





Initiatives in Chemistry Teacher Training

29 November 2013 Limerick, Ireland

Chemistry Teacher Trainingin **Poland**

mgr Magdalena Gałaj magdalena galaj@wsinf.edu.pl

Wyższa Szkoła Informatyki i Umiejętności w Łodzi







Chemistry knowledge acquisition



important element of the education of secondary school graduate



It depends on the objectives and implementation of the curriculum of chemistry









THE MAIN RESULT OF CHEMICAL EDUCATION?

...to provide pupils with the knowledge to help them properly assess the phenomena in the world and to use them in everyday life...

How to achieve this?







Such objective can be achieved especially when the pupils receive a knowledge of the basics of chemistry which is:

- **✓ SOLID**
- **✓ RELIABLE**
- ✓ SPECIFIC and SYSTEMATIC

To achieve this purpose, the teacher should have the opportunity to construct assessment and evaluation tools, make adjustments of their own work with the pupil and appropriately motivate pupils to work!









Chemistry teacher in Poland... How to become one?

The Ordinance of the Minister of Science and Higher Education from 17 January 2012, which was also signed by the Minister of Education.

The standards of training leading to the teaching profession are defined in this ordinance

- √ the learning outcomes across the range of expertise and methodology (cross curricular), pedagogy and psychology, application of information technology and foreign language proficiency
- √ the duration of studies and postgraduate studies
- √ the size and organization of practical training for teachers







TEACHER TRAINING - PROCESS AND ORGANIZATION

Universities provide courses which prepare students for the teaching profession in academic education and post-graduate studies in the relevant training modules. Chemistry teacher education takes place during the second-cycle of studies and includes mandatory training in the following areas:

FIRST MODULE:

✓ substantive education for teaching of first subject (preparation to conduct the course

SECOND MODULE:

✓ psychological and pedagogical education

THIRD MODULE:

√ didactic education







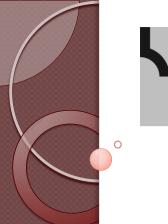
TEACHER TRAINING - PROCESS AND ORGANIZATION

The preparation to work as a teacher during the academic education can be extended to optional preparation for teaching of another subject (to conduct the course) – FOURTH MODULE

However, the preparation to work as a chemistry teacher at postgraduate studies may be conducted in the following areas:

✓ preparation for teaching of another subject
 (to conduct the course) – FOURTH MODULE
 ✓ psycho-pedagogical and didactic preparation
 for graduates with substantial preparation for teaching (to conduct the course) and without psycho-pedagogical and didactic preparation – SECOND AND THIRD MODULE









TEACHER TRAINING - PROCESS AND ORGANIZATION

Implementation of the training modules:

Module	Module components	Hours	ECTS credits
1. substantive preparation	Substantive preparation according to		* **
for teaching of the first	description of training results for	*	
subject (of course)	implemented field of study		
2. psycho-pedagogical preparation	general psycho-pedagogical preparation	90	10
	psycho-pedagogical preparation for teaching in the education stage	60	
	Teacher training	30	
3. didactic preparation	didactics basics	30	15
	teaching of subject in the education stage	90	
	Teacher training	120	
4. preparation to teaching of another subject (of course)	substantive preparation	*	**
	teaching of subject in the education stage	60	10-15
	practise	60	
5. preparation for special didactics	psycho-pedagogical preparation	140	25
	special didactics	90	
	Teacher training	120	



This project has been funded with support from the European

This material reflects the views only of the author, and the

Commission cannot be held responsible for any use which may be made of the information contained therein.





TRAINING STANDARDS OF CHEMISTRY STUDENTS

I cycle programme Undergraduate education:

Bachelor's studies

- \geq 6 semesters,
- the number of hours ≥ 2200 (≥ 180 ECTS points),
- the graduate should have knowledge and skills in general chemistry topics, based on mathematical and natural sciences

Engineering studies

- \geq 7 semesters,
- the number of hours should $\geq 2500 \ (\geq 210 \ \text{ECTS points})$,
- the graduate should have the ability to use the basic knowledge of chemistry and chemical technology, based on the broad-based mathematics, natural sciences and engineering







TRAINING STANDARDS OF CHEMISTRY STUDENTS

Il cycle programme Postgraduate education:

Bachelor Degree

• Graduate education takes not less than 4 semesters, involving undergraduate alumni and number of hours should not be less than 1000 (≥ 120 ECTS points)

Engineer Degree

Graduates in
 postgraduate courses
 last not less than
 three semesters,
 involving engineering
 graduates and the
 number of hours
 should not be less
 than 900 (≥ 90 ECTS
 points)







A good teacher of chemistry...

- √ has a knowledge of chemistry in accordance with curriculum content of these subjects,
- ✓ is able to independently deepen this knowledge, update, and integrate with other fields of knowledge and transfer properly to students,
- √ knows the correct development of students and can be a good guardian and tutor through knowledge based on psychology and pedagogy,
- ✓ supports the intellectual development of students through appropriate teaching methods and educational measures,
- √ knows how to use information technology in the classroom,
- √ knows foreign languages,
- √ wants to continue to develop professionally







In-Service Teacher Training

- ✓ courses, trainings and workshops optional; usually enforced by promotion to a better position
- √ wide variety of programmes available through Universities/ Polytechnics/ In-service teacher training institutions both at local and regional level
- √ national Post-diploma Programmes
- √ independent chemistry teacher trainings run by chemistry experts and enthusiasts
- √ international projects Chemistry Is All Around Network



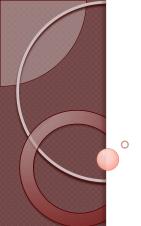




Conclusions

- ✓ Polish educational reforms introduced new objectives for teaching and learning
- ✓ Chemistry for life is promoted through research and experiment
- ✓ Pre-Service training is available only for II cycle programmes
- ✓ In-Service Teacher training is optional and required only when developing teaching career
- √ Programmes and courses available both at local and regional levels
- ✓ A good teacher of chemistry is able to awaken students' natural curiosity to substances and phenomena









Thank you for your attention

