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Competence / skill based education: generic and professional competencies / skills

Assoc. prof. dr. Inga Juknytė-Petreikienė

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Competence / Skill

A competence is a dynamic combination of knowledge, skills, values and attitudes, which enables to properly perform activities (*Tuning project, ECTS user guide*).

Key programme competences / skills:

- **generic** competences (broadly applicable skills) = **transferrable skills**
- **subject specific / skills** competences (theoretical, practical and/or experimental knowledge and subject specific skills).

Generic Competences / Skills

Generic competences (Tuning project):

- 1) *instrumental (operational) competences*;
- 2) *interpersonal competences*;
- 3) *systemic competences*.

Generic competences / skills help the personality to adapt to the ever-changing labor market and environment and promote change and development.

Generic Competences / Skills

Table of generic competences		
Instrumental	Cognitive	Analytical, systemic, critical, reflective, logical, analogical, practical, team, creative and deliberative thinking.
	Methodological	Time management Problem-solving Decision-making
		Learning orientation (in the pedagogical framework, learning strategies) Planning
	Technological	PC as working tool Use of databases
	Language	Oral communication skills Written communication skills Foreign language proficiency

Generic Competences / Skills

Interpersonal	Individual	Self-motivation Diversity and interculturality Resistance and adaptation to environment Ethical sense
	Social	Interpersonal communication Teamwork Conflict management and negotiation

Generic Competences / Skills

Systemic	Organization	Objectives-based management Project management Quality orientation
	Enterprising spirit	Creativity Enterprising spirit Innovation
	Leadership	Achievement orientation Leadership

Generic Competences / Skills

Tuning project guide (2008):

- Ability for abstract and analytical thinking, and synthesis of ideas,
- Ability to plan and manage time,
- Ability to communicate both orally and through the written word in first language,
- Ability to communicate both orally and through the written word in a foreign language,
- Ability to work in a team and commitment to tasks,
- Ability to work in an international context,
- Ability to use information and communications technologies,
- Ability to adapt to new situations,
- Ability to take the initiative and to foster the spirit of entrepreneurship,
- Ability to be critical and self-critical,
- Ability to design and manage projects, etc.

Generic Competences / Skills

LT Descriptor of the study field of Physics (2015)

- Ability to communicate and collaborate seeking common objectives;
- Ability to work individually and in a team;
- Ability to organise and ensure safe work;
- Ability to make decisions and assess their social consequences;
- Ability to communicate in the correct Lithuanian language (oral and written) and foreign language (oral and written);
- Ability to work in an interdisciplinary environment;

Generic Competences / Skills

LT Descriptor of the study field of Physics (2015)

- Ability to plan and organise one's own activities and self-learning;
- Ability to work and adapt in new situations;
- Ability to develop his / her professional skills;
- Ability to assume moral responsibility for the results of one's own work and their impact on the staff, the public and the environment;
- Ability to deal with the tasks of various applied fields and assess their technological, economic, social and legal context

Generic Competences / Skills

LT TEACHER TRAINING REGULATIONS (2018)

1. leadership
2. creativity, problem solving and critical thinking
3. social justice, citizenship
4. reflection and self-evaluation, continuous improvement
5. organization and change management
6. social emotional
7. digital literacy
8. media literacy

Professional Competences / Skills

Tuning project guide Mathematics (2008):

- Profound knowledge of “elementary” mathematics (such as may be covered in secondary education).
- Ability to construct and develop logical mathematical arguments with clear identification of assumptions and conclusions.
- Facility with abstraction including the logical development of formal theories and the relationships between them.
- Ability to model mathematically a situation from the real world and to transfer mathematical expertise to non mathematical contexts.
- Readiness to address new problems from new areas.
- Capacity for quantitative thinking.
- Ability to extract qualitative information from quantitative data
- Ability to comprehend problems and abstract their essentials.

Professional Competences / Skills

- **Tuning project guide Mathematics (2008):**
- Ability to formulate problems mathematically and in symbolic form so as to facilitate their analysis and solution.
- Ability to design experimental and observational studies and analyse data resulting from them.
- Ability to formulate complex problems of optimisation and decision making and to interpret the solutions in the original contexts of the problems.
- Ability to use computational tools of numerical and symbolic calculations for posing and solving problems.
- Knowledge of specific programming languages or software.
- Ability to present mathematical arguments and the conclusions from them with clarity and accuracy and in forms that are suitable for the audiences being addressed, both orally and in writing.
- Knowledge of the teaching and learning processes of mathematics.
- Some knowledge of the historical development of mathematics and its cultural impact on the development of scientific and technological thinking.

Professional Competences / Skills

LT Descriptor of the study field of Physics (2015)

- Are able to apply the knowledge of Physics, Mathematics and Information technologies in their activities;
- Have specialised knowledge and skills of branches of Physics or Physics-related areas;
- Have acquired professional skills and abilities to solve theoretical and practical tasks of Physics;
- Have acquired knowledge and skills necessary to form a physical image of the world at professional level and sufficient to continue their studies in the second cycle studies.

Professional Competences / Skills

LT TEACHER TRAINING REGULATIONS (2018)

1. knowledge about the learner and her / his environment
2. development, management and implementation of education content
3. ensuring learner's progress, assessment of achievements and feedback
4. research of professional area
5. professional partnership, networking, communication and collaboration

Relationship of Competences / Skills and Programme Learning Outcomes

Generic competence	TEAMWORK: Actively joining and participating in the attainment of shared objectives with other persons, departments and organizations		
Programme learning outcome	Profesional bachelor	Bachelor	Master
	Actively participates and collaborates in team tasks and promotes confidence, cordiality and focus on sharedwork	Actively participates and collaborates in team tasks and promotes confidence, cordiality and focus on sharedwork Contributes to the consolidation and development of the team, fosters communication, balanced distribution of work, good team atmosphere and cohesion	Actively participates and collaborates in team tasks and promotes confidence, cordiality and focus on sharedwork Contributes to the consolidation and development of the team, fosters communication, balanced distribution of work, good team atmosphere and cohesion Directes groups, ensures member integration and high performance orientation

Relationship of Competences / Skills and Programme Learning Outcomes

Generic competence	LEADERSHIP: Influencing people and / or groups, anticipating the future and contributing to their personal and professional development		
Programme learning outcome	Profesional bachelor	Bachelor	Master
	Takes initiatives and communicates them with conviction and integrity, stimulates others	Takes initiatives and communicates them with conviction and integrity, stimulates others Conveys confidence and moves others to action	Takes initiatives and communicates them with conviction and integrity, stimulates others Conveys confidence and moves others to action Exercises influence in own surroundings to achieve desired objectives

Relationship of Competences / Skills and Programme Learning Outcomes

Generic competence	CREATIVITY: Addressing and responding well to situations in new and original ways within a given context		
Programme learning outcome	Profesional bachelor Generates and conveys new ideas or generates innovative solutions to known problems or situations	Bachelor Generates and conveys new ideas or generates innovative solutions to known problems or situations Generates original, quality ideas that can be made explicit and defended in known and unknown situations	Master Generates and conveys new ideas or generates innovative solutions to known problems or situations Generates original, quality ideas that can be made explicit and defended in known and unknown situations Contributes original, practical, applicable, flexible and complex ideas and solutions, affecting self and own processes, as well as others

PRACTICAL ACTIVITY (20 min.)

- Review the generic competences / skills listed in the current AZ State Standard of study programme (at Bachelor and Master level).
- Discuss what generic competences / skills should be added to the AZ State Standard of study programme (at Bachelor and Master level).

PRACTICAL ACTIVITY (20 min.)

2. Specialty characteristics and competences

2.1. Specialty characteristics of a bachelor student

Bachelor student

- shall be ready to work in the field of their specialty in accordance with their fundamental and professional training, as well as to do Master's degree in their specialty;
- shall be able to perform in any manufacturing facilities, organizations, departments, institutions, unions and other fields regardless of their type of ownership and subordination;
- shall be able to work in various education institutions (save for scientific, scientific-pedagogical areas in higher education institutions) in compliance with the existing rules.

2.2. Requirements on the competences graduates shall achieve as a result of the study programme

2.2.1. Graduate shall master the following culture-general competences (CGC):

- to work in team (CGC-1);
- ability to interact with specialists of other fields (CGC-2);
- ability to work in international environment (CGC-3);
- to master legal and ethical norms (CGC-4);
- to preserve healthy lifestyle (CGC-5);
- to propose new ideas and justify them (CGC-6);
- to be ready for intercultural dialogue (CGC-7);
- to be tolerant of criticism and self-criticism (CGC-8);
- to show attentiveness and to take on responsibility in difficult circumstances (CGC-9);
- ability to read and to translate simple texts and to express themselves (CGC-10);
- ability to use ICT (CGC-11);
- always strive to self-develop and improve one's professionalism (CGC-12);
- to properly and briefly express oneself (CGC-13);

2.2.2. Graduate shall master the following professional competences (PC):

On manufacturing-pedagogical performance:

- to know the key issues of subjects related too one's activity and their specific area of application (PC-1);
- to apply ICT in one's professional activities (PC-2);
- to know the meaning of specialty-related concepts and terms (PC-3);
- ability to set certain tasks, to choose and apply relevant methods (PC-4);
- ability to develop scientific-methodological and educational means (PC-5);
- ability to use devices and equipment, visual aids in teaching (PC-6);