ASIIN Seal & European Labels

Accreditation Report

Bachelor's Degree Programs
Industrial Engineering
Information Systems

Provided by
Universidad de San Martín de Porres
Lima, Peru

Version: 08.12.2017

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Ingeniería Industrial	Industrial Engineering	ASIIN, EUR-ACE® Label	ASIIN, 25.09.2009-30.09.2015; EUR-ACE, 2009-2015; ABET, 01.10.2008-30.09.2016; ICACIT, 2010-2015;	04, 06
Ingeniería de Computación y Sistemas	Information Systems	ASIIN, Euro-Inf® Label	ASIIN, 25.09.2009-30.09.2015; EUR-ACE, 2009-2015; ABET, 01.04.2010-30.09.2016; ICACIT, 2010-2015	04
Date of the contract: July 13th, 2015 **Submission of the final version of the self-assessment report:** April 1st, 2016 **Date of the onsite visit:** June 1-2, 2016 **at:** Universidad de San Martín de Porres, Faculty of Engineering and Architecture, Lima, Peru				
Peer panel: Prof. Dr. Carsten Vogt, University of Applied Sciences Cologne; Prof. Dr. Ulli Arnold, University of Stuttgart;				

[1] ASIIN Seal for degree programmes; EUR-ACE® Label: European Label for Engineering Programmes; Euro-Inf®: Label European Label for Informatics

[2] TC 04 – Informatics/Computer Science, TC 06 – Industrial Engineering

Prof. Dr. Wolfgang Reisig, Humboldt University Berlin (participates based on documentation) Juan Miranda, ABB, Peru Almendra Caroline Morales Moreno, Student Universidad de Ingeniería y Tecnología, Peru	
Representative of the ASIIN headquarter: M.A. Madlen Schweiger	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 2015 ASIIN General Criteria, as of 26.06.2015 Subject-Specific Criteria of Technical Committee 04 – Informatics/Computer Science as of 12.09.2011 Subject-Specific Criteria of Technical Committee 06 – Industrial Engineering as of 09 December 2011	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Ingeniería Industrial	Bach. (Bachiller en Ingeniería Industrial) B.Eng. (Bachelor of Industrial Engineering)		Level 6	Full time	-	10 Semesters	222 CP	Rhythm: March and August of each year Program is offered every semester since 1989-I
Ingeniería de Computación y Sistemas (Information Systems)	Bach. (Bachiller en Ingeniería de Computación y Sistemas) B.Eng. (Bachelor of Information Systems)	• Information Systems • Software Engineering • Information Technology	Level 6	Full time	-	10 Semesters	222 CP	Rhythm: March and August of each year Program is offered every semester since 1983-II

For the Bachelor's degree programme Industrial Engineering the institution has presented the following educational objectives on the website:

"1. Design, develop, implement and/or improve integrated production or service systems with innovative, analytic and entrepreneurial capabilities.
2. Use rationally and optimally the resources available in order to obtain products and services demanded by society.
3. Perform an ethical professional practice with incidence on safety, social responsibility and environmental protection.

[3] EQF = The European Qualifications Framework for lifelong learning

4. Conduct and/or participate in the management of production or service systems within post-industrial environments.
5. Participate actively in multi-disciplinary teams making use of an effective communication.
6. Acquire new abilities and knowledge towards professional and personal development during their lifetime."

For the Bachelor's degree programme Information Systems the institution has presented the following educational objectives on the website:

"1. Apply knowledge of computing using adequate methodologies, techniques and tools to solve problems.
2. Adequate performance with analytic and communicative capacities to provide added value solutions for organizations.
3. Perform a responsible professional activity, with ethic values, and adequately use available resources in organizations.
4. Work in multidisciplinary teams, to develop information systems projects to contribute with the progress and welfare of our society.
5. To be a professional committed with continuous learning for his/her professional development."

C Peer Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Websites of the programmes (access on June 28th 2016):

  Ba Industrial Engineering:

  - http://www.usmp.edu.pe/ffia/escuelas/industrial/index.php

  Ba Information Systems:

  - http://www.usmp.edu.pe/ffia/escuelas/sistemas/index.php

- Self Assessment Report (SAR)
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The peers examined the websites of the two different Bachelor programs and could see that the Faculty of Engineering and Architecture of the San Martin de Porres University defined the educational objectives and the intended learning outcomes of the Bachelor programs under review.

The peers referred to the *Subject-Specific Criteria (SSC)* of the Technical Committee for Industrial Engineering and to the *Subject-Specific Criteria (SSC)* of the Technical Committee for Informatics/Computer Science as a basis for judging whether the intended learning outcomes of the two Bachelor programs correspond to the learning outcomes of the Technical Committees. The auditors examined the areas of competence as set forth by the *SSC* for degree programs and came to the following conclusions:

As intended learning outcomes for the Bachelor's degree Industrial Engineering the HEI has stated that graduates should have acquired the ability to apply the knowledge of mathematics, science and engineering, to design and conduct experiments, as well as to analyze and interpret the data obtained. Furthermore, graduates should be capable of

[4] This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

identifying, formulating and solving engineering problems, of understanding their professional and ethical responsibility and of communicating effectively. The peers concluded that this corresponds to the aim to develop a broad and sound knowledge in *mathematics, science and engineering* and to identify, formulate and *solve problems* of industrial engineering cases to obtain competences in the field of *investigation and assessment*. The panel could also see that competences in e*ngineering design* shall be reached as the intended learning outcomes state that students shall be able to design systems, components or processes to satisfy desired needs. When it comes to *engineering practice*, the competence to assess applicable techniques on the basis of their imminent knowledge and to assess their limits, the peers concluded that the ability to use modern techniques, skills and tools required necessary for engineering practice are outlined in the learning outcomes. Regarding *transferrable skills*, the peers acknowledged that graduates should have achieved a broad education required to understand the impact of engineering solutions in a global and social context and be able to recognize the need of and be able to keep learning and training during their lifetime. Additionally, graduates are expected to have a broad knowledge of the main contemporary issues and to work adequately in multi-disciplinary teams. The panel discussed with the program coordinators whether the ability to take decisions should be included in the Bachelor's program intended learning outcomes. The ability to take decisions is considered by the program coordinators as to explicit to include it in the list of learning outcomes even if students acquire the respective knowledge, skills and competences which should help them to be prepared for taking decisions as professionals. The peers comprehended the faculty's explanation and do not see the need for adjustments of the intended learning outcomes.

The panel learned that the intended learning outcomes of the Bachelor's program Information Systems were stipulated by the ABET criteria[5]. According to the HEI, the learning outcomes specify that graduates should be able to apply knowledge of computing and mathematics to their respective specialization disciplines *Information Systems, Software Engineering* or *Information Technology*. Additionally, students should be able to analyze problems, and identify and define the computing requirements necessary to their solution. The peers concluded that this corresponds to the aim to develop a broad and sound knowledge in *concepts, theories and mathematical methods relevant to computing* and to *analysis competences* such as to describe a problem and its solution at varying levels of abstraction and to select and use relevant analytic, modeling and simulation methods. The panel could also see that competences in *informatics design and implementation* shall be reached as the intended learning outcomes state that students shall be able to

[5] http://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2016-2017/#objectives

design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs by using adequate methods, current techniques, skills, and tools necessary for computing practice. Regarding *economic, legal, social, ethical and environmental aspects of informatics practice*, the peers acknowledged that graduates should gain an understanding of professional, ethical, legal, security and social issues and responsibilities and should be able to analyze the local and global impact of computing on individuals, organizations, and society. Students are also expected to acquire a number of further *social competences* including effective communication, team work skills and the ability to keep learning and training during their lifetime. The peers considered the general learning outcomes as adequate; however neither the SAR nor the websites of the university describe educational goals and learning outcomes of the three specializations *Information Systems, Software Engineering* and *Information Technology* in detail. In order to take a decision which specialization to choose students should be aware of the different qualification profiles. The peers underlined that the educational objectives/learning outcomes for the specializations need to be elaborated in detail and made transparent for all relevant stakeholders.

The peers concluded that the *Subject Specific Criteria* of ASIIN are mostly covered in the learning objectives of both undergraduate degree programs under review only the educational objectives/learning outcomes for the three specializations of the Bachelor program Information Systems are missing. The academic level of the programs can be clearly deduced, being in full compliance with the standards of the EQF levels 6 for Bachelor's graduates.

Furthermore, the University applied for the EUR-ACE® (European Accredited Engineer) Label[6] for their Bachelor's program Industrial Engineering. The EUR-ACE® Label is a quality certificate for engineering degree programs and is recognized Europe-wide. During the accreditation process, the reviewers verified whether the engineering degree program complies with the criteria fixed in the EUR-ACE Framework Standards. The Subject-Specific Criteria (SSC) of the Technical Committee for Industrial Engineering is closely linked to the EUR-ACE Framework Standards; consequently, the analysis of the Subject-Specific Criteria encompasses the EUR-ACE Framework Standards. The peers confirmed that the EUR-ACE Framework Standards regarding the intended learning outcomes are fulfilled for the Bachelor's program Industrial Engineering.

In addition, the peers verified that the presented learning outcomes for the Bachelor's program Information Systems are in line with the ASIIN *Subject Specific Criteria* defined by

[6] http://www.enaee.eu/eur-ace-system/

the Technical Committees for Informatics/Computer Science. The SSC of the Technical Committee for Informatics/Computer Science is closely linked to the Euro-Inf® framework criteria[7]; consequently, the analysis of the Subject Specific Criteria encompasses the Euro-Inf® criteria. The Euro-Inf® Label is a quality certificate for informatics degree programs and is recognized Europe-wide. The peers confirmed that the Euro-Inf® Standards regarding the intended learning outcomes are fulfilled for the Bachelor's program Information Systems. However, the description of the learning outcomes each specialization is missing.

The evaluation of the achievements of the educational objective and learning outcomes is conducted every five years. The last evaluation was done in 2013 for the degree program Industrial Engineering and 2014 for the degree program Information Systems. This process is managed by the Accreditation Committee of the university which is composed of faculty members, employers and graduates. Additionally, student's module evaluation includes a section regarding the achievement of the module learning outcomes which indicates the achievement of the overall educational goals. The students, alumni and employers seemed very satisfied with the qualification profiles of the graduates and the peers were impressed by the sophisticated quality assurance system on faculty and program level (see criterion 6). The peers confirmed that relevant stakeholders were included in the process of formulating and further developing the objectives and learning outcomes.

Criterion 1.2 Name of the degree programme

Evidence:

- Websites of the programmes (access on June 28th 2016):

  Ba Industrial Engineering:

  - http://www.usmp.edu.pe/ffia/escuelas/industrial/index.php

  Ba Information Systems:

  - http://www.usmp.edu.pe/ffia/escuelas/sistemas/index.php
- Self-assessment report (SAR)
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The peers confirmed that both degree program titles reflect the intended aims and learning outcomes as well as, fundamentally, the main course language. Information about the degree programs is published in Spanish as they are carried out in Spanish.

[7] http://www.eqanie.eu/pages/quality-label.php

The peers determined that in the English translation, the study program as a whole and one of its specializations are both called *Information Systems*. Stakeholders will find that confusing; a more specific term for the specialization should be found like *Business Information Systems* for example. The peers didn't require the university to take action as the in Spanish the name of the degree program and the specialization are distinctive and the website is not translated into English so far.

Criterion 1.3 Curriculum

Evidence:

- Websites of the programmes (access on June 28th 2016):

  Ba Industrial Engineering:

  - http://www.usmp.edu.pe/ffia/escuelas/industrial/index.php
  - http://www.usmp.edu.pe/PFII/

  Ba Information Systems:

  - http://www.usmp.edu.pe/ffia/escuelas/sistemas/index.php
- Self-assessment report (SAR)
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
On the program specific websites information about both degree programs under review are published. The peers welcomed that each subject-specific website entails the description of the curriculum. During the onsite visit the program coordinators of both programs provided the peers with a very informative table of the curriculum illustrating the sequence of modules and module allocation to the respective specializations and core areas (malla curricular). The peers encouraged the program coordinators to publish these tables on the respective program websites as they are more informative than the currently published list of courses. While the module descriptions are published on the school's intranet (so called Campus Virtual) and given at the beginning of every semester to the students, they are not accessible externally. The panel considered it important that external stakeholders such as future students, exchange students, and employers would also be able to find details about the module objectives and content of the programs.

As outlined under criterion 1.1, the peers could see that the learning outcomes of the programs match (with some limitations) the outcomes stated in the Subject-Specific Criteria (SSC) of the ASIIN Technical Committees for Industrial Engineering and Informatics/Computer Science. The peers based their assessment whether the curricula of the different degree programs achieve the intended learning outcomes on the module de-

scriptions and the module-objective matrix. The faculty provided module-objective matrices for each degree program depicting which module contributes to the fulfilment of which learning outcome; the respective contribution was specified in terms of "key" and "related" for the Information Systems program and in a scale from 1 to 5, where 1 = very low and 5 = very much for the Industrial Engineering program. The peers came to the following conclusions:

For both Bachelor programs the peers confirmed that knowledge of mathematics, science, engineering, computing and quantitative methods is acquired in modules such as "Analytic Geometry", "Calculus I and II", "Linear Algebra", "Discrete Mathematics", "Statistics and Probabilities I and II", "Introduction to Engineering" and "Introduction to Computing".

In the Bachelor program Industrial Engineering competences in the field of *engineering analysis* shall be achieved by the students in modules like "Physics I and II", "Industrial Chemistry", "Differential Equations", "Electrical and Electronic Engineering", "Methods Engineering", "Process Manufacturing", "Quality Control", "Process Simulation and Control", "Total Quality Management". The peers confirmed that competences in the field of *engineering design* which should provide students with concepts and tools to design, develop, implement and improve integrated systems can be acquired in modules like "Industrial Design", "Drawing and graphic design", "Methods Engineering I and II", "Operation Research I and II", "Formulation and Evaluation of Industrial Products", "Operations Planning and Control I and II", "Industrial Automatization", "Design of Production Systems", "Systems of Inventory and Distribution", "Supply Chain Management". The peers received the feedback from the students that the elective courses "Total Quality Management" and "Supply Chain Management" should be mandatory as they are considered as very important for the "Peruvian reality" and their future professional tasks. The peers encouraged the faculty to provide further guidance to the students when they select their elective courses.

The first three years of the Bachelor's program Information Systems introduce the scientific foundations as well as core topics of the discipline of computer science to the students in order to gain fundamental understanding of central concepts and methods of the discipline. The peers confirmed that *analysis competences* shall be acquired in modules like "Introduction to Programming", "Algorithm and Data structures I and II", "Theory and Design of Data Bases", "Information Systems III", "Software Engineering I and II". The panel missed the impartation of fundamental knowledge and competencies in theoretical informatics especially formal languages and automata in the early stage of the curriculum. The panel learned during the discussions with the program coordinators that knowledge of theoretical informatics (especially formal languages and automata) is

taught in the courses of the core area computer science and in the module "Artificial Intelligence and Robotics" of the specialization *Software Engineering*. However, the peers determined that the module descriptions do not include theoretical informatics. The peers ask the program coordinators to specify in which courses and to which extend this topic is imparted. Additionally, the school should clarify in which modules the programming language Java is introduced as the module descriptions do not refer to Java (see also criterion 5.1). The panel could also see that competences in *informatics design and implementation* shall be reached in the mandatory modules "Information Technology I and II", "Design and Implementation", "Project Management", "Financial Management". As part of the continuous improvement process of the program a new curriculum was developed in 2014, including the three new specializations *Information Systems, Software Engineering* and *Information Technology*. At the end of the third year, one of the three specializations offered will be chosen by the students and peers confirmed that further analysis, design and implementation competences will be acquired with regard to the respective concentration. However, it is not mandatory for students to choose one of the three specializations as they are considered as a clear advice which courses fit together in order to obtain a more specialized degree. Nevertheless, students and the program coordinators confirmed that they appreciate the specializations and that most students choose one; approximately 50% choose the specialization Information Systems, 20% Information Technology and 25-30% Software Engineering. In terms of *economic, legal, social, ethical and environmental aspects of informatics practice*, the peers assessed that student should gain this knowledge especially in the modules "National reality", "General Accounting", "Ethics and Moral", "Marketing", "Software Testing" and "Strategic Management".

Transferable skills are taught in both Bachelor programs, for example, in modules like "Activities I and II", "Study Methods", "National Reality", "English" and "Philosophy". But besides individual modules that teach transferable skills, teaching of these skills is also integrated in subject specific modules. The peers confirmed that group works, oral presentation, participation in events and congresses offered by the University, the Faculty of Engineering and Architecture, the Professional School of Industrial Engineering and the Professional School of Information Systems contribute to team working and effective communication competences as well as to the ability to keep learning and training during the students lifetime. The peers noticed that besides the two general English language courses in the first and second semester subject-specific English language skills are hardly fostered. In order to maintain competitiveness the peers encouraged the HEI increasing the usage of the English language in the programs e.g. by offering some electives in English or using more English literature.

When it comes to *engineering* or *informatics practice* the peers understood that laboratory work is included in a number of modules and students must have completed at least six months of pre-professional practices in companies in order to obtain the degree. With regard to the Bachelor degree Information Systems a project in information technology, software development and information systems is carried out by the students in each second semester of the first three years. In both study programs a Final Project should prepare students to conduct projects under real work scenarios (see criterion 3). The employers and graduates confirmed during the onsite visit that students have excellent technical skills and good social skills; however the presentation skills could be strengthened within the curriculum. Overall both, students and employers seemed very satisfied with the technical and practical skills gained especially during the final projects.

Criterion 1.4 Admission requirements

Evidence:

- Admission requirements and Academic Regulations (access June 26th, 2016): http://admision.usmp.edu.pe/
- SAR, chapter 1.4 (Statistics about student admission)
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The entry requirements for both degree programs are defined in the Admissions Regulations as well as in the General Regulations of USMP. Students must have completed High School education and undergo an admissions examination. In this examination, composed of 100 questions, the students must demonstrate knowledge in the Spanish and English language, mathematics, natural sciences, Peruvian history as well as their interest in the respective program. The admission process is managed by the Central Admission Office. Members of the diplomatic body, the army or police forces as well as those applicants who have gone through a Pre-University Center or who have achieved the highest mark in High School are exempt from the admissions examination.

The peers discussed the entry requirements with the lecturers and with the students. They found that the level of the exam is adequate and that the admission procedures are reasonable. The admission requirements are published on the website and thereby accessible for all potential students or other stakeholders. The panel acknowledged that set rules and regulations formally determine the admission requirements and process.

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

1.1 Educational objectives/learning outcomes

The peers welcomed the confirmation of USMP that educational objectives and learning outcomes for the three concentrations of the Information Systems program will be defined in November 2016. Until this will have been accomplished the peers confirmed their intended requirement that the educational objectives/learning outcomes for the three concentrations have to describe the subject-specific and professional classification of the qualifications gained in the degree program. Furthermore educational objectives/learning outcomes should be made transparent to all relevant stakeholders.

1.3 Curriculum

The peers noticed that the provided links to the graphics of the curricula (malla curricular) and to the course syllabi are accessible, however not for external stakeholders as no path is leading to this information from the respective program-specific websites.

The peers learned that formal languages and automata are currently not included in the curriculum of the undergraduate degree program Information Systems. However, the university considers including aspect of theoretical informatics in the curriculum. The peers recommended to include at least some fundamentals of theoretical informatics (i.e., basics of formal languages, automata, and complexity) that are indispensable for solving some fundamental programming tasks in all three specializations of the Information Systems program.

The peers understood that the programming languages Java and C# are taught. The module descriptions of „Algorithms and Data Structures II“, „Programming I“ and „Programming II“ refer to Java. However, in the module descriptions of „Introduction to Programming“ and „Algorithms and Data Structures I“, neither Java nor C# are explicitly mentioned; the reading list includes only books on C#. In terms of transparency the peers strongly encouraged the HEI to explicitly describe in the section “content” of the module descriptions which programming languages are taught.

The peers positively acknowledged that the elective course “Total Quality Management” of the degree program Industrial Engineering becomes a mandatory module from the first semester 2017 onwards. The elective “Supply Chain Management” will be also considered to become a mandatory course.

Additionally, the peers thanked for the information that English literature is used in many courses and that the director of the undergraduate program Industrial Engineering requested that students must prove intermediate level of English in order to graduate.

However, the peers uphold their recommendation to improve the English language competences of the students as students should be actively encouraged to improve their English language competences.

Apart from the above mentioned issue, the peers concluded that this criterion is fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Websites of the programmes (access on July 2nd 2016):

  Ba Industrial Engineering:

  - http://www.usmp.edu.pe/ffia/escuelas/industrial/index.php
  - http://www.usmp.edu.pe/PFII/

  Ba Information Systems:

  - http://www.usmp.edu.pe/ffia/escuelas/sistemas/index.php
- Admission requirements (access June 29th, 2016): http://admision.usmp.edu.pe/
- Self-assessment report (SAR)
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:

The program structure of both undergraduate programs under review is clearly outlined on the subject-specific website for each study program. All degree programs consist of modules which comprise a sum of teaching and learning units. The module descriptions are also published on the Campus Virtual (Intranet) and presented to students on the first day of class. As already mentioned the peers recommended publishing the module descriptions on the program websites in order to inform future students, exchange students, and employers on the curricular content. Based on the analysis of the sequence of modules and the respective module descriptions the peers concluded that the structure of the degree programs ensures that the learning outcomes can be reached. The Bachelor program Information Systems offers three specializations and additionally both undergraduate programs offer also a number of elective courses which allows the students to set an individual focus. The panel positively noted that students are provided with sufficient information about the specialization options in the Information Systems study pro-

gram. Based on the analysis of the curriculum and the module descriptions the peers confirmed that the module objectives and the respective content help to reach both the qualification level and the overall intended learning outcomes.

Every course has a list of prerequisites which must be completed before registering. During the registration process, both programs offer an enrollment advisory service on campus and online, so students can ask their questions about registration process to advisors who authorize the list of courses they can enrol in.

Several coordination mechanisms have been devised for both undergraduate study programs. The respective Curricular Committee is in charge of establishing and verifying the accordance of the basic curricular structure. Professors from courses are in charge of updating course contents according to the learning outcomes to be achieved by students. The panel was convinced that these mechanisms ensure that the modules are consistent within themselves, are matched against each other, build upon each other and consequently, viewed all together, achieve the intended academic level.

Both programs also prepare students well for the professional life by different means: The final projects are usually directly related to practical issues of the professional life. In order to obtain the Bachelor's degree students carry out a pre-professional practise (internship) with a minimum period of 6 months and have to present a pre-professional practice report. The schools established and maintain relationships with companies who offer internships to the students. Students seemed very satisfied with the internships offered.

According to the program coordinators students have the possibility to study abroad in their seventh or eighth semester and the International Relations Office provides students with information on exchange opportunities. However, there is no official promotion by the faculty and no information published on international cooperations on the university websites. The peers noted that in the previous accreditation procedure it was recommended installing formalized procedures for students wishing to study abroad. In order to assess the further development of internationalisation the peers ask the university to provide them with further information on international partner universities and how credits gained abroad will be recognised for the degree programs under review.

In general, the undergraduate programs at USMP were designed to be completed within five academic years. The peers learned that the majority of students completed their degree in the given 5 years' time frame and only a minority needed to extend the studies due to personal reasons. To finally assess if the study programs can be studied within the regular time frame the school should provide statistical data on student progression and drop-out rates.

The recognition of externally acquired competences is regulated at university, not at school level. It is stipulated in the Academic Rules of the university, published on the website. The panel considered these regulations to be in line with the expectations of the Lisbon Convention.

Criterion 2.2 Work load and credits

Evidence:

- Study plans and module descriptions (access on Jul 2nd, 2016):

  Ba Industrial Engineering:

  - http://www.usmp.edu.pe/ffia/escuelas/industrial/index.php
  - http://www.usmp.edu.pe/PFII/

  Ba Information Systems:

  - http://www.usmp.edu.pe/ffia/escuelas/sistemas/index.php
- SAR
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The degree programs have been modularized and make use of a credit point system. The Credit Points (CP) System in Peru only considers hours spent by students in the classroom and in laboratory training (or workshops). Therefore, the credit points are based on the "academic hour" which is equivalent to 45 minutes. The credit points for modules are calculated in the following manner: One credit is awarded for one academic hour of theory classes or two hours of practice or lab classes. The overall number of credits per program is 220; per semester 22 credits are awarded. Each module has between 1 and 5 credits. The weekly workload of the students in terms of academic work hours makes up between 22 and 30 hours. Each semester lasts 17 weeks, including two weeks reserved for exams. While only academic hours are included in the calculation of credit points, USMP assumes that one academic hour also requires 45 minutes of self-study.

The peers discussed the credit point system in use with the HEI representatives and learned that the student's workload is not evaluated as the Peruvian credit point system is based on contact hours instead of the overall student workload. According to the program representatives the recommendation of the previous accreditation to use the ECTS system is not practical in Peru and less needed as students usually do not study aboard in the European Higher Education Area or start working in Europe. In view of the intended internationalization and in order to facilitate comparability with European degrees, the panel emphasised that calculating the student's overall workload is, besides the interna-

tional aspect, a useful instrument to monitor student's progression and to possibly detect structural weaknesses of the study programs. While the national Peruvian credit point system should be of course used, the introduction of a workload based credit point system (e.g. ECTS) is regarded as necessary. Therefore, transparent regulations for the conversion from one credit point system to the other should be provided. One ECTS credit point should be awarded for 30h of an average student's workload. This includes face-to-face hours as well as an adequate time for independent academic study. The result of this calculation should be included in the Diploma Supplement and the module descriptions to foster the mobility of students wishing to pursue their studies in Europe. Furthermore, it is helpful for the recognition of credits obtained during studies abroad. The panel explained that the ECTS users guide[8] could be used for calculating the equivalent ECTS credits. The peers additionally suggested introducing defined mechanisms for continuous student feedback on the actual workload and the use of this feedback to correct the structure of the degree programs if necessary.

From the feedback of students and graduates, the panel assumed that in general the overall workload corresponds to the related credits awarded and structure-related peaks in the workload are avoided. However, in order to finally assess the overall student workload the school is asked to provide statistical data on student progression and drop-out rates.

Criterion 2.3 Teaching methodology

Evidence:

- Module descriptions
- SAR
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:

The teaching staff of the university uses a range of educational methods and training tools which reflect the good practices of teaching in both programs by involving theory classes, lab work, workshops, group projects, presentation of video, presentations, reading, analysis and problem solving tasks in the every day's teaching activities. In addition, the faculty organizes the congress VISION on an annual basis, which includes conferences and presentations. During three days, students have the opportunity to learn from national and international experts and exchange ideas and experiences. Projects are conducted in several modules and the capstone projects are intended to familiarise students with independent academic research and writing. Also the labs, which are well equipped

[8] http://ec.europa.eu/education/library/publications/2015/ects-users-guide_en.pdf

(see also criterion 5.3), allow for adequate and state-of-the-art teaching. Generally, the students were also satisfied with the teaching as such. Overall, the panel considered the teaching methods used for implementing the didactical concept as appropriate and they seemed to support the achievement of the intended learning objectives.

Criterion 2.4 Support and assistance

Evidence:

- SAR
- Discussions during onsite visit
- HEI's website (Access: July 2nd 2016): http://www.usmp.edu.pe/guiaestu/index.html

Preliminary assessment and analysis of the peers:
The academic advising of students is a direct responsibility of each school and should help students to clarify the goals, both academic and professional, through the interaction with the counseling professors or meetings with the professors of the program. This service is available for all students of both programs and it is mandatory for all students who show a low academic performance. The counselor has a strictly academic role and is authorized to send students, if required, to other student support departments, such as psychology, student welfare, infirmary etc.. In addition, there is an enrollment counseling process in place where students consult with a counseling professor in person the requirements, schedules and demand of courses, guidance about the topics of elective courses, the possibility of increasing credits in order to plan the successful completion of the semester. After consulting with the counselor, the student is enrolled. For the Bachelor degree program Information Systems students are informed about specializations through talks and meetings with the Director of the program and academic advisors. The panel gained the impression that close relationships exist between students and teachers and they also positively acknowledged the above mentioned outstanding instruments to individually counseling students.

General advice and guidance is accessible to the students on the website called "Guía del Estudiante". The peers confirmed that the advice and guidance (both technical and general) on offer assist the students in achieving the learning outcomes and in completing the course within the scheduled time.

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

2.1 Structure and modules/mobility

The peers confirmed that USMP has national and international study abroad agreements, however the provided link to the student flyer is not accessible to the students as no path is leading to this information from the regular USMP website. The peers noticed that hardly any progress regarding the internationalisation has been achieved since the previous accreditation procedure. Therefore, the peers highly recommended to proactively informing the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

As the Faculty of Engineering and Architecture is still working on the implementation of student mobility procedures no rules for the recognition of credits acquired at other higher education institutions are defined yet. These rules should be defined by the HEI in order to render the transition between higher education institutions easier and to ensure that the learning outcomes are reached at the level aimed at. Therefore, the peers ask the HEI to define the rules for the recognition of credits acquired at other higher education institutions.

2.2 Work load and credits

According to the figures provided the overall drop-out rate for the undergraduate degree program Industrial Engineering and Information Systems seems acceptable, however it seems that students regularly exceed the regular study duration of five years. The peers on the one hand recommended monitoring the workload of the students in order to avoid structure-related peaks in the workload. On the other hand, information on the reasons for exceeding the regular study duration of five years should be identified. If the HEI ascertains study program related reasons (e.g. program structure, high workload, content etc.) adequate measures should be implemented to ensure that the degree programs under review can be completed by students without exceeding the regular course duration.

Concerning the comparison between national Peruvian and the ECTS credit point system the peers do not fully understand the calculation provided in the table for the undergraduate degree program Information Systems. This table does not correspond to the attendance-based learning (study time in class) and self-study (study time at home) hours in the module descriptions. For example, the overall student workload of the module “Calculus I” is 153 hours per semester; however the provided conversion table states 204 hours per semester for this module. Dividing both sums by 30 hours (as one ECTS credit is considered 30 hours overall student workload) the ECTS credits will be either 5 or 7 ECTS. Therefore, these inconsistencies should be corrected and the HEI should provide plausible rules for the conversion of national credit points into ECTS credit points and revise the provid-

ed conversion table and module descriptions. Consequently, the peers uphold their requirement, that the Peruvian system of credit points and its conversion into a credit point system based on student's workload must be consistent and comprehensible. Moreover, it has to be made transparent to relevant external stakeholders (in the module descriptions, for instance).

The peers considered this criterion as partly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Module descriptions
- Evaluation and Internal Regulations (access on July 2nd 2016):
    - http://www.usmp.edu.pe/ffia/index.php
    - http://www.usmp.edu.pe/guiaestu/
    - http://www.usmp.edu.pe/ffia/index.php
    - http://www.usmp.edu.pe/ffia/files/calendario2016/directiva_evaluaciones.pdf
- Information about Final Project of Industrial Engineering (access on July 2nd 2016):
    - http://www.usmp.edu.pe/PFII/
- Exemplary course documentation, exams, final thesis
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:

The examination practice in place is clearly and transparently described in the syllabi, including the examination forms, the weighting of the examination parts as well as the calculation of the final grade. The evaluation methods include, depending on the subject and the expected module learning outcomes, exams, assignments, lab sessions, projects, and presentations and are in their concept and variety fully satisfactory. Oral examinations do occur in the form of presentations (in project works, for instance) and as part of the capstone project. The panel welcomed this assessment method as it tests practically whether students are able to present computer and industrial engineering tasks in a professional manner. During the visit, the panel analyzed a number of final projects and exam papers and gained the impression that the academic level was adequate.

The university management defined the practice of continuous assessment as the mandatory examination. Summarizing, the concept of examination consists of a mix of mid-term examinations, final examinations and subject-specific assignments. The panel appreciated this kind of continuous learning assessment as it allows a close monitoring of the students' learning progress and encourages students' learning throughout the semester. By way of helping students to consciously assess their actual state of knowledge, the assessment procedure at the same time contributes to an adequate exam preparation.

The relevant rules for examination and evaluation criteria are transparently put into a legal framework, as both students and lecturers confirmed in the audit discussions. No re-examinations are offered to the students. However, all mandatory modules are offered every semester, so students may register again in the next semester. When students fail a course, they can take all the courses of the next semester except those where the failed course is required. Students who have failed the same course three times or two consecutive times three or more courses in the previous term, will be evaluated by the Minimum Academic Performance Commission, which will determine their permanence or expulsion due to academic deficiencies. Students positively noted if they have to repeat a module the next semester, they have the additional opportunity to take up to two courses in summer (no official semester) in order to complete the degree without exceeding the regular duration. The peers ask the school to clarify the rules for disability compensation measures, illness and other mitigating circumstances, because the peers did not find them in the provided documents.

Regarding the organization of the evaluation the students seemed very satisfied and the peers acknowledged that the evaluation schedule is designed by the central Academic Coordination. However, in order to finally assess if the number and distribution of the exams ensure that both the exam load and preparation time are adequate the faculty is asked to provide examination schedule for each program from the last 4 semesters including mid-term and final-exams.

The peers discussed with the HEI that a final thesis is not part of the degree program. They learned that a thesis is not required to obtain the degree. However, it is required to obtain the professional title (Título Professional de Ingeniero), so students develop their thesis after they graduated from the university. Instead of a thesis both programs include capstone courses "Project I" and "Project II", where the basis for the later elaboration of a thesis is laid. In those modules students develop a project in a real environment, according to their professional field. In "Project I" they must present a project plan and in "Project II" they present the development, implementation and results of the same project. Both courses require a final exam which is actually a presentation in front of a jury composed by experienced professors who perform a comprehensive evaluation of students

and their projects, serving as a good exercise to prepare for a thesis defense in the future. The peers appreciated that the final projects must be carried out in cooperation with a company even if it is not always easy to find a company as the students stated. They considered the projects conducted as strong points of both study programs. Additionally, the peers were impressed that students present their final projects in short videos which are published on the respective websites. The panel understood that the university is currently in a transition phase as according to the new university law, approved by the Peruvian Congress in 2014, from 2018 onward students must present a thesis to get the Bachelor's degree and also to get the professional title. In order to support the students, a thesis workshop for each program is offered since 2015, where recent graduates have a thesis advisor who guides them during the thesis development process. In light of the new developments the peers highly recommended to include the mandatory thesis in the curricula from 2018 onwards in order to ensure that students develop their thesis within the five years of study. This would allow students to complete the degree without exceeding the regular duration.

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

The HEI explained that disability and illness compensation measures are in place; however rules for disability compensation measures, illness and other mitigating circumstances must be defined in official documents such as the study or examination regulations etc.

According to the provided examination schedule for each program the peers confirmed that the number and distribution of the exams ensure that both the exam load and preparation time are adequate.

The peers thanked the HEI for the additionally provided information on the support for students in order to develop their thesis and recommended to include the mandatory thesis in the curricula from 2018 onwards.

Apart from the above mentioned aspect, the peers concluded that this criterion is fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- CVs of the staff members
- Information about administrative staff
- SAR
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:

The panel gained an impression of the staff qualifications as well as lecturers research activities during the discussions and through the provided CVs. With regard to the instructors' qualifications, the panel noted the efforts made by USMP to implement one of the recommendations from the first accreditation: namely, to increase the opportunities for personal improvement and qualification with respect to research, internationalization and teaching. The peers acknowledged that the mid-term strategy of USMP included the continuous augmentation of staff qualification which is stipulated by the new university law from 2014. Both schools encourage professors to carry out national or international graduate studies to get Master and PhD degrees; as a result a good number of them has started or completed their graduate studies in the recent years. While a good progress had been made, the panel still encouraged the university to further developing the academic qualification of their staff members.

The peers found the research activities of the instructors as rather limited. A few applied research projects are carried out in cooperation with companies or sponsored by the government and published at the university journals. The peers learned that the strategic focus at USMP is set on strengthening research activities. In a first step the faculty established research groups and instructors participate at research congresses occasionally. In theory, it is possible to take sabbaticals, however no sabbaticals were taken so far. The peers supported the efforts of the university to strengthen research in order to include state-of-the-art contents in the modules. In addition, the university should support teaching staff in conducting research.

The panel deducted that the overall composition of the staff members was adequate for the successful implementation of both Bachelor programs. The panel learned that full-time professors with an average teaching load of 12-18 hours per week are deeply involved in the management and administration of the programs and the school. In order to

finally assess if sufficient teaching staff resources are available teaching load tables including all instructors of the programs should be provided by the HEI.

Criterion 4.2 Staff development

Evidence:

- SAR
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
In line with the above considerations, the panel considered that USMP staff members principally have access to and make use of further education offers. The teaching staff trainings are governed by the training policy at the Faculty of Engineering and Architecture. Sponsoring is provided to faculty for conducting graduate studies as above mentioned as well as internal and external training courses including pedagogical and teaching skills. The peers observed that English competences of the teaching staff could be improved in order to maintain competitiveness and to foster international research activities. Also in light of the peers recommendation to increase the usage of the English language in the programs English language competences of the lecturers should be improved.

Criterion 4.3 Funds and equipment

Evidence:

- SAR
- On-site visit
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
In recent years one of the main objectives was the financial consolidation of USMP which is now reached, so other campuses in Peru can be opened. Strategically, USMP is entering the second phase where the focus is set on strengthening research. Financial resources are derived principally from the study fees with additional income from associated companies. Income is collected in the central budget which is distributed to the department budget and in turn spent, according to a mid- and long-term investment plan on improving the study conditions and equipment, staff salaries and new student loans. The panel considered the financial strategy and the resources available for the programs under review to be solid.

Concerning the physical resources the panel gained the impression that the teaching facilities and infrastructure available to students, in particular classrooms, computer rooms, laboratories and library are very suitable and adequate. The panel acknowledged that the laboratories used for the courses are well equipped and well organized. The technical staff in the labs demonstrated a high degree of expertise and responsibility. Students also confirmed that access to the necessary software resources is possible also from their private computers and from home. However, the range of the Wi-Fi system could be improved as students noticed.

In terms of external collaboration, the panel noted that USMP has very close links to Peruvian companies. These are utilized in a three-fold way: firstly, industry representatives participate in the quality assurance and further development of the degree programmes (see also criterion 6), secondly, for recruiting (part-time) teaching staff, and thirdly for offering internships and job opportunities to the students. All these activities aim at ensuring that the competence profiles of graduates and the curricula meet the relevant requirements of to the labour market in the country.

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

According to the provided information it seems that sufficient teaching staff is available for sustaining the degree programs.

The peers positively noticed that the Faculty of Engineering and Architecture is working on offering English language courses for their teaching staff in order to improve their English language skills. This will also foster international research activities. Nevertheless, the peers recommended to further improve English language competences of staff members and to significantly increase the role of research in the faculty and to support teaching staff in conducting research.

In addition to the recommendations the peers concluded that this criterion is fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The module descriptions generally include all elements necessary to allow stakeholders, in particular students, to gain full information about a module's objectives and content, its link to the programme objectives as well as prerequisites, workload, teaching methodology, exam requirements, literature and teaching staff.

The panel noticed some inconstancies between the course titles and the content of modules especially for the Bachelor's program Information Systems. According to the module description the module "Introduction to Programming", given in Term 1 might be renamed to "Introduction to Algorithms", because no programming language is taught or used. Additionally, the module titles "Programming I" and "Programming II" of the specialization *Software Engineering* seems misleading; these titles are typical for introductions e.g. to Java or C, but the courses are focused on advanced topics like Web programming, design patterns, etc. Also the name "Applications Development I and II" seem not specific enough for the content and might be reconsidered.

Additionally the peers noticed that the impartation of fundamental knowledge and competencies in theoretical informatics especially formal languages and automata is not mentioned in the module "Artificial Intelligence and Robotics" of the specialization Software Engineering and the modules of the core area Computer Science. The same applies to introduction of Java as the introductory programming courses seem to be based on C#. The peers ask the program coordinators to specify in which courses and to which extend this topic is imparted.

The peers noticed that the module descriptions are published on the school's intranet (so called Campus Virtual) and given at the beginning of every semester to the students, however they should be made available to external stakeholders as well (see criterion 1.3).

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Model of Diploma Supplement for each programme
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:
The peers reviewed the provided Diploma Supplements and noticed under 2.1 that the name of the qualification is given in Spanish only, however an official English translation should be used. The main field of study (2.2) should be student-specific and especially for the Bachelor in Information Systems as students only choose one specialization. 3.2 of the Diploma Supplement states the number of ECTS credits achieved, whereas 4.2 and the table in 4.3 list Peruvian credits. The stated number of ECTS credits achieved (3.2) is not calculated correctly as no credit point system based on the students workload is in place yet. The tables in 4.3 of the Diploma Supplement list all possible electives, not only the courses indeed attended by the student which should be corrected as well.

The panel pointed out that a Diploma Supplement in Spanish and English should be automatically issued together with the HEI`s diploma after the graduation. The Diploma Supplement should be student-specific and therefore should be corrected according to the above mentioned aspects. Additionally, it should provide information about the individual performance of the student as well as statistical data regarding the final mark and information about the composition of the final mark. This allows the reader to categorize the individual result. The graduates benefit from this standardized document because this way their academic qualification is more easily recognized abroad, the description of their academic career and the competencies acquired during their studies are included, and it offers them easier access to opportunities for work or further studies abroad. Graduation represents the culmination of the students' period of study. Students need to receive documentation explaining the qualification gained, including achieved learning outcomes and the context, level, content and status of the studies that were pursued and successfully completed.

Criterion 5.3 Relevant rules

Evidence:

- Regulations on website (access on July 2nd, 2016):
    - http://www.usmp.edu.pe/ffia/index.php
- Admission requirements (access on July 2nd, 2016): http://admision.usmp.edu.pe/
- Evaluation and Internal Regulations (access on July 2nd 2016):

- http://www.usmp.edu.pe/ffia/index.php
- http://www.usmp.edu.pe/guiaestu/
- http://www.usmp.edu.pe/ffia/index.php
- http://www.usmp.edu.pe/ffia/files/calendario2016/directiva_evaluaciones.pdf

Preliminary assessment and analysis of the peers:

The panel acknowledged that all rules and regulations governing a student's life-cycle, i.e. admission, progression and graduation, are available on the university and the school website in Spanish.

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

5.1 Module descriptions

The peers understood that the programming languages Java and C# are taught. The module descriptions of „Algorithms and Data Structures II", „Programming I" and „Programming II" refer to Java. However, in the module descriptions of „Introduction to Programming" and „Algorithms and Data Structures I", neither Java nor C# are explicitly mentioned; the reading list includes only books on C#. In terms of transparency the peers strongly encouraged the HEI to explicitly describe in the section "content" of the module descriptions which programming languages are taught.

The peers learned that formal languages and automata are currently not included in the curriculum of the undergraduate degree program Information Systems. Therefore, it is not necessary to revise the module description regarding this aspect.

The peers conclude that the above mentioned complaints are only minor inconstancies. However, the module descriptions have to be revised regarding the workload distribution (see criterion 2.2) and in terms of transparency it is highly recommended to make the module descriptions also available to external stakeholders (e.g. by publishing them on the website.)

5.2 Diploma Supplement

The handed in Diploma Supplement for the undergraduate degree program Information Systems still has some shortcomings with regard to the above mentioned aspects. The HEI did not hand in a revised Diploma Supplement for the undergraduate degree program Industrial Engineering. From the first semester in 2017 graduates from the Industrial Engineering Program will be provided with a Diploma Supplement, however for the Informa-

tion Systems program no information was provided. Consequently, the peers uphold their requirement that the Diploma Supplements of both study programs have to include detailed information as described above.

5.3 Rules

Rules for disability compensation measures, illness and other mitigating circumstances as well as rules for the recognition of credits acquired at other higher education institutions in accordance with the Lisbon Recognition Convention must be defined.

The peers consider this criterion to be partly fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- SAR
- Evaluation report
- Discussions during onsite visit

Preliminary assessment and analysis of the peers:

Every program at the Faculty of Engineering and Architecture of the San Martin de Porres University has an Academic Committee responsible for the quality assurance. The evaluation is carried out by the Academic Committee of the Faculty. For the evaluation process, the HEI has defined the following stages:

Modules are assessed by students', faculty's, graduates' and employers' surveys as well as by the assessment of course files (i.e. samples of tests exams or students' work) and project course works. The results from these surveys are classified according their importance, all targeted at verifying whether the programme educational objectives, intended learning outcomes and course objectives have been achieved. In addition, the courses that are to be evaluated are chosen by the faculty. For these courses, students' work samples, exams, reports and presentations are assessed. This evidence is evaluated by the Accreditation Committee according to a set scheme of criteria and weighed according to the module assessment by the students. A final report that includes recommendations is sent to the department chair. Students and graduates are represented in the Accreditation Committee and participate in the quality assurance process through meetings and focus groups where they can make their recommendations for the program improvement

and receive information on the evaluation process developed by the Accreditation Committee. The peers also noted the clear orientation towards program objectives and learning outcomes in the surveys.

The results of the course evaluations are provided to the individual lecturers who confirm that they find them helpful in order to improve their teaching material, content and methods. The representatives of USMP relate that dismissals can also be a consequence of continuous negative evaluations. Additionally, annual meetings with all teachers take place where teaching tools, book use etc. are discussed and suggestions are made to the directors of the schools. The panel found that the responsible committees as well as the teaching staff members themselves aim to clearly link their teaching activities, based on the results of surveys and performance criteria, on the achievement of the intended graduates' competences.

Several surveys were carried out among students to encompass certain aspects of teaching and learning. However, as mentioned in criterion 2.2 the credit point system is not oriented on the amount of work required from students, in consequence the overall student workload is not assessed. The peers commented that in light of the quality assurance and student progression the instrument of monitoring the workload of the students is very useful. In view of the intended internationalization and in order to facilitate comparability with European degrees, it is necessary to introduce a workload based credit point system alongside the national Peruvian system. The peers discovered that not all feedback loops had been closed yet: students were not informed about the results of surveys; there was only indirect feedback to students. They would only implicitly notice whether their feedback had any consequences when, for example, a teacher would no longer be employed. As a consequence the peers recommended that the results of student's evaluation are made transparent to the students themselves for example by discussing them with the students at the end of the term, so that they may notice that the results are taken into account for the further development of the study programs.

Overall, the panel judged the Quality Assurance System to be very sophisticated and to incorporate relevant processes for the successful implementation and development of the programs. Also, they appreciated that as a result of surveys and evaluations, measurements are carried out and the degree programs are adapted, recently done in 2014. In addition to the formal and systematic quality assurance mechanisms, the panel commended that the close relation between students and teachers contributed to an atmosphere of confidence.

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

The peers thanked the HEI for the additionally provided evaluation results and confirmed that the results reflect the positive impressions during the on-site-visit.

The peers positively acknowledged that students of the Industrial Engineering program will be informed via email about the evaluation results from 2017 onwards. The peers still encouraged the HEI to inform all students systematically about the results of surveys in order to close feedback loops.

As already mentioned under criterion 2.2 the peers recommended to systematically monitor the workload of the students. Additionally, the reasons for exceeding the regular study duration of five years should be identified and if necessary, adequate measures should be implemented to ensure that students can complete the degree programs under review without exceeding the regular course duration.

Overall, the peers consider this criterion to be fulfilled.

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:

1. Please specify in which courses and to which extend theoretical informatics especially formal languages and automata is imparted.
2. Information on partner universities and rules for recognizing credits achieved abroad
3. Statistical data on student progression and drop-out rates
4. Examination schedule for each program from the last 4 semesters including midterm and final exams
5. Evaluation reports from the last two semesters for both study programs
6. Rules for disability compensation measures, illness and other mitigating circumstances
7. Teaching load table

E Comment of the Higher Education Institution (03.08.2016)

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

1. Information on partner universities and rules for recognizing credits achieved abroad
2. Statistical data on student progression and drop-out rates
3. Examination schedule for each program from the last 4 semesters including midterm and final exams
4. Evaluation reports from the last two semesters for both study programs
5. Teaching load table

F Summary: Peer recommendations (18.08.2016)

Taking into account the additional information and the comments given by USMP 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 Industrial Engineering	with requirements	EUR-ACE®	30.09.2022
Ba Information Systems	with requirements	Euro-Inf®	30.09.2022

Requirements:

For both programs:

A 1. (ASIIN 2.1) Define the rules for the recognition of credits acquired at other higher education institutions in accordance with the Lisbon Recognition Convention. It should be made transparent that the recognition is guaranteed unless substantial differences can be proven by the higher education institution (change of burden of proof).

A 2. (ASIIN 2.2; 5.1) Revise the Peruvian system of credit points and its conversion into a credit point system based on student's workload in term of consistencies and comprehensibility. Moreover, it has to be made transparent to relevant external stakeholders (in the module descriptions and Diploma Supplement, for instance).

A 3. (ASIIN 3) Define rules for disability compensation measures, illness and other mitigating circumstances.

A 4. (ASIIN 5.2.) Ensure that the Diploma Supplement contains detailed information as described in the report and includes statistical data on the grade distribution.

For the Bachelor program Information Systems

A 5. (ASIIN 1.1) Draft the educational objectives/learning outcomes for the three specializations so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree program. Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.

Recommendations

For the Bachelor program Information Systems

E 1. (ASIIN 1.3) It is recommended to strengthen the fundamentals of theoretical informatics (basics of formal languages, automata, and complexity) in all three specializations of the study program.

For both programs:

E 2. (ASIIN 2.1) It is highly recommended to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 3. (ASSIN 1.3, 2.1, 3) It is highly recommended to include the mandatory thesis in the curriculum, from 2018 onwards.

E 4. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 5. (ASIIN 4.1) It is highly recommended to significantly increase the role of research in the faculty and to support teaching staff in conducting research.

E 6. (ASIIN 1.3, 5.1) It is highly recommended to make the module descriptions also available to external stakeholders.

E 7. (ASIIN 6) It is highly recommended that students are systematically informed about the results of surveys in order to close feedback loops in this regard.

E 8. (ASIIN 6) It is recommended to monitor the student workload. Additionally, the reasons for exceeding the regular study duration of five years should be identified and if necessary, adequate measures should be implemented to ensure that the degree programs under review can be completed by students without exceeding the regular course duration.

G Comment of the Technical Committees

Technical Committee 04 – Computer Science/Informatics (07.09.2016)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the procedure, especially the requirement A1. As Peru isn´t part of the European Higher Education Area and thus didn´t ratify the Lisbon Convention the respective reference should be deleted. However, the requirement A1 needs to be maintained as it is a set ASIIN criterion. In all other aspects the technical committee judges the assessment of the peers as well as the proposed requirements and recommendations to be adequate. It only proposes a different wording of requirement A2 for better comprehension.

Assessment and analysis for the award of the Euro-Inf® Label:

The Technical Committee deems that the intended learning outcomes of the degree programme comply with the Subject-Specific Criteria of the Technical Committee 04 - Informatics.

The 04 – Computer Science/Informatics recommends the award of the seals as follows:

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ba Industrial Engineering	with requirements	EUR-ACE®	30.09.2022
Ba Information Systems	with requirements	Euro-Inf®	30.09.2022

Requirements:

For both programs:

A 1. (ASIIN 2.1) Define the rules for the recognition of credits acquired at other higher education institutions.

A 2. (ASIIN 2.2; 5.1) Revise the conversion of the Peruvian credit points into a credit point system based on student's workload. Moreover, it has to be made transpar-

ent to relevant external stakeholders (in the module descriptions and Diploma Supplement, for instance).

A 3. (ASIIN 3) Define rules for disability compensation measures, illness and other mitigating circumstances.

A 4. (ASIIN 5.2.) Ensure that the Diploma Supplement contains detailed information as described in the report and includes statistical data on the grade distribution.

For the Bachelor program Information Systems

A 5. (ASIIN 1.1) Draft the educational objectives/learning outcomes for the three specializations so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree program. Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.

Recommendations

For the Bachelor program Information Systems

E 1. (ASIIN 1.3) It is recommended to strengthen the fundamentals of theoretical informatics (basics of formal languages, automata, and complexity) in all three specializations of the study program.

For both programs:

E 2. (ASIIN 2.1) It is highly recommended to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 3. (ASIIN 1.3, 2.1, 3) It is highly recommended to include the mandatory thesis in the curriculum, from 2018 onwards.

E 4. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 5. (ASIIN 4.1) It is highly recommended to significantly increase the role of research in the faculty and to support teaching staff in conducting research.

E 6. (ASIIN 1.3, 5.1) It is highly recommended to make the module descriptions also available to external stakeholders.

E 7. (ASIIN 6) It is highly recommended that students are systematically informed about the results of surveys in order to close feedback loops in this regard.

E 8. (ASIIN 6) It is recommended to monitor the student workload. Additionally, the reasons for exceeding the regular study duration of five years should be identified and if necessary, adequate measures should be implemented to ensure that the degree programs under review can be completed by students without exceeding the regular course duration.

Technical Committee 06 – Industrail Engineering (08.09.2016)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the procedure. Regarding requirement one, the technical committee determines that Peru isn´t part of the European Higher Education Area ("Bologna Process") and thus didn´t ratify the Lisbon Convention. Insofar the technical committee recommends to erase the respective indication in requirement one. In all other aspects the technical committee judges the assessment of the peers as well as the proposed requirements and recommendations to be adequate.

Assessment and analysis for the award of the EUR-ACE® Label:

The Technical Committee deems that the intended learning outcomes of the degree programme do comply with the engineering specific part of Subject-Specific Criteria of the Technical Committee 06.

The Technical Committee 06 recommends the award of the seals as follows:

Degree Programme	**ASIIN seal**	**Subject-specific Label**	**Maximum duration of accreditation**
Ba Industrial Engineering	with requirements	EUR-ACE®	30.09.2022

Requirements:

For both programs:

A 1. (ASIIN 2.1) Define the rules for the recognition of credits acquired at other higher education institutions.

A 2. (ASIIN 2.2; 5.1) Revise the Peruvian system of credit points and its conversion into a credit point system based on student's workload in term of consistencies and comprehensibility. Moreover, it has to be made transparent to relevant external stakeholders (in the module descriptions and Diploma Supplement, for instance).

A 3. (ASIIN 3) Define rules for disability compensation measures, illness and other mitigating circumstances.

A 4. (ASIIN 5.2.) Ensure that the Diploma Supplement contains detailed information as described in the report and includes statistical data on the grade distribution.

For the Bachelor program Information Systems

A 5. (ASIIN 1.1) Draft the educational objectives/learning outcomes for the three specializations so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree program. Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.

Recommendations

For the Bachelor program Information Systems

E 1. (ASIIN 1.3) It is recommended to strengthen the fundamentals of theoretical informatics (basics of formal languages, automata, and complexity) in all three specializations of the study program.

For both programs:

E 2. (ASIIN 2.1) It is highly recommended to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 3. (ASIIN 1.3, 2.1, 3) It is highly recommended to include the mandatory thesis in the curriculum, from 2018 onwards.

E 4. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 5. (ASIIN 4.1) It is highly recommended to significantly increase the role of research in the faculty and to support teaching staff in conducting research.

E 6. (ASIIN 1.3, 5.1) It is highly recommended to make the module descriptions also available to external stakeholders.

E 7. (ASIIN 6) It is highly recommended that students are systematically informed about the results of surveys in order to close feedback loops in this regard.

E 8. (ASIIN 6) It is recommended to monitor the student workload. Additionally, the reasons for exceeding the regular study duration of five years should be identified and if necessary, adequate measures should be implemented to ensure that the degree programs under review can be completed by students without exceeding the regular course duration.

H Decision of the Accreditation Commission (30.09.2016)

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

The accreditation commission discusses the procedure regarding the aspect that the impartation of fundamental knowledge and competencies in theoretical informatics especially formal languages and automata is missing in the Bachelor's degree programme Information Systems.

Besides of the divergence from the ASIIN Subject Specific Criteria for Informatics degree programs the accreditation commission doubts that the intended learning outcome "Apply knowledge of computing using adequate methodologies, techniques and tools to solve problems" can be achieved without including aspects of theoretical informatics in the curriculum. In particular, in view of the fact that they are indispensable for solving some fundamental programming tasks in all three specializations of the Information Systems program. Therefore, the commission requires including fundamentals of theoretical informatics (i.e., basics of formal languages, automata, and complexity) into the curriculum and upgrades the recommendation E1 to a requirement.

In all other aspects the accreditation commission follows the assessment of the peers and the technical committee 04 and makes only some changes with regard to the wording

Assessment and analysis for the award of the EUR-ACE® Label:

The Accreditation Commission deems that the intended learning outcomes of the degree programme do comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 06.

Assessment and analysis for the award of the Euro-Inf® Label:

The Accreditation Commission deems that the intended learning outcomes of the degree programme do overall comply with the Subject-Specific Criteria of the Technical Committee 04 - Informatics.

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

Degree Programme	ASIIN seal	Subject-specific Label	Maximum duration of accreditation
Ba Industrial Engineering	with requirements for one year	EUR-ACE®	30.09.2022
Ba Information Systems	with requirements for one year	Euro-Inf®	30.09.2022

Requirements:

For both programs:

A 1. (ASIIN 2.1) Define the rules for the recognition of credits acquired at other higher education institutions.

A 2. (ASIIN 2.2; 5.1) Revise the conversion of the Peruvian credit points into a credit point system based on student's workload. Moreover, it has to be made transparent to relevant external stakeholders (in the module descriptions and Diploma Supplement, for instance).

A 3. (ASIIN 3) Define rules for disability compensation measures, illness and other mitigating circumstances.

A 4. (ASIIN 5.2.) Ensure that the Diploma Supplement contains detailed information as described in the report and that it includes statistical data about the distribution of the final grade.

For the Bachelor program Information Systems

A 5. (ASIIN 1.1) Draft the educational objectives/learning outcomes for the three specializations so that they describe the academic, subject-specific and professional classification of the qualifications gained in the degree program. Make the qualification objectives accessible for all relevant stakeholders and ensure that the stakeholders can refer to them.

A 6. (ASIIN 1.3) Strengthen the fundamentals of theoretical informatics (basics of formal languages, automata, and complexity) in all three specializations of the degree programme.

Recommendations

For the Bachelor program Information Systems

For both programs:

E 1. (ASIIN 2.1) It is highly recommended to proactively inform the students about the opportunities to complete a period of professional practice or a stay at a different higher education institution without any prolongation of the studies.

E 2. (ASIIN 1.3, 2.1, 3) It is highly recommended to include a thesis in the curriculum.

E 3. (ASIIN 1.3, 4.2) It is recommended to improve English language competences of staff members and students.

E 4. (ASIIN 4.1) It is highly recommended to significantly increase the role of research in the faculty and to support teaching staff in conducting research.

E 5. (ASIIN 1.3, 5.1) It is highly recommended to make the module descriptions also available to external stakeholders.

E 6. (ASIIN 6) It is highly recommended that students are systematically informed about the results of surveys in order to close feedback loops in this regard.

E 7. (ASIIN 6) It is recommended to monitor the student workload. Additionally, the reasons for exceeding the regular study duration of five years should be identified and if necessary, adequate measures should be implemented to ensure that the degree programs under review can be completed by students without exceeding the regular course duration.

I Fulfilment of Requirements (30.06.2017)

The Accreditation Commission for Degree Programmes decides to extend the award of the seals as follows:

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Industrial Engineering	Requirement 4 and 6 not fulfilled	EUR-ACE®	6 months prolongation

Degree programme	**ASIIN-label**	**Subject-specific label**	**Accreditation until max.**
Ba Information Systems	Requirement 4 and 6 not fulfilled	Euro-Inf®	6 months prolongation

J Fulfilment of Requirements (08.12.2017)

Assessment of the peers

The peers come to the following conclusion regarding the fulfilment of requirements:

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Industrial Engineering	All requirements fulfilled	EUR-ACE®	30.09.2022
Ba Information Systems	All requirements fulfilled	Euro-Inf®	30.09.2022

Assessment of the Technical Committee 04 – Informatics

The Technical Committee 04 comes to the following conclusion regarding the fulfilment of requirements:

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Industrial Engineering	All requirements fulfilled	EUR-ACE®	30.09.2022
Ba Information Systems	All requirements fulfilled	Euro-Inf®	30.09.2022

Assessment of the Technical Committee 06 – Business Engineering

The Technical Committee 06 comes to the following conclusion regarding the fulfilment of requirements:

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Industrial Engineering	All requirements fulfilled	EUR-ACE®	30.09.2022

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Information Systems	All requirements fulfilled	Euro-Inf®	30.09.2022

Assessment of the Accreditation Committee

The Accreditation Committee comes to the following conclusion regarding the fulfilment of requirements:

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Industrial Engineering	All requirements fulfilled	EUR-ACE®	30.09.2022
Ba Information Systems	All requirements fulfilled	Euro-Inf®	30.09.2022

Appendix: Programme Learning Outcomes and Curricula

According to the website the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree program Industrial Engineering:

"Upon completion of the program our students acquire:

(a) Ability to apply the knowledge of mathematics, science and engineering.
(b) Ability to design and conduct experiments, as well as to analyze and interpret the data obtained.
(c) Ability to design systems, components or processes to satisfy desired needs.
(d) Ability to work adequately in multi-disciplinary teams.
(e) Ability to identify, formulate and solve engineering problems.
(f) Understanding of professional and ethical responsibility.
(g) Ability to communicate effectively.
(h) Broad education required to understand the impact of engineering solutions in a global and societal context.
(i) Recognize the need of and be able to keep learning and training during their lifetime.
(j) Knowledge of the main contemporary issues.
(k) Ability to use modern techniques, skills and tools required for the practice of engineering."

The following **curriculum** is presented:

Program: Industrial Engineering		OUTCOMES										
Curriculum		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Term 1	Introduction to Engineering	4	3	2	3	3	4	4	3	4	3	3
	Study Methods	1	3	1	4	1	3	3	1	5	5	1
	Philosophy	1	3	1	5	2	5	5	5	5	5	1
	Analytical Geometry	5	3	2	2	4	2	3	2	2	2	2
	Discrete Mathematics	5	2	2	2	4	2	3	2	3	3	4
	National Reality	1	3	1	5	2	5	5	5	5	5	1
	Spanish	1	3	1	5	3	5	5	4	5	5	1
	Activities I	1	1	1	4	1	4	4	4	4	4	3
	English I	1	1	1	1	1	1	5	1	5	3	1
Term 2	Drawing and Graphical Design	4	2	4	2	4	2	2	3	3	1	4
	Introduction To Computing	5	4	4	3	5	3	3	4	3	3	5
	Calculus I	5	5	3	2	5	3	3	3	3	2	5
	Introduction To Economic Theory	3	2	2	3	3	4	4	4	3	4	2
	Linear Algebra	5	1	3	1	4	3	2	3	2	1	4
	Activities II	1	1	1	4	1	4	4	4	4	4	3
	English II	1	1	1	1	1	1	5	1	5	3	1
Term 3	Statistics and Probabilities I	4	5	1	4	4	3	3	4	3	2	4
	Physics I	5	5	1	3	5	3	3	3	3	3	3
	Calculus II	5	5	3	4	3	3	1	5	3	3	5
	Algorithms and Data Structures I	3	3	5	3	5	2	3	3	2	2	5
	Industrial Design by Computer	4	3	4	3	3	4	3	4	4	4	5
Term 4	Statistics and Probabilities II	5	4	2	2	3	3	3	1	2	1	4
	Micro Economy	3	2	2	3	3	4	4	4	3	4	2
	Industrial Chemistry	5	5	4	5	4	4	4	3	4	4	5
	Physics II	5	5	1	3	5	3	3	3	3	3	3
	Differential Equations	5	5	3	3	5	3	2	4	2	2	4
Term 5	Administrative Engineering	1	3	3	4	2	4	3	3	3	4	1
	Electrical and Electronic Engineering	5	5	4	3	3	3	3	3	3	3	4
	General Accounting	5	4	4	5	1	5	3	5	3	3	2
	Materials Engineering	4	4	3	3	4	3	3	3	4	4	4
	Applied Mechanics	4	2	3	4	3	3	3	3	3	3	3
Term 6	Operations Research I	5	4	4	3	4	3	3	4	2	1	4
	Methods Engineering I	3	4	3	4	3	1	2	2	1	2	3
	Process Engineering	5	4	4	4	3	4	3	4	3	3	5
	Costs Engineering	2	2	2	5	3	5	4	4	4	3	3
	Strength of Materials I	4	2	3	4	3	3	3	3	3	3	3
Term 7	Industrial Instrumentation and Control	4	3	3	3	3	4	3	4	3	3	5
	Operations Research II	5	4	4	3	4	3	3	4	2	1	4
	Methods Engineering II	4	3	4	4	4	3	4	3	3	4	4
	Marketing Research	3	3	2	4	2	4	4	3	3	4	2

	Process Manufacturing	5	4	4	3	5	4	2	4	3	2	2
	Financial Management	5	3	1	4	2	3	4	3	5	4	1
Term 8	Quality Control	5	5	2	3	4	4	5	2	3	2	5
	Formulation and Evaluation of Industrial Projects	4	2	3	4	3	4	4	3	3	3	2
	Operations Planning and Control I	3	2	4	4	4	4	4	4	4	4	4
	Industrial Automation	4	4	5	5	5	3	4	4	4	3	5
	Planning and Balance Score Card	1	3	1	5	1	1	5	1	1	3	1
	Modern Manufacturing Workshop	3	3	4	3	3	3	3	4	3	3	3
Cycle 9	Design of Production Systems	4	4	4	4	5	4	4	4	4	3	5
	Process Simulation and Control	5	5	5	3	5	5	3	3	2	2	3
	Operations Planning and Control II	4	4	5	4	5	4	5	3	4	5	4
	Final Project of Industrial Engineering I	4	4	5	4	4	4	4	5	4	4	5
	Industrial and Organizational Psychology	1	1	1	4	2	4	4	2	4	2	1
Term 10	Final Project of Industrial Engineering II	4	4	5	5	4	4	5	5	4	4	5
	Maintenance, Security and occupational health	3	4	3	4	4	3	3	3	3	3	4
	Management of Personnel and Labor Legislation	1	3	3	5	2	5	5	4	4	3	1
	Ethics and Moral	1	1	1	5	1	5	5	4	4	3	1
Elective	Total Quality Management	1	5	3	1	5	1	1	3	3	1	1
	Advanced Costs Engineering	2	1	1	3	3	2	2	2	2	1	3
	Systems of Inventory and Distribution	4	4	5	4	5	4	4	3	4	4	5
	Supply Chain Management	3	3	5	5	3	5	5	3	3	3	5
	Project Management PMI	5	1	5	5	3	3	5	3	1	1	1
	Conflict and Negotiations	1	1	1	5	1	5	5	1	3	3	1
	Innovation Management	1	1	3	3	3	3	1	5	5	3	3

According to the website the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree program Information Systems:

"Upon completion of the program our students acquire:

(a) Ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.
(b) Ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
(c) Ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
(d) Ability to function effectively on teams to accomplish a common goal.
(e) Understanding of professional, ethical, legal, security and social issues and responsibilities.
(f) Ability to communicate effectively with a range of audiences.
(g) Ability to analyze the local and global impact of computing on individuals, organizations, and society.
(h) Recognition of the need for and an ability to engage in continuing professional development.
(i) Ability to use current techniques, skills, and tools necessary for computing practice.
(j) Understanding of and an ability to support the use, delivery, and management of information systems within an Information Systems environment."

The following **curriculum** is presented:

PROGRAM: INFORMATION SYSTEMS		Learning Outcomes									
Curriculum		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Term 1	Spanish			K			K				
	Activities I										
	• Chess		R		K				R		
	• Basket				K	K	K				
	• Dance				K		K		R		
	• Drawing				K		K		R		
	• Sculpture				K		K		R		
	• Soccer				K	R	R				
	• Futsal				R	R	R		K		
	• Guitar					R	R				
	• Karate					R	R				
	• Oratory				K		K		R		
	• Painting				K		K		R		
	• Theatre				K		K		R		
	• Voley				K	K	K				
	Introduction to Engineering and Computing		R			K		K	R		
	Introduction to Programming	R	R	R						K	

	Analytical Geometry	K	R				R				
	Study methods		R		K	R	R		K		
	National Reality				K	K	R	R	K		R
	English I						K		R		
Term 2	Philosophy						K	K	R	R	
	Activities II										
	• Basket				K	K	K				
	• Constitution				K		K		R		
	• Dance				K		K		R		
	• Soccer				R	R	R				
	• Karate					R	R				
	• Personal Marketing				K		K		R		
	• Oratory				K		K		R		
	• First Aid				K		K		R		
	• Theatre				K		K		R		
	Algorithms and Data Structure I	R	K	R						R	
	Introduction to Economic Theory	K	R				R	R			R
	Calculus I	K	R				R				
	Information Technology I	R	R	K							
	English II						K		R		
Term 3	Algorithms and Data Structure II	R	K	R						R	
	Linear Algebra	K								R	
	Information Technology II	R	R		R				R	R	
	Physics for Informatic	K	K	R							R
	Information Systems I		R	R	R	R	R	K		R	K
Term 4	Administrative Engineering		R			R	R				
	Discrete Mathematics	K	R								
	Information Systems II		R	R	R	R	R	K		R	K
	Information Technology III	R	R	R	R		R	R	R	K	
	Teory and Design of Data Bases	R	K	K	R		R			R	R
Term 5	Statistics and Probabilities I	K	R					R			
	General Accounting				R	K					
	Information Systems III		K	R	R		R		R		K
	Oratory and Leadership				R	R	K	R	R		
	Software Engineering I		K	K			R	R		K	K
	Ethics and Moral			R		K	R	R	R		
Term 6	Statistics and Probabilities II	K	R				R	R		R	
	Software Engineering II		K	K	R		R	R	R	K	K
	Workshop of Proyects	R	K	K	K	R	K	K		K	K
	Marketing				R	K	R	K		R	
Term 7	Design and Implementation of Systems		K	K	R		R	K	R	K	K
	Project Management		R	K	K	R	K	R	R	K	
	Financial Management	K	R			R	R				
Term 8	IT Resourses Management	R			R	R	R				R
	IS segurity and Audit		R	R				K		R	
Term 9	Project I	R	K	K	K	R	K	K		K	K

Term 10	Project II	R	K	K	K	R	K	K		K	K
Information Systems Electives	Data Base Management	K	K						R		R
	Operations Research I	K	R	R	K				R	R	R
	Business Inteligent		K	K	R					K	K
	Operations Research II	K	K						R	K	
	Formulation and Evaluation of Project	R	K	R	R	R	R	R		R	
	IT Estrategy Planning		K	K		R				R	K
	Business Architecture I	R	K	K				K	R		K
	Systems General Theory		R		R		R	K	R		
	Knowledge Management		K	R			R	R	K	R	R
Information Technology Electives	Network and Connectivity I (CCNA I CISCO)	R	K		R				R		
	Network and Connectivity II (CCNA II CISCO)		K		R					R	
	Distributed Processing			R	R		R			R	R
	Formulation and Evaluation of Project	R	K	R	R	R	R	R		R	
	Systems General Theory		R		R		R	K	R		
	IT Estrategy Planning		K	K		R				R	K
Software Engineering electives	Programming I			K	K					K	
	Programming II		R	K	R	R	R			K	
	Data Base Management	K	K						R		R
	Software Testing		K		R	K	R			K	
	Operations Research I	K	R	R	K				R	R	R
	Software Quality		K	R	R		R	K		K	K
	Application Development I	R	R	K	R	R	R	R	R	K	
	Application Development II		R	K	R					K	
	Artificial and Robotic Intelligence	R	R		R					K	
Free Electives	Organizational Behavior				K	R	R		R		
	Games Development	K	K	K	K	R	R	R	R	K	K
	Innovation Management		R	R		R		K	K	R	R
	Estrategic Management	K	R	R	K	K	K	R	R	R	R
	Systems Simulation	R	K	K	R		R	R	R	K	R
	Taller de Creatividad Empresarial	R	K		K	R	K	R	R		
	Computer Topics					R	R	K	K		