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Initiatives in Chemistry Teacher Training

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Chemistry Teacher Training in Poland

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Wyższa Szkoła Informatyki i Umiejętności w Łodzi



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Chemistry knowledge acquisition



**important element of the education
of secondary school graduate**



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



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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?



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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 for teaching of the first subject (of course)	Substantive preparation according to description of training results for 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	



TRAINING STANDARDS OF CHEMISTRY STUDENTS

1 cycle programme Undergraduate education:

Bachelor's studies

- ≥ 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

- ≥ 7 semesters,
- the number of hours should ≥ 2500 (≥ 210 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

II 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 (\geq 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 (\geq 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





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Thank you for your attention



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