



Tempus

VERITAS

STRUCTURAL DEVELOPMENT OF THE THIRD CYCLE BASED ON SALZBURG PRINCIPLES

**Implementation of Salzburg Principles
in Republic of Armenia**

**ROAD-MAP
FOR PHD EDUCATION
DEVELOPMENT IN HIGHER
EDUCATION INSTITUTIONS OF
THE REPUBLIC OF ARMENIA**

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Introduction

All higher education institutions (HEIs: National Academy of Sciences, Universities, Research Organizations) in the Republic of Armenia function under the same regulations set by the respective state agencies (Ministry of Education and Science of the Republic of Armenia, Supreme Certifying Commission), as well as National Center for Professional Education Quality Assurance (ANQA) .

This road-map is a general document for the HEIs in the Republic of Armenia, based on Armenian principles of PhD education development, which should be implemented in accordance to the specificity and specializations of each HEI. The present document was confined by the Armenian HEIs in agreement with the Armenian scientific agencies as a common understanding to define a framework for the modernization of the Armenian PhD education.

Under this framework, every university will design individual strategic plans for PhD programs, which are in agreement with the common “road-map” but need to consider the different conditions at every Armenian HEI. These individual strategic plans should be considered as recommendations to the RA Ministry of Education and Science and the Supreme Certifying Commission for the reforms of administrative and legal frameworks in Armenian PhD education, which are now under the law of education and regulations of the Ministry.

The road-map and the strategic plans will be in accordance with the Bologna Agreement of “Doctoral Programs for the European Knowledge Society” (Salzburg 3-5 February 2005), i.e. 10 basic principles for the third cycle education, which were developed giving the platform for foundation for reforms in the higher education field. Every program may focus on different Salzburg principles according to the needs of different disciplines, organizations and institutions. The amendments of the third cycle should be aligned with parallel efforts to reform the first and second cycles of higher education in accordance with European standards.

For further information please refer:

1. Bologna Process

<http://www.ehea.info/article-details.aspx?ArticleId=3>

2. Salzburg Principles

http://www.eua.be/eua/jsp/en/upload/Salzburg_Report_final.1129817011146.pdf

3. RA Regulation on Scientific Degree Award

<http://www.boh.am/jurist.php?langid=1>

The road-map and strategic plans are intended to define how the PhD education generates added-value for the country and for society benefits.

The strategic plans (SP) should consider the following: Methodology, Capacity Building Requirements, Capacity Building Activities for Researchers, Criteria and Evaluation of PhD Program.

The detailed analysis and recommendations based on each SP are introduced in the **Methodology** part of the Road-Map.

At the end of the education, PhD candidates should

- Have written and performed new knowledge through original research with sufficient quality to encompass the review by peers, which guaranty that the research is at the forefront of the discipline and deserves to be published.;
- Have acquired and understood a body of knowledge that is in the avant-garde of the academic discipline;
- Are able to conceptualize, to design and implement a project to generate new knowledge, applications or the understanding of a discipline, and adjust the design based on unforeseen problems;
- Have reached a detailed understanding of techniques to carry out the research.

To be in harmony with the quality of PhD program, the HEIs and its executive bodies have the need to develop indicators such as **individual progression, research time, completion rate, transferable skills, career tracking and dissemination of research results, professional development of researcher and the progress of research project.** The strategic plans should define how different “agents” (agencies, universities, faculties, PhD programs, departments, teachers, specialized council, supervisors, students, etc.) are going to ensure optimal quality of the different indicators. They also should define and weight the individual indicators according to the disciplinary background and need of the PhD programs.

Aims and Objectives

The aims of the PhD program are to provide, for each student, individual depth of experience and competence in a **particular chosen major specialty**; perception of the nature and logic of the field chosen as a whole; **sufficient strength in basic science to allow continued self-education after formal training** has been completed and thus to keep in the forefront of changing fields; and the motivation to serve his or her field productively through a long career.

To have the above mentioned ideas implemented, there should be **standards formulated** and developed which the higher education institutions can use as a basis for their own internal and external academic auditing and benchmarking between institutions.

This in its turn will help **safeguarding the PhD as a research degree** and strengthening career opportunities for PhD graduates. The university itself promotes the future researcher from the very first steps of education thus ensuring the proper trajectory for all education cycles. The University allows talented Master students, who reached a defined minimum qualification, to join their preferred research groups with appropriate funding program.

Capacity Building Activities for PhD Candidates: Methodology and Final Skills

During PhD education, methodology should be used and measures implemented, which aim to develop relevant and comprehensive skills and competences of a researcher.

Creation of new and original knowledge is the core component of the doctoral education. The main peculiarity and difference is making new and original knowledge.

The University therefore supports the skills and abilities which are as follows:

- 1. Do individual research, solve a scientific problem independently, acquire professional knowledge; be part of a team of experts doing research on the same topic.
Necessary knowledge of the particular research field and sufficient knowledge of research topic**

HEIs should adopt the process-based approach for internal quality assurance (QA) of doctoral education, i.e. the QA processes must be present in all the phases of doctoral education, and the responsibilities of each actor involved in doctoral education should be clearly defined in each phase.

- present research results through articles, presentations and/or thesis (also by involving Master students in various research groups within base funding programs);
- conduct analysis, surveys, fact finding, and evaluation developing and strengthening analytical and critical thinking;
- have command over databases and statistics, use appropriate literature.

- 2. Acquire soft skills**

- communicate both with their peers in a teamwork allowing and promoting researchers' participation in various seminars and conferences (with either a report or a poster are mandatory); the competences to present own research are important, but to CARRY OUT individual research and guidance to do that are the central point;
- supporting, by the University, the organization of seminars and/or other relevant events by the researcher's initiative;
- promoting, by the University, the ability of clear communication and presentation skills via special course on communication skills during the course of study;
- to take lectures: researchers are required to of academic and paper writing skills thus strengthening their competences and knowledge of the field.

3. Teamwork ability skills, team management and fundraising skills

- PhD researchers are to manage organized student groups and conduct mentorship of student groups thus strengthening their teamwork abilities and team management;
- University offers seminars and round tables over different mechanisms of grants proposal including successful grant projects, different ways and types of and searching and applying to grants.

4. Teaching, supervision and/or mentorship skills

- PhD program equips researchers with teaching and other practical competences like mentorship through mandatory courses which are to be lectured by researchers.

5. Individual autonomy, initiative, entrepreneurship skills

6. Ethical behavior, good scientific practice, sustainability, accountability, professional behavior

As a result of having the knowledge of relevant direction of science and necessary know-how of the research topic, relevant, competent and qualified researchers will be prepared. Scientists must be able to conduct independent, responsible research using critical analysis and judgment, evaluation and synthesis of new and complex ideas. They also need to have the ability to communicate both with their peers in a teamwork, with the larger scholarly community and with the general society. The researchers should have the capacity to do analysis, surveys, fact finding, and evaluation and be capable of clear communication and have presentation skills.

Competitiveness in the labor market

- Research field should be promoted to have trilaterally beneficial conditions including university, researcher and labor market.
- Thus the partnership between academia and industry should be consistent with general academic principles.
- According to the Bologna Process and the Salzburg Principle N1 the PhD programs are to be based on the **original research** making the third cycle of higher education unique with the aim of having contribution into the science, technology, education, art and culture. This leads to having a knowledge based society as the future labor market is dependent upon PhD students and their supervisors.

Definition of Framework and Infrastructure

PhD education should be in process within a framework, which ensures transparent and smooth admission procedures, competent supervision and qualified assessment. While establishing PhD programs the universities should take into account the fact that a large number of PhD graduates develop their career not only within their institutions, but also in **non-academic positions**; so the programs must ensure giving the PhD graduates other necessary skills to fit with. The individual strategic plans have to describe in detail how the points listed below to ensure an optimal framework and infrastructure for the PhD students are to be implemented.

- The University shall employ the PhD candidates as PhD students and give the students the opportunity to successfully complete the PhD program within **reasonable timeframe** (3-4 years on average for full time students);
- The University should support the student providing access to relevant necessary literature and databases so that the student has appropriate research tools;
- Higher education institutions should ensure structuring doctoral education meaning to create a **supportive environment** for individual development and not to produce uniformity or predictability. Under this we should figure out wide range of cultural and scientific opportunities, transparent admission procedures, high quality of supervision;
- The research environment can be measured by using local and international publication records, level of external funding, number of qualified researchers, department, university, etc. The research environment strength should be assessed through comparison with other universities;
- Along with the research environment transparency and competitiveness are another guarantee for the University to have smooth admission policy and criteria;

- The admission process is of key importance aimed at qualified PhD education. It is necessary that written admission rules are publicly available on the University website. According to the General Provisions of the Rules of Procedure on Scientific Degree Award in the Republic of Armenia admission prerequisites besides the academic subjects are the knowledge of the foreign language (which language: Russian or English or both?; is this the same for all disciplines, there may be different market needs for humanities and natural sciences for instance) and IT skills and the students must pass relevant examinations from the mentioned subjects. The rules of procedures of conducting examination and testing is developed and approved by the RA Ministry of Education and Science;
- The University should support PhD students' participation in scientific-educational programs;
- Long-term participation in exchange and mobility programs should be encouraged and allowed in the University. Brain circulation should be encouraged aimed at sharing best international practice;
- The university needs to implement appropriate measures for equal opportunity. PhD students should be supported independently of their religion, age and gender. Measures to specifically support female scientists need to be taken care of.

Criteria and Evaluation of PhD Program

The individual strategic plans should comment on the points listed below and explain in detail how the criteria for internal and external evaluation are defined according to the general guidelines and how the evaluations are implemented. Evaluations should be science-based, mandatory and executed under transparent criteria (“benchmarks”, which need to be defined by the Universities and which should be in line with the overall institutional strategies).

1. Criteria for Prerequisites of the Program:

- Expectation from the teachers and agents;
- Capacity of recruiting talented external students.

2. Criteria for Successful Implementation

- Dropout rate;
- Quantity and quality of the output of the students: internationally competitive results (e.g. publication in journals listed in Scopus/Web of Science);
- Development and “growth” of the students (see e.g. “Research Skill Development Framework”);
- Monitoring the quality of the education by external evaluation of the teachers.

The comprehensive evaluation of the PhD program involves first of all achievements of researchers obtained during the study period, and as a result the PhD researchers are equipped with the following:

- knowledge of the field of study (examinations, attestations);
- master the scientific research methods of their specialization (participation in seminars and discussions);
- articles in peer reviewed journals;
- relevant input with their research in the given field of science (articles);
- can clearly communicate with international scientific community (collaborations, new professional contacts, co-authorships);
- self-thinking skills (attestation and defense);
- ability to transfer their knowledge and skills (successful mentorship, management of student groups);
- active participation in competitions.

3. Criteria after the program

- External and internal evaluation considering the number of thesis and the number of teachers involved and the overall resources available;
- Minimum number of theses and/or publications in the program should be defined;
- External and internal evaluation of the qualification and satisfaction of PhD students.

Further procedure:

Defining the disciplines, which are going to set-up the pilot PhD programs and are finalizing the detailed strategic plan as the basis for that.

A group of experts needs to be listed, and one mainly responsible person per PhD program needs to be named.

European partners will help to set up and evaluate the strategic plans by study visits. The assignment between Armenian HEIs and European partners is set in the original application but may be changed in according to expertise of the coordinators involved.