



ASIIN Accreditation Report

Bachelor's and Master's Degree Programme
Mining

Provided by
Karaganda State Technical University

Version: 17 July 2014

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A About the Accreditation Process

| Title of the degree Programme | Labels applied for ¹ | Previous accreditation | Involved Technical Committees (TC) ² |
|--|---------------------------------|------------------------|---|
| Ba Mining | ASIIN | none | TC 03 |
| Ma Mining | ASIIN | none | TC 03 |
| <p>Date of the contract: 05.11.2012</p> <p>Submission of the final version of the self-assessment report: 02.05.2014</p> <p>Date of the onsite visit: 30./31.01.2014</p> <p>at: Karaganda</p> | | | |
| <p>Peer panel:</p> <p>Prof. Dr. Rafiq Azzam, Rheinisch-Westfälische Technische Hochschule Aachen;</p> <p>Susanne Gardberg, Dr. Heckemanns & Partner GmbH;</p> <p>Alina Kim, student of the East Kazakhstan State Technical University;</p> <p>Prof. Dr. Frank Obermeier, Technische Universität Bergakademie Freiberg</p> | | | |
| <p>Representative of the ASIIN headquarter: Dr. Georg Ebertshäuser</p> | | | |
| <p>Responsible decision-making committee: Akkreditierungskommission für Studiengänge</p> | | | |
| <p>Criteria used:</p> <p>European Standards and Guidelines as of 10.05.2005</p> <p>ASIIN General Criteria, as of 28.06.2012</p> | | | |

¹ ASIIN Seal for degree programmes

² TC: Technical Committee for the following subject areas: TC 01 – Mechanical Engineering/Process Engineering; TC 02 – Electrical Engineering/Information Technology); TC 03 – Civil Engineering, Surveying and Architecture; TC 04 – Informatics/Computer Science); TC 05 – Physical Technologies, Materials and Processes); TC 06 – Industrial Engineering; TC 07 – Business Informatics/Information Systems; TC 08 – Agronomy, Nutritional Sciences and Landscape Architecture; TC 09 – Chemistry; TC 10 – Life Sciences; TC 11 – Geosciences; TC 12 – Mathematics; TC 13 – Physics.

Subject-Specific Criteria of Technical Committee 03 – Civil Engineering, Surveying and Architecture as of 28.09.2012

In order to facilitate the legibility of this document, only masculine noun forms will be used hereinafter. Any gender-specific terms used in this document apply to both women and men.

B Characteristics of the Degree Programmes

| a) Name & Final Degree | b) Areas of Specialization | c) Mode of Study | d) Duration & Credit Points | e) First time of offer & Intake rhythm | f) Number of students per intake | g) Fees |
|------------------------|---|-------------------------------|---|--|----------------------------------|-----------------------------------|
| Mining B. Eng. | Underground mining; Open pit mining of minerals; Mining and Underground Construction; Surveying | Fulltime, Distance, Part time | 8 Semester 273 CP | WS 2012 WS | 75-100 per Semester | 370000 Tenge for the full program |
| Mining M. Eng. | Underground mining; Open pit mining of minerals; Mining and Underground Construction | Fulltime, Distance, Part time | 4 Semester 161 CP (scientific) 3 Semester 100 CP (pedagogical) | WS 2012 WS | 10-20 per Semester | 420000 Tenge for the full program |

For the degree programme BA Mining, the self-assessment report states the following **intended learning outcomes**:

As a result of training at an educational program Bachelor of Mining should have:

- “the ability to apply natural science, math and engineering knowledge;
- The ability to plan and conduct an experiment to capture and interpret data;
- the ability to design processes or systems in accordance with the tasks;
- the ability to work in teams on interdisciplinary topics;
- ability to formulate and solve engineering problems;
- be aware of the professional and ethical responsibilities;
- Ability to communicate effectively in a team;
- erudition, for understanding global and social impact of engineering solutions;
- awareness of the need and ability to learn constantly;
- knowledge and understanding of contemporary social, political, scientific and technical problems;
- Ability to apply the skills and techniques learned in engineering practice.”

The following **curriculum** is presented:

B Characteristics of the Degree Programmes

| № п/п | semester | Module code | module | OOD | BD | PD |
|--|-----------------|--------------------|--|------------|-----------|-----------|
| The specialty 5B070700 "Mining" the Educational program "Underground mining of mineral deposits" - 208 (5805) | | | | | | |
| OOD – The block of general education disciplines – 51 (1485) | | | | | | |
| 1 | 1 | IK 01 | Module History of Kazakhstan | 5 | | |
| 2 | 1 | Inf 02 | Module of the Information scientist | 5 | | |
| 3 | 1 | OBJ 03 | Module of the Basis of health and safety | 3 | | |
| 4 | 3 | Soc 04 | Module Sociology | 3 | | |
| 5 | 2 | EUR 05 | Module Ecology and sustainable development | 3 | | |
| 6 | 2 | K(R)Ya 06 | Module Kazakh (Russian) language | 9 | | |
| 7 | 3 | OET 07 | Module of the Basis of the economic theory | 3 | | |
| 8 | 1,2 | IYa 08 | Module Foreign language | 9 | | |
| 9 | 3 | OP 09 | Module of the Basis of the right | 3 | | |
| 10 | 2 | Pol 10 | Module Political science | 3 | | |
| 11 | 3 | Fil 11 | Module Philosophy | 5 | | |
| Total on OOD: 51 credits of ECTS | | | | | | |
| DB – The block of basic disciplines – 102 (2880) | | | | | | |
| 12 | 1 | IG | Module Engineering graphics | | 3 | |
| 13 | 2 | Him 12 | Module Chemistry | | 3 | |
| 14 | 1,2 | Mat 13 | Module of the Mathematician | | 10 | |
| 15 | 2,3 | Fiz 14 | Module of the Physicist | | 10 | |
| 16 | 5 | PK(R)Ya 15 | Module Professional Kazakh | | 3 | |

B Characteristics of the Degree Programmes

| | | | | | | |
|---|------|-----------|--|--|----|----|
| | | | (Russian) language | | | |
| 17 | 5 | P-olYa 16 | The module the Professional focused foreign language | | 3 | |
| 18 | 2 | Geo 20 | Module Geodesy | | 5 | |
| 19 | 3 | GD 21 | Module Geological disciplines | | 5 | |
| 20 | 4 | FRGPV 22 | Module of the Physicist and destruction of rocks by explosion | | 13 | |
| 21 | 3 | TPM 23 | Module Theoretical and applied mechanics | | 5 | |
| 22 | 4 | MD 24 | Module Surveying business | | 5 | |
| 23 | 4 | TPGR 25 | Module Technology of underground mining operations | | 5 | |
| 24 | 5,6 | GMO 26 | Module Mountain cars and equipment | | 10 | |
| 25 | 5,6 | SGPB 27 | Module Construction of the mountain enterprises and safety | | 10 | |
| 26 | 7 | UGPBGR | The module Management of geomechanical processes when conducting mining operations | | 5 | |
| 27 | 5, 6 | SRMPI | Module Ways of development of mineral deposits | | 10 | |
| Total on a DB: 105 credits of ECTS | | | | | | |
| PD – the block of the main subjects – 52 (1440) | | | | | | |
| 28 | 2 | OGP 30 | Module of the Basis of mining | | | 5 |
| 29 | 5 | EGP 31 | Module mining Ecology | | | 3 |
| 29 | 5, 6 | PPGR 32 | Module Processes of underground mining operations | | | 10 |
| 30 | 6, 6 | TPRMPI 33 | Module Technology of underground mining of MPI | | | 10 |

B Characteristics of the Degree Programmes

| | | | | | | |
|--|------|-----------|---|---|--|---|
| 31 | 8, 8 | PRUSh 34 | Module Design of ore and coal mines | | | 8 |
| 32 | 7, 7 | NSDPPI 35 | Module Nonconventional ways of production and PI processing | | | 8 |
| 33 | 7 | ESD 36 | Module Economical and social disciplines | | | 8 |
| Total on PD: 52nd credit of ECTS | | | | | | |
| The specialty 5B070700 "Mining" the Educational program "Open-cast mining of mineral deposits" - 208 (5805) | | | | | | |
| OOD – The block of general education disciplines – 51 (1485) | | | | | | |
| 1 | 1 | IK 01 | Module History of Kazakhstan | 5 | | |
| 2 | 1 | Inf 02 | Module of the Information scientist | 5 | | |
| 3 | 1 | OBJ 03 | Module of the Basis of health and safety | 3 | | |
| 4 | 3 | Soc 04 | Module Sociology | 3 | | |
| 5 | 2 | EUR 05 | Module Ecology and sustainable development | 3 | | |
| 6 | 1,2 | K(R)Ya 06 | Module Kazakh (Russian) language | 9 | | |
| 7 | 3 | OET 07 | Module of the Basis of the economic theory | 3 | | |
| 8 | 1,2 | IYa 08 | Module Foreign language | 9 | | |
| 9 | 3 | OP 09 | Module of the Basis of the right | 3 | | |
| 10 | 2 | Pol 10 | Module Political science | 3 | | |
| 11 | 3 | Fil 11 | Module Philosophy | 5 | | |
| Total on OOD: 51 credits of ECTS | | | | | | |
| DB – The block of basic disciplines – 105 (2880) | | | | | | |

B Characteristics of the Degree Programmes

| | | | | | | |
|---|------|------------|---|--|----|---|
| 12 | 1 | IG | Module Engineering graphics | | 3 | |
| 13 | 2 | Him 12 | Module Chemistry | | 3 | |
| 14 | 1,2 | Mat 13 | Module of the Mathematician | | 10 | |
| 15 | 2,3 | Fiz 14 | Module of the Physicist | | 10 | |
| 16 | 5 | PK(R)Ya 15 | Module Professional Kazakh (Russian) language | | 3 | |
| 17 | 5 | P-oIYa 16 | The module the Professional focused foreign language | | 3 | |
| 18 | 2 | Geo 20 | Module Geodesy | | 5 | |
| 19 | 3 | GD 21 | Module Geological disciplines | | 5 | |
| 20 | 4 | FRGPV 22 | Module of the Physicist and destruction of rocks by explosion | | 13 | |
| 21 | 3 | TPM 23 | Module Theoretical and applied mechanics | | 5 | |
| 22 | 4 | MD 24 | Module Surveying business | | 5 | |
| 23 | 4 | TPGR 25 | Module Technology of underground mining operations | | 5 | |
| 24 | 5,6 | GMO 26 | Module Mountain cars and equipment | | 10 | |
| 25 | 5,6 | SKB 27 | Module Construction of a pit and safety | | 10 | |
| 26 | 7 | USM 28 | Module Management of a condition of the massif | | 5 | |
| 27 | 5, 6 | Get | Module Geotechnology | | 10 | |
| Total on a DB: 105 credits of ECTS | | | | | | |
| PD – the block of the main subjects – 52 (1440) | | | | | | |
| 28 | 2 | OGP 30 | Module of the Basis of mining | | | 5 |
| 29 | 5 | EGP 31 | Module mining Ecology | | | 3 |

B Characteristics of the Degree Programmes

| | | | | | | |
|--|------|-----------|--|---|--|----|
| 30 | 5, 6 | POGR 32 | Module Processes of open mining operations | | | 10 |
| 31 | 6, 6 | TOGR 33 | Module OGR Technology | | | 10 |
| 32 | 8, 8 | PK 34 | Module Design of pits | | | 8 |
| 33 | 7, 7 | POPIK 35 | Module Processing and mineral processing and quality | | | 8 |
| 34 | 7 | ESD 36 | Module Economical and social disciplines | | | 8 |
| Total on PD: 52 credits of ECTS | | | | | | |
| The specialty 5B070700 "Mining" the Educational program "Mine and underground construction" - 208 (5805) | | | | | | |
| OOD – The block of general education disciplines – 51 (1485) | | | | | | |
| 1 | 1 | IK 01 | Module History of Kazakhstan | 5 | | |
| 2 | 1 | Inf 02 | Module of the Information scientist | 5 | | |
| 3 | 1 | OBJ 03 | Module of the Basis of health and safety | 3 | | |
| 4 | 3 | Soc 04 | Module Sociology | 3 | | |
| 5 | 2 | EUR 05 | Module Ecology and sustainable development | 3 | | |
| 6 | 2 | K(R)Ya 06 | Module Kazakh (Russian) language | 9 | | |
| 7 | 3 | OET 07 | Module of the Basis of the economic theory | 3 | | |
| 8 | 1,2 | IYa 08 | Module Foreign language | 9 | | |
| 9 | 3 | OP 09 | Module of the Basis of the right | 3 | | |
| 10 | 2 | Pol 10 | Module Political science | 3 | | |
| 11 | 3 | Fil 11 | Module Philosophy | 5 | | |

B Characteristics of the Degree Programmes

| | | | | | | |
|--|------|------------|---|--|----|--|
| Total on OOD: 51кредит ECTS | | | | | | |
| DB – The block of basic disciplines – 105 (2880) | | | | | | |
| 12 | 1 | IG | Module Engineering graphics | | 3 | |
| 13 | 2 | Him 12 | Module Chemistry | | 3 | |
| 14 | 1,2 | Mat 13 | Module of the Mathematician | | 10 | |
| 15 | 2,3 | Fiz 14 | Module of the Physicist | | 10 | |
| 16 | 5 | PK(R)Ya 15 | Module Professional Kazakh (Russian) language | | 3 | |
| 17 | 5 | P-olYa 16 | The module the Professional focused foreign language | | 3 | |
| 18 | 2 | Geo 20 | Module Geodesy | | 5 | |
| 19 | 3 | GD 21 | Module Geological disciplines | | 5 | |
| 20 | 4 | FRGPV 22 | Module of the Physicist and destruction of rocks by explosion | | 13 | |
| 21 | 3 | TPM 23 | Module Theoretical and applied mechanics | | 5 | |
| 22 | 4 | MD 24 | Module Surveying business | | 5 | |
| 23 | 4 | TPGR 25 | Module Technology of underground mining operations | | 5 | |
| 24 | 5,6 | GMO 26 | Module Mountain cars and equipment | | 10 | |
| 25 | 5,6 | SGPB 27 | Module Construction of the mountain enterprises and safety | | 10 | |
| 26 | 7 | TSGVKP 28 | The module Technology of a construction of excavations in strong breeds | | 5 | |
| 27 | 5, 6 | SMTSVS 29 | Module Construction mechanics and technology of construction of vertical trunks | | 10 | |

B Characteristics of the Degree Programmes

| | | | | | | |
|--|---|-----------|---|---|--|----|
| Total on a DB: 105th credit of ECTS | | | | | | |
| PD – the block of the main subjects – 52 (1440) | | | | | | |
| 28 | 2 | OGP 30 | Module of the Basis of mining | | | 5 |
| 29 | 5 | EGP 31 | Module mining Ecology | | | 3 |
| 30 | 6 | Mex 32 | Module of the Mechanic | | | 10 |
| 31 | 6 | PK 33 | Module Underground complexes | | | 10 |
| 32 | 8 | TSSP 34 | Module Technology of construction of constructions of a surface | | | 8 |
| 33 | 7 | SSSGV 35 | Module Special ways of a construction of excavations | | | 8 |
| 34 | 7 | ESD 36 | Module Economical and social disciplines | | | 8 |
| Total on PD: 52 credits of ECTS | | | | | | |
| The specialty 5B070700 "Mining" the Educational program "Surveying business" - 208 (5805) | | | | | | |
| OOD – The block of general education disciplines – 51 (1485) | | | | | | |
| 1 | 1 | IK 01 | Module History of Kazakhstan | 5 | | |
| 2 | 1 | Inf 02 | Module of the Information scientist | 5 | | |
| 3 | 1 | OBJ 03 | Module of the Basis of health and safety | 3 | | |
| 4 | 3 | Soc 04 | Module Sociology | 3 | | |
| 5 | 2 | EUR 05 | Module Ecology and sustainable development | 3 | | |
| 6 | 2 | K(R)Ya 06 | Module Kazakh (Russian) language | 9 | | |
| 7 | 3 | OET 07 | Module of the Basis of the economic theory | 3 | | |

B Characteristics of the Degree Programmes

| | | | | | | |
|--|-----|------------|---|---|----|--|
| 8 | 1,2 | IYa 08 | Module Foreign language | 9 | | |
| 9 | 3 | OP 09 | Module of the Basis of the right | 3 | | |
| 10 | 2 | Pol 10 | Module Political science | 3 | | |
| 11 | 3 | Fil 11 | Module Philosophy | 5 | | |
| Total on OOD: 51 credits ECTS | | | | | | |
| DB – The block of basic disciplines – 105 (2880) | | | | | | |
| 12 | 1 | IG | Module Engineering graphics | | 3 | |
| 13 | 2 | Him 12 | Module Chemistry | | 3 | |
| 14 | 1,2 | Mat 13 | Module of the Mathematician | | 10 | |
| 15 | 2,3 | Fiz 14 | Module of the Physicist | | 10 | |
| 16 | 5 | PK(R)Ya 15 | Module Professional Kazakh (Russian) language | | 3 | |
| 17 | 5 | P-oIYa 16 | The module the Professional focused foreign language | | 3 | |
| 18 | 2 | Geo 20 | Module Geodesy | | 5 | |
| 19 | 3 | GD 21 | Module Geological disciplines | | 5 | |
| 20 | 4 | FRGPV 22 | Module of the Physicist and destruction of rocks by explosion | | 13 | |
| 21 | 3 | TPM 23 | Module Theoretical and applied mechanics | | 5 | |
| 22 | 4 | MD 24 | Module Surveying business | | 5 | |
| 23 | 4 | TPGR 25 | Module Technology of underground mining operations | | 5 | |
| 24 | 5,6 | GN 26 | Module Geometry of a subsoil | | 10 | |
| 25 | 5,6 | VGF 27 | Module the Highest geodesy and fotogrammetriya | | 10 | |
| 26 | 7 | SGP 28 | Module Displacement of rocks | | 5 | |

B Characteristics of the Degree Programmes

| | | | | | | |
|---|------|------------|---|--|----|----|
| 27 | 5, 6 | MDTOGR 29 | The module Surveying business and technology on OGR | | 10 | |
| Total on a DB: 105th credit of ECTS | | | | | | |
| PD – the block of the main subjects – 52 (1440) | | | | | | |
| 28 | 2 | OGP 30 | Module of the Basis of mining | | | 5 |
| 29 | 5 | EGP 31 | Module mining Ecology | | | 3 |
| 30 | 5,6 | MGIA 32 | Module Surveying and geodetic tools and automation | | | 10 |
| 31 | 6,6 | KMR 33 | Module Capital surveying works | | | 10 |
| 32 | 8 | MPROPGR 34 | Marksheydery's module during the planning and development of open and underground mining operations | | | 8 |
| 33 | 7 | GS 35 | Module Geoinformation systems | | | 8 |
| 34 | 7 | ESD 36 | Module Economical and social disciplines | | | 8 |
| Total on PD: 52 credits of ECTS | | | | | | |

For the degree programme Ma Mining, the self-assessment report states the following **intended learning outcomes**:

“Knowledge:

- international and domestic standards, regulations, orders, and other orders of the higher domestic organizations, methodological, regulatory and guidance relating to the work performed;
- the prospects of technical development and characteristics of institutions, organizations, mining companies;
- basic provisions and regulatory requirements of the Constitution of the Republic of Kazakhstan and legislation related to mining;
- methods for peer review in the field of mining;
- standards for quality management of ISO - 9000, 14000, etc.;

B Characteristics of the Degree Programmes

- the basic requirements for technical documentation, materials, products;
- methods of research and calculations, determine the technical and economic performance of the research and development;
- advances in science and technology, the advanced domestic and foreign experience in the field of mining;

Skills:

- formulate and solve problems arising in the course of professional, research and teaching activities, and requiring in-depth professional knowledge;
- choose appropriate research methods, modify existing, and develop new methods, based on the specific purpose of research;
- process the results, analyze, and interpret them in the light of available data in the literature;
- keep the bibliographic work using modern information technologies;
- to represent the results of the work done in the form of reports, essays, articles, designed in accordance with your requirements, with the assistance of advanced editing tools in the press;

Have skills:

- use scientific methodology, logic and technology of scientific research, design skills of its results in various forms of scientific production;
- educational activities;
- use of foreign languages to the extent necessary for the exercise of professional, scientific, research, educational activities;

Competencies:

- in organizing, planning and carrying out all kinds of professional activities;
- in all aspects of professional activities related to mining.”

The following **curriculum** is presented:

| No | Semester | Module code | Module | | BD | PD |
|--|----------|-------------|--------|--|----|----|
| Specialty 6M070700 "Mining" educational program "Mining and Underground Construction" - 56 (1400) | | | | | | |
| BD – block basic disciplines – 20 (500) | | | | | | |

B Characteristics of the Degree Programmes

| | | | | | | |
|--|---|-----------------|--|--|---|---|
| 1 | 1 | IYa 1 | Foreign language module (professional) | | 4 | |
| 2 | 1 | Psi 2 | Psychology module | | 4 | |
| 3 | 1 | Men 3 | Management module | | 2 | |
| 4 | 2 | DKYa 4 | Module Business Kazakh language | | 4 | |
| 5 | 1 | PORE 5 | Module Theory of the creation of inventions | | 6 | |
| Total BD: 20 ECTS credits | | | | | | |
| PD – block profiles disciplines – 36 (900) | | | | | | |
| 8 | 2 | SUM 6 | Module Automated GIS in Mining | | | 4 |
| 9 | 2 | RTRMPI 7 | Module saving technologies in the development of mineral deposits | | | 4 |
| 10 | 1 | SPGD 8 | Module Contemporary Issues in mining | | | 4 |
| 11 | 2 | P 9 | module Patenting | | | 4 |
| 12 | 3 | PG 10 | Applied Geomechanics Module | | | 4 |
| 13 | 3 | KPGVS GGU 11 | The module mounting and maintenance of mining in complex geological conditions | | | 4 |
| 14 | 3 | PPPOU GV 12 | Module software package to determine the stability of mine production | | | 4 |
| 15 | 3 | SBVRPV 13 | Improved module blasting when driving workings | | | 4 |
| 16 | 1 | ONIID 14 | Module Organization of research and innovation | | | 4 |
| Total PD: 36 ECTS credits | | | | | | |
| Specialty 6M070700 "Mining" educational program "Open pit mining of minerals" - 56 (1400) | | | | | | |
| BD – block basic disciplines – 20 (500) | | | | | | |
| 1 | 1 | IYa 1 | Foreign language module (professional) | | 4 | |
| 2 | 1 | Psi 2 | Psychology module | | 4 | |
| 3 | 1 | Men 3 | Management module | | 2 | |

B Characteristics of the Degree Programmes

| | | | | | | |
|---|---|--------------|---|--|---|---|
| 4 | 2 | DKYa 4 | Module Business Kazakh language | | 4 | |
| 5 | 1 | PORE 5 | Module Theory of the creation of inventions | | 6 | |
| Total BD: 20 ECTS credits | | | | | | |
| PD – block profiles disciplines – 36 (1350) | | | | | | |
| 6 | 2 | SUM 6 | Module Automated GIS in Mining | | | 4 |
| 7 | 2 | RTRMPI 7 | Module saving technologies in the development of mineral deposits | | | 4 |
| 8 | 1 | SPGD 8 | Module Contemporary Issues in mining | | | 4 |
| 9 | 2 | P 9 | module Patenting | | | 4 |
| 10 | 2 | FRTM 10 | Module Creation and development of man-made deposits | | | 4 |
| 11 | 2 | GPAN 11 | Mining right module and audit subsoil | | | 4 |
| 12 | 2 | TOMM PI12 | The module theoretical modeling framework of mineral deposits | | | 4 |
| 13 | 2 | OETPPK 13 | Module Evaluation process efficiency when designing pits | | | 4 |
| 14 | 1 | ONIID 14 | Module Organization of research and innovation | | | 4 |
| Total PD: 36 ECTS credits | | | | | | |
| Specialty 6M070700 "Mining" educational program "Underground mining" - 56 (1400) | | | | | | |
| BD – block basic disciplines – 20 (500) | | | | | | |
| 1 | 1 | IYa 1 | Foreign language module (professional) | | 4 | |
| 2 | 1 | Psi 2 | Psychology module | | 4 | |
| 3 | 1 | Men 3 | Management module | | 2 | |
| 4 | 2 | DKYa 4 | Module Business Kazakh language | | 4 | |
| 5 | 1 | PORE 5 | Module Theory of the creation of inventions | | 6 | |

B Characteristics of the Degree Programmes

| | | | | | | |
|---|---|---------------|---|--|--|---|
| Total BD: 20 ECTS credits | | | | | | |
| PD – block profiles disciplines – 36 (1350) | | | | | | |
| 6 | 2 | SUM 6 | Module Automated GIS in Mining | | | 4 |
| 7 | 2 | RTRMPI 7 | Module saving technologies in the development of mineral deposits | | | 4 |
| 8 | 1 | SPGD 8 | Module Contemporary Issues in mining | | | 4 |
| 9 | 2 | P 9 | module Patenting | | | 4 |
| 10 | 2 | TPSSM P 10 | Module Technology of structural complexity and low-power recovery | | | 4 |
| 11 | 2 | GUPGP V 11 | Module Geomechanical conditions and parameters to maintain mining | | | 4 |
| 12 | 2 | MOTU GP12 | Module-level technical assessment methods of mining companies | | | 4 |
| 13 | 2 | ORPGG 13 | Module Features reservoir development in the deep horizons | | | 4 |
| 14 | 1 | ONIID 14 | Module Organization of research and innovation | | | 4 |
| Total PD: 36 ECTS credits | | | | | | |

C Peer Report for the ASIIN Seal

1. Formal Specifications

| |
|--|
| Criterion 1 Formal Specifications |
|--|

Evidence:

- Self Assessment Report

Preliminary assessment and analysis of the peers:

The peers approvingly noticed the great variety and scope of the degree programmes. They inquired about the structure and organization of the different specialties in each programme. The representatives of the HEI declared that the specialties have a common basis in the first and second year of studies. Only after completion of this common basis the students can choose their specialty for further studies. The specialty in a degree programme is therefore not bindingly fixed from the outset of studies but only decided upon after the students have completed the common first two years of studies.

Regarding the declaration of full-time and part-studies the peers asked the differences between the different modes of studies. They were told that the module structure of full-time and part-time studies is identical. The denominations of the tables in the self study report are all full-time studies. In the part-time mode the students undergo their studies with a reduced number of credits per year.

The peers noticed the studies fees for the degree programmes. They asked the HEI representatives about the possibilities for grants for students. The peers learned that the Kazakh government provides 11500 grants for students of technical studies per year to foster interest in technical subjects. Last year the HEI obtained 1027 grants which amounts to 47% of students studying on a grant, the remaining pay for themselves. The award of grants is based on a nationwide examination. Students from poor or rural families enjoy a bonus in competing for the grants. Because of the importance of the degree programmes in mining at the HEI, 73% of the enrolled students study on a grant. Master degree students all have a grant, PhD students also.

The peers perceived that there are two different varieties of the Master's degree programme, one with two years of length, one with 1.5 years of length. The peers asked for information about the differences between the two varieties and if it were possible for students in the shorter Master's degree programme to proceed with a PhD programme.

The HEI representatives explained that the 2 years Master educates scientific personnel, whereas the 1.5 year Master is for the education of professional staff for the industry. If a student in the 1.5 year long Master's degree programme wishes to proceed to the PhD level, he can do so after passing an additional examination. The peers deemed the criteria regarding the formal specifications to be fulfilled.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:

The peers confirmed their former judgment regarding the criterion.

2. Degree programme: Concept & Implementation

Criterion 2.1 Objectives of the degree programme

Evidence:

- Self Assessment Report
- Objectives Matrices
- Diploma Supplement

Preliminary assessment and analysis of the peers:

The peers got a positive impression of the degree programmes' objectives. The peers felt that that HEI has duly classified the final degrees of the Bachelor's and Master's degree programmes in academic and professional terms.

Criterion 2.2 Learning Outcomes of the Programme

Evidence:

- Self Assessment Report
- Objectives Matrices
- Diploma Supplement
- Discussions with representatives and students of the university

Preliminary assessment and analysis of the peers:

The peers found the learning outcomes of both degree programmes reflecting the level of qualification sought. They were comparable to the exemplary learning outcomes set out in the appropriate ASIIN Subject-specific Criteria. The peers judged the learning out-

comes to be achievable and valid. The students confirmed that the learning outcomes were known to them and easily accessible on the internet and in the library. The students expressed also their strong commitment to the HEI and the degree programmes. They told the peers that most of them choose the degree programmes because of a recommendation of alumni and the high reputation of the HEI regarding the mining programmes.

| |
|---|
| Criterion 2.3 Learning outcomes of the modules/module objectives |
|---|

Evidence:

- module descriptions/module handbook
- Self Assessment Report

Preliminary assessment and analysis of the peers:

The peers deemed the Bachelor's and Master's degree programmes generally of a very high quality which is also expressed in the module descriptions. The modules descriptions are available on the internet and in the library of the HEI. They are in the view of the peers completely able to make it clear what knowledge, abilities, and competences students are expected to acquire in the individual modules.

However, the peers found some deficiencies in the module handbook which they asked the HEI to correct. The peers pointed out that the modules Fiz II, Mat II, and GD 21 were missing in the modules descriptions and have to be added. Modules of practical learning and field training were missing in the modules handbook, too, and need to be added by the HEI. The peers felt it necessary to revise and update the bibliographical information in the module descriptions; moreover the whole module handbook has to be checked for errors and inconsistencies, which still can be found throughout the modules descriptions. Some modules in the Master's degree programme are indicated as Bachelor's degree level. These obvious errors have to be revised by the HEI. The peers felt it also necessary to clarify the information given in the modules descriptions regarding the military training modules in order to prevent misunderstandings among students about this matter (for a detailed discussion, see 2.6).

The representatives of the HEI acknowledged the shortcomings of the current status of the modules descriptions and promised to revise the module handbook according to the peers' requirements.

Criterion 2.4 Job market perspectives and practical relevance

Evidence:

- Self Assessment Report
- Overview of companies for practical training
- Description of expected learning outcomes
- Discussions with students and teaching staff

Preliminary assessment and analysis of the peers:

The peers gained the impression that job market perspectives for graduates who acquired the intended learning outcomes are good. The competences as presented allow graduates to work in a field appropriate to the qualification. The students confirmed towards the peers that they all expect to find an employment after graduation. Many of them have already got job offers from companies where they have conducted their practical work. Offers for research projects in the industry after the completion of the practical modules are common, too. The peers took this as a strong indicator for the good link between educational training and professional practice in the degree programmes.

Criterion 2.5 Admissions and entry requirements

Evidence:

- Quality Management System, Standard of Organization (QMS SO 4.4.01 – 2012)
- Self Assessment report
- Discussion with programmes' representatives

Preliminary assessment and analysis of the peers:

The peers judged the admission and entry requirements complying with the ASIIN general Criteria. They are governed by strictly applied and transparent procedures and criteria; they facilitate the achievement of the learning outcomes; they ensure that all applicants are treated equally; they contain regulations covering the recognition of activities completed externally, and they enable flexibility to some extent in the admission of those who fall short of some admission or entry requirements.

The peers asked the HEI representatives to explain the admission process for the Bachelor's degree programme. They were informed that admission is based on a nation-wide entry examination. The examination contents follow the subject that the applicant has

chosen, e.g. a focus on technical subjects in the examination for applicants of technical degree programmes. The HEI grants admissions according to the examination results of the applicants. Usually the admission is linked to a government grant. But 15% of the students are enrolled on a commercial basis, provided their examination achieves a positive result.

The peers were informed by the HEI representatives that admission for the Master's degree programme is based on a Master's entrance examination, which contains a subject-specific part and an English language part. The applicants achieving the best examination results get the government grants, others who still have passed the examination can gain admission (funded e.g. by companies).

Criterion 2.6 Curriculum/Content

Evidence:

- Curriculum / content overview
- Discussion with the HEI representatives

Preliminary assessment and analysis of the peers:

The peers wondered about the role of the military training in the degree programmes curricula. The HEI representatives explained that the military training modules are solely for military personnel enrolled in the degree programmes. Ordinary students do not need to undertake the military training modules, these are not needed to successfully complete the degree programmes. Only students who are simultaneously enrolled as officer cadets need to take part in these modules. The peers deemed this explanation sufficient, but expressed their opinion that the HEI has to clarify these circumstances in the modules descriptions.

Furthermore the peers inquired about practical work in the sense of field work in the course of the curricula. The HEI representatives declared that the module "Practice before Thesis" covers practical work as well as field work. Students may choose partner companies and mines to conduct field work for practice. The peers learned that practical studies take an important part in the curriculum. The first practical work of three weeks at the beginning of the studies gets the students acquainted with practical work in the degree programme. After completion of the second year a longer practical module of eight weeks introduces the students to practical work in detail in their chosen specialty within the degree programme. A third practical module focuses on the preparation of the final thesis.

The peers came to the conclusion that the curriculum in place makes it possible to achieve the intended learning outcomes and that objectives and contents of the individual modules are coordinated in order to avoid overlaps.

The peers found the curricula of the Bachelor's and Master's degree programme very ambitious. They noted with satisfaction that the HEI is obviously able to maintain a high level of theoretical and practical training and to achieve overall good results with regard to students qualifications and perspectives.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

The peers noted approvingly that the HEI has already started to implement most of the desired changes and improvement of the modules description.

As stated in the comments on the accreditation report the HEI has already addressed all of the deficiencies described in the report by the peers. Missing modules have been added, the field training modules have been included and further improvements have been made. The HEI has shown that the military training levels are only accessible for military personnel (officer cadets) and are not part of the regular curriculum. The military training modules have been excluded from the modules description now. The peers approvingly recognized the efforts of the HEI, but still saw the need for further improvements of the modules description, e.g. false denominations of Master modules as Bachelor level still exist. Therefore, they upheld their former judgment regarding the criterion 2.

3. Degree Programme: Structures, Methods & Implementation

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| Criterion 3.1 Structure and modularity |
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Evidence:

- Self Assessment report
- Curricular overviews
- Quality Management System, Educational and organizational process management (QMS SO 4.5.03 – 2012)

Preliminary assessment and analysis of the peers:

The peers found that the programmes are modular, and that each module is a coherent and consistent learning package.

The peers judged that the size and duration of the modules allow students to combine them flexibly and to facilitate the transfer of credits. Studies abroad are possible within the degree programmes and credits earned at a foreign HEI can be transferred according to the regulations.

The peers saw that the Master's degree programme does not incorporate any modules at undergraduate level. They perceived that individual students may not be awarded credits for the same module at Bachelor's and again at Master's level.

Criterion 3.2 Workload and credit points

Evidence:

- Self Assessment report
- Curricular overviews
- Quality Management System, Educational and organizational process management (QMS SO 4.5.03 – 2012)
- Discussion with students and teaching staff

Preliminary assessment and analysis of the peers:

The peers wondered about the very high student workload, which seems to amount to about 60 working hours a week. The representatives of the HEI declared that according to Kazakh law 57 working hours per week for students are standard. They further explained to the peers the calculation of ECTS credits in the Bachelor's and Master's degree programmes. The peers could understand the reasoning of the HEI in calculating the overall students' workload with 208 CP and noticed the state regulations concerning students working hours per week. The students expressed their satisfaction with the current workload arrangements toward the peers. They confirmed the number of working hours per week, but did not feel too pressed and said they could manage all their tasks to prepare for classes and exams. The peers accepted the high students' workload as justifiable in terms of Kazakh conditions and regulations.

The peers found the remaining criteria regarding students' workload fulfilled.

Criterion 3.3 Educational methods

Evidence:

- cf. module descriptions
- Self Assessment Report
- Discussion with the teaching staff

Preliminary assessment and analysis of the peers:

The peers learned that the teaching staff provides a detailed syllabus for each module which gives information on the course of the lecture as well as on literature for further study. The peers perceived that teaching methods and tools support the achievement of the learning outcomes at the intended level. The peers approved of the elective elements in the degree programmes which enable the students to form their own specialties and focal points. The peers were told by the HEI representatives that a ratio of 2 hours of self studying for every lecture hour is prescribed by government regulations and is fixed for all degree programmes at all HEIs.

Criterion 3.4 Support and advice

Evidence:

- Self Assessment Report
- Discussions with students, teaching staff, and programme representatives

Preliminary assessment and analysis of the peers:

The students informed the peers that all of them have tutors at their disposal. Every week they attend a meeting with their tutor to discuss their progress in studies. Besides the tutors every member of the teaching staff is open for questions and accessible for support and advice. At the end of the second year each student is advised on the selection of the specialty within the degree programmes' further course of studies. The peers noted approvingly the excellent relationship of trust and cooperation between students and teaching staff.

Furthermore, companies' representatives visit the HEI to inform students about professional matters and job perspectives. The students showed themselves to be aware of possibilities of organizing and funding studies abroad. Some of them had actually completed studies in various European and American countries.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

The peers confirmed their former judgment on the criterion.

4. Examination: System, Concept & Implementation

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| Criterion 4 Exams: System, concept & implementation |
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Evidence:

- Quality Management System, Laboratory Classes (QMS MI 110.08-2012)
- Quality management System, Educational and Organizational Process Management (QMS SO 4.5.03 – 201 2)
- Organization of Educational Process for Credit Training Technology (QMS 05.02.03 - 2012)
- Self Assessment Report
- Discussion with HEI representatives and students

Preliminary assessment and analysis of the peers:

The peers asked the HEI representatives to explain the examination organization. They learned that every grade consists of two parts, the final examination at the end of the module which counts for 40%, and the continuous assessment of the students' achievements during the semester which accounts for 60%. If a student fails to gain at least 50% in the latter part, he is not allowed to take part in the final examination. In this case the student may repeat the participation of the course in question to achieve a better result. To pass a module examination, each part – the final exam, as well as the evaluation during the semester – has to be concluded with at least 50%. If a student fails to pass a module he can take the exams again at the next possible opportunity. If a student's marks are overall good he may proceed in his course of studies albeit having failed to take an exam, but he has to retake the exams as soon as possible. A detailed examination plan is handed out to the students at the start of each semester. About 90% of the students finish their programme in the regular time frame.

The students showed themselves satisfied with the number, content, organization, and difficulty of examinations. The peers are informed by the students that drop-out rates are low. Only during the first few semesters students do sometimes fail their exams, in later semesters this is very uncommon. The students confirmed that they get all relevant information concerning exams on time in printed matter. Examination regulations are handed out to freshmen at the beginning of their studies and are publicly available at the library.

The peers come to the conclusion that the ASIIN Criteria regarding the examinations system, concept, and organization are all fulfilled.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

The peers confirmed their former judgment on the criterion.

5. Resources

Criterion 5.1 Staff involved

Evidence:

- Staff handbook
- Self Assessment report
- Table on professional development

Preliminary assessment and analysis of the peers:

The peers judged the composition and (specialist) training of the teaching body as sufficient to ensure that the intended learning outcomes are achieved by the time the degree is completed.

The research and development activities of teaching staff are such as to ensure that the educational level sought is attained.

The available contact hours (overall and for individual lecturers) are sufficient for teaching and student supervision.

Criterion 5.2 Staff development

Evidence:

- Acceptance of non-teaching periods for research purposes
- Capacity development offers / Further education
- Table on professional development

Preliminary assessment and analysis of the peers:

The peers noted that opportunities for further development of subject-relevant knowledge and teaching skills are available for lecturers. The peers learned that the HEI supports the staff in the participation in international conferences. A system of incentives is in place to reward the achievement of personal development goals by the teaching staff. Teachers meet once in a week to exchange experiences and communicate and coordinate the educational/didactic activities.

Criterion 5.3 Institutional environment, financial and physical resources

Evidence:

- Organisational scheme
- Laboratory rooms
- Self Assessment Report
- Visit of the faculty and laboratories

Preliminary assessment and analysis of the peers:

The peers could witness that resources employed form a sustainable basis to achieve the intended learning outcomes. The financing of the programme is assured.

The infrastructure (e.g. laboratories, library, and IT provision) meets the qualitative and quantitative requirements of the degree programme.

The peers noted that many co-operations – both national and international – for research as well as the training of the students exist and. These collaborations are sufficient for the purpose and subject to definitive arrangements.

The peers found the organisation and decision-making structures suited to delivering the training measures.

The organisation is able to react to problems, solve them and make up for shortfalls (e.g. staffing, financing, numbers of incoming student) without compromising students' opportunity to complete the degree in the normal time period.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

The peers confirmed their former judgment on the criterion.

6. Quality Management: Further Development of Degree Programmes

Criterion 6.1 Quality assurance & further development

Evidence:

- Self Assessment Report
- Quality Management System Instructions

- Discussion with the HEI representatives

Preliminary assessment and analysis of the peers:

The peers considered the extremely detailed information and documentation on the Quality Management System of the HEI. They found that a quality assurance concept is in place, is regularly further developed, and is designed to ensure the continual improvement of the degree programmes.

The Students confirmed to the peers that they participate in quality assurance activities, and that there is a student representative attaining to those matters.

The evaluation of lectures is conducted on a regular basis. Furthermore professors visit the lectures and examinations of colleagues and write reports on their experiences which are assessed and evaluated by the leadership of the HEI. However, the students expressed their view that the questionnaires for lecture evaluation lack in detail and that the organization of the evaluation is not very systematical.

The peers have been informed that a disciplinary commission is in place to fight corruption. In the last year 5 members of the teaching staff were expelled by the commission on the ground of corruption charges.

The peers came to the conclusion that generally mechanisms and scopes of responsibility have been determined to ensure the regular further development of degree programmes. However, the peers recommended the further implementation and development of the quality management system and the utilization of its results for continuing improvements of the degree programmes, in particular further enhancing and developing the evaluation of lectures and teaching quality.

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| Criterion 6.2 Instruments, methods and data |
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Evidence:

- Self Assessment Report
- Quality Management System Instructions
- Discussion with the HEI representatives

Preliminary assessment and analysis of the peers:

The peers approved of the various efforts of the HEI to collect and assess data to ensure that the quality of the degree programmes is maintained and further developed. The peers saw that these measures are documented and are frequently reviewed.

The peers viewed the data gathered and evaluated by the higher education institution as sufficient to review the success and achievement of the degree programmes in any given respect. The peers therefore judged that the basic requirements of the criteria under review were met.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The HEI did not respond to the peers' recommendation to further develop the quality assurance system of the HEI. But since this is a long term task which requires constant attention and improvement by the HEI, the peers did not expect immediate results in this field. The peers therefore confirmed their former judgment on the criterion.

7. Documentation & Transparency

Criterion 7.1 Relevant Regulations

Evidence:

- Quality Management System, Laboratory Classes (QMS MI 110.08-2012)
- Quality management System, Educational and Organizational Process Management (QMS SO 4.5.03 – 2012)
- Organization of Educational Process for Credit Training Technology (QMS 05.02.03 - 2012)
- Quality Management System, Standard of Organization (QMS SO 4.4.01 – 2012)

Preliminary assessment and analysis of the peers:

The peers judged the regulations for the programme to include all relevant stipulations for admissions, the operation of the programme and graduation.

The peers found the regulations to be accessible for consultation.

Criterion 7.2 Diploma Supplement and Certificate

Evidence:

- Samples of Diplomas and Transcripts of Records

Preliminary assessment and analysis of the peers:

The peers viewed the samples of Diplomas and Transcripts of Record to be overall sufficient. However, they explained that additionally, Diploma Supplements should be provided. The Diploma Supplement accompanies a higher education diploma, providing a standardized description of the kind, level, context, content and status of the studies completed by its holder. A model for these should be available from the Ministry as the template would be the same for all universities in Kazakhstan.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 7:

The HEI provided a sample Diploma Supplement for the degree programmes. The peers judged the Diploma Supplement sufficient to fulfil the requirements of criterion 7. Therefore, they saw a requirement regarding the issue of a Diploma Supplement as not necessary.

D Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

- D 1. English language version of the diploma supplement (not transcript of records) for all programmes.

E Comment of the Higher Education Institution (12.05.2014)

The institution provided a detailed statement as well as additional documents on the following issues:

Your comments on the final evaluation of the results of accreditation by ASIIN undergraduate and master's degree in educational program "Mining" KSTU reply that : All remarks removed and send to your address the final report on the program accreditation applications:

1. Missing modules on subjects: Physics 2(Fiz II), Mathematics 2 (Mat II), Geologic Discipline (GD 21) added to the module directory.
2. Modules of practical learning and field training included in the inventory module with revised objectives and content.
 - a) educational practice includes acquaintance with enterprises of the mining industry, working with survey instruments during surveying;
 - b) First manufacturing practice includes the introduction of job specialty and obtaining specialty miner working, during the second manufacturing practice student working understudy mining foreman.
 - c) pregraduation practice is the final practice during which a student gathering material for the final work.
3. Bibliographical information is updated and revised.
4. Error in the designation programs as a Masters Degree have been corrected
5. According to the description of the module military training bachelors - it does not affect the final result for obtaining a diploma in the specialty and the nuclear explosion, is voluntary training on a competitive basis for those wishing to further military specialty. In addition, documents on military training are classified as restricted, and therefore are not subject to the study of persons who do not have appropriate security clearance.
6. Diploma attached transcript, which is the same for all universities in Kazakhstan and reflects a standardized description of the type, level, communications, content and status of research on the educational program. Transcript attached.

F Summary: Peer recommendations (11.06.2014)

Taking into account the additional information and the comments given by the HEI the peers summarize their analysis and **final assessment** for the award of the seals as follows:

| Degree Programme | ASIIN seal | Subject-specific Label | Maximum duration of accreditation |
|------------------|-------------------|------------------------|-----------------------------------|
| Ba Mining | With requirements | n.a. | 30.09.2019 |
| Ma Mining | With requirements | n.a. | 30.09.2019 |

Requirements

For all degree programmes

- A 1. (ASIIN 2.3) The module descriptions must be updated according to the comments made in the accreditation report (missing modules, false denominations, false level in Master, list of literature, military training, missing of field training modules)

Recommendations

For all degree programmes

- E 1. (ASIIN 6.1) It is recommended to further develop the concept of quality assurance for the degree programmes and to use the results for continuous improvements. Especially the student evaluation of lectures should be organized in a more effective manner.

A Comment of the Technical Committee 03 - Civil Engineering, Surveying and Architecture (17.03.2014)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee follows the judgment of the peers.

The Technical Committee 03 – Civil Engineering, Surveying and Architecture recommends the award of the seals as follows:

| Degree Programme | ASIIN seal | Subject-specific Label | Maximum duration of accreditation |
|-------------------------|-------------------|-------------------------------|--|
| Ba Mining | With requirements | n.a. | 30.09.2019 |
| Ma Mining | With requirements | n.a. | 30.09.2019 |

Requirements

For all degree programmes

- A 1. (ASIIN 2.3) The module descriptions must be updated according to the comments made in the accreditation report (missing modules, false denominations, false level in Master, list of literature, military training, missing of field training modules)

Recommendations

For all degree programmes

- E 1.(ASIIN 6.1) It is recommended to further develop the concept of quality assurance for the degree programmes and to use the results for continuous improvements. Especially the student evaluation of lectures should be organized in a more effective manner

A Decision of the Accreditation Commission (27.06.2014)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discussed the procedure. The Commission confirmed the proposals of peers and Technical Committee. Because all Kazakh HEI have the same issue concerning the students' workload the Accreditation Commission decided to add the respective requirement as in all other Kazakh accreditation procedures to guarantee an equality of judgment.

The Accreditation Commission for Degree Programmes decides to award the following seals:

| Degree Programme | ASIIN seal | Subject-specific Label | Maximum duration of accreditation |
|-------------------------|-------------------|-------------------------------|--|
| Ba Mining | With requirements | n.a. | 30.09.2019 |
| Ma Mining | With requirements | n.a. | 30.09.2019 |

The Accreditation Commission for Degree Programmes decides to award the following seals:

Requirements

For all degree programmes

- A 1. (ASIIN 2.3) The module descriptions must be updated according to the comments made in the accreditation report (missing modules, false denominations, false level in Master, list of literature, military training, missing of field training modules)
- A 2. (ASIIN 3.2) The students' workload per semester must be set at a level that avoids structural pressure on training quality. In line with the ECTS Users' Guide, the workload per semester must not exceed that of a full-time employee (maximum of 900h). The ECTS credits awarded must be adapted accordingly.

Recommendations

For all degree programmes

- E 1.(ASIIN 6.1) It is recommended to further develop the concept of quality assurance for the degree programmes and to use the results for continuous improvements.

Especially the student evaluation of lectures should be organized in a more effective manner