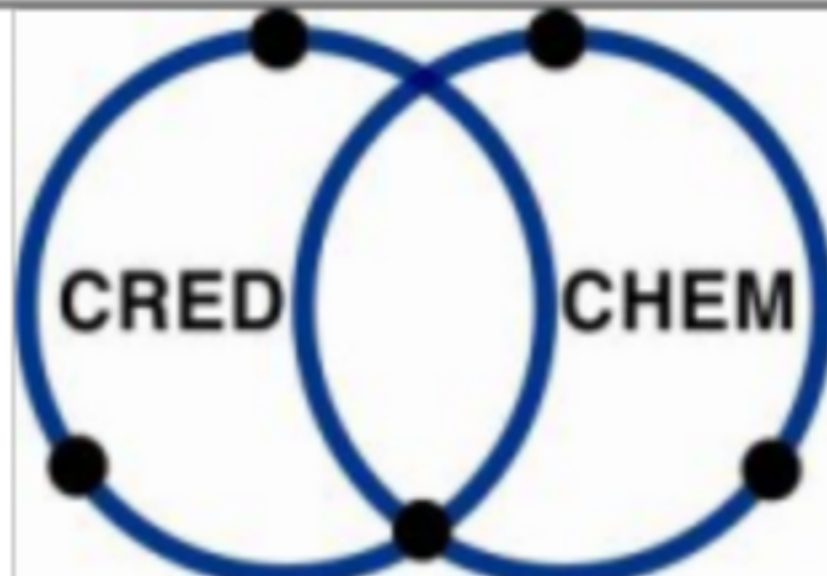


Field of action	Working in the laboratory	
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Field of action	Working in the laboratory			 LEE Bio 2	
Learning outcome unit	Bio 2 - Isolating and identifying substances in biological material				
EQF level	Competence level A: EQF level 3 Competence level B: EQF level 4 Competence level C: EQF level 5				
Relations to national qualifications	BG	CZ	DE	IT	SK
	Chemist-technologist		Chemical laboratory technician, biological laboratory technician, physics 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) - isolates substances from biological material and identifies them with the aid of simple methods, adapts these methods to the given conditions (selects methods)		- accepts orders for isolating and identifying substances in biological material and plans all further processing steps until supplying the result - selects methods and respective laboratory equipment depending on the property of the microorganisms and cells and handles them accurately, carefully and expertly - evaluates results		- knows methods for examining and handling natural substances (immobilising, isolating...) - knows respective methods (knows steps of action) - knows respective equipment/apparatuses and their functioning/operation	
Competence level B: (EQF level 4) - deals with problems typical for the methods		- 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		- knows reactions which the methods are based on - knows structure-property relationships - knows structure and nature of natural substances, factors responsible for their properties	
Competence level C: (EQF level 5) - optimises methods according to context in cooperation with the team		- 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		- knows biochemical processes and influencing factors	

¹ The competence levels build upon each other.

Learning outcome unit	Bio 2 - Isolating and identifying substances in biological material			 LEE Bio 2	
Countries	BG	CZ	DE	IT	SK
Which CREDCHEM learning place offers the learning outcome unit?	Technical School for Ecology and Biotechnology Sofia		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		3-4		8
At which competence level is the learning outcome unit offered?	A, B		A		A, B, C
In which language is the mobility taught?	Bulgarian/ German		English/German		English/German
Which methods are used?	Biochemical processes and analysis methods				
The following occupational tasks² (which can also be used for imparting the learning outcomes) have been exemplarily analysed in preparing the LEE:					
Immobilising of enzymes					
Isolation and identification of natural substances					
Quantitative determination of proteins					
ELISA of enzymes					
Gel electrophoresis of proteins					
Microbiological determination of water					
Purification of lipids from egg yolk					
The following examination tasks were designed for the competence levels indicated:					Competence level
Immobilising of enzymes					A, B, C
Isolation and identification of natural substances					A, B, C
Quantitative determination of proteins					A, B, C

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

ELISA of enzymes	A, B, C
Gel electrophoresis of proteins	A, B, C
Microbiological determination of water	A, B, C
Purification of lipids from egg yolk	A, B, C