ASIIN Seal & European Labels

Accreditation Report

Bachelor's Degree Programmes
Information Systems
Industrial Engineering

Provided by
University of San Martín de Porres

Version: 24 September 2024

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 de Computación y Sistemas	Information Systems	ASIIN, Euro-Inf® Label	ASIIN, 25.09.2009 – 30.09.2022 Euro-Inf, 25.09.2016 – 30.09.2022 ABET, 01.10.2020 – 30.09.2028 ICACIT, 1.01.2022-31.12.2027	07
Ingeniería Industrial	Industrial Engineering	ASIIN, EUR- ACE® Label	ASIIN, 25.09.2009 – 30.09.2022 EUR-ACE, 25.09.2009 – 30.09.2022 ABET, 01.10.2008 – 30.09.2028 ICACIT, 01.01.2022 – 31.12.2027	06
Date of the contract: 28.03.2022 **Submission of the final version of the self-assessment report:** 21.02.2023 **Date of the onsite visit:** 29.03.2023				

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

[2] TC: Technical Committee for the following subject areas: TC 06 - Engineering and Management, Economics; TC 07 - Business Informatics/Information Systems.

at: Universidad San Martín de Porres, Facultad de Ingeniería y Agricultura	
Peer panel: Prof. Ing. Eber Joseph Ballon Alvarez, ESAN University, Lima, Peru Prof. Dr. Ing. Ingo Gestring, HTW Dresden Prof. Dr. Dennis Riehle, Universität Koblenz Miguel Vallés, ABB Motion S.A, Lima, Perú Ricardo Gabriel de la Cruz Chávez, ESAN University, Lima, Perú	
Representative of the ASIIN headquarter: Dr. Natalia Vega	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of December 10, 2015 Subject-Specific Criteria of Technical Committee 06 – Engineering and Management, Economics as of September 20, 2019 and Technical Committee 07 – Business Informatics/Information Systems as of December 8, 2017	

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 de Computación y Sistemas (Information Systems)	Bach. (Bachiller en Ingeniería de Compu tación y Sistemas) B.Eng. (Bachelor of Information Systems)	-	Level 6	Full time	-	10 Semesters	222 CP	1983-II
Ingeniería Industrial (Industrial Engineer ing)	Bach. (Bachiller en Ingeniería Industrial) B.Eng.(Bachelor of Industrial Engineer-ing)	-	Level 6	Full time	-	10 Semesters	222 CP	Rhythm: March and August of each year Program is offered every semester since 1989-I

The University of San Martín de Porres (USMP) is a private university located in Lima, the capital and largest city of Peru. In addition, there are the North Campus, in Chiclayo, and the South Campus, in Arequipa. It was established on 17th May 1962 and originally founded by the Dominican Order of the Catholic Church. Currently, the university has eight faculties and three institutes. More than 30.000 students are enrolled and about 41.058 graduated from USMP.

The Faculty of Engineering and Architecture of USMP was founded in 1983 and consists of five bachelor's degree programmes: Civil Engineering, Information Systems, Industrial Engineering, Architecture and Aeronautical Sciences. The faculty offers also two Master's degree programmes and one PhD programme. Furthermore, the faculty has several research institutes and centres such as the Research Centre (FIA), the Software and Interactive Technologies Research Laboratory, the Centre for Innovation and Development of Food Products (CIDPA).

For the Bachelor's degree programme **Information Systems (IS)** the institution has presented the following profile in the University Website:

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

„**Vision**

To become the best Professional School in the country dedicated to the training of international class Information Systems; with an institutional culture in which values are strengthened; committed to the constant search for excellence, the integral development of the student, research and its projection to society.

Mission

To train professionals in specialty of Information Systems with solid, competent, and creative values to solve problems in labor and social context; develop skills to respond changes and challenges in environment; promote applied research in information systems development; promote outreach and social projection activities that benefit society.

Actions Fields

The Information Systems program focused on management and business as its application environment.

The Information Systems can join public and private institutions in various fields, such as systems development, information systems, artificial intelligence and robotics, IT management, communications systems, business management support, computer systems, teaching and applied research.“

For the Bachelor’s degree programme **Industrial Engineering (IE),** the institution has presented the following profile in the University Website:

„The Industrial Engineering Program (IEP) is part of the College of Engineering and Architecture (CEA) and is responsible for the professional training of new industrial engineers with the skills required for their professional success and under the values and principles demanded by society.

The IEP is committed to national development through the training of industrial engineers with solid knowledge, practical application of theory, spirit of innovation, and a clear focus on social and environmental responsibility.

OUR MISSION

We are a program that trains industrial engineers of high scientific and technological level, oriented to research, with solid humanistic, ethical and moral values. We have the appropriate resources to contribute to sustainable development, innovation and the promotion of entrepreneurship in the country.

FIELD OF ACTION

The Industrial Engineer can be incorporated without problems to public and private institutions covering areas as wide as administration and management, operations research, ergonomics, quality control and engineering, process and systems optimization, project formulation and development, among others. This versatility and holistic view of processes make it very useful in large and small companies."

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:

- Module Handbooks
- Objectives-Learning Objectives-Module Matrices
- Self-Assessment-Report (SAR)
- Student's Outcomes Report 2016-2020
- University Website: https://usmp.edu.pe/

Preliminary assessment and analysis of the peers:
The experts refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committee 06 (Engineering and Management, Economics) and 07 (Business Informatics/Information Systems), the learning-module-matrices for each degree programme, and the modules as a basis for judging whether the intended learning outcomes of the degree programmes under review correspond with the competences as outlined by the SSC.

The Learning Outcomes for each programme are described in the SAR and module handbooks as well as in the Diploma Supplement and on the University Website and through banners around the campus. The university provides also IE student's outcomes reports for the years 2016-2020, which contains the assessment procedure and results. The accreditation committee is responsible for reviewing the surveys and other evidences regarding the learning outcomes for every academic year such as course portfolio, graduate resumes, industrial engineering final project course, student survey, employer survey, graduate survey, teacher survey as well as partial exams, final exams, laboratory reports, coursework,

[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.

graduate resumes, logbook etc. The results show the achievements and cases for immediate actions and consider the last year's results. At the end, there are conclusions and recommendations proposed by the Accreditation Committee of each programme.

According to the SAR provided by the University, graduates of the **Bachelor's degree programme Information Systems (IS)** are able to analyse and identify solutions for complex computing problems by applying principles of computing and other relevant disciplines and based on it, to meet a given set of computing requirements in the context of the programme's discipline. Furthermore, they can communicate effectively in a variety of professional contexts and make informed judgments in computing practice based on legal and ethical principles. In addition, they have the abilities of supporting the delivery, use, and management of information systems within an information systems environment.

As stated on the university website, graduates of the **IS Bachelor's degree programme** are capable to work in several areas, for example, such as systems development, information systems, artificial intelligence and robotics, IT management, communications systems, business management support, computer systems, teaching and applied research in public and private institutions.

Regarding the **Bachelor's degree programme Industrial Engineering (IE)**, the experts take note that the programme's objectives focus on designing and implementing integrated organizational systems with a sustainable, innovative and entrepreneurial approach. In this way, the programme allows the active participation in technological innovation projects and the development of critical thinking to assess problem-solving alternatives. The graduates of the programme are able, according to the SAR, to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. In this way, they can find solutions that meet specified needs considering public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. In addition, they develop communicative abilities and learn to recognize ethical and professional responsibilities in engineering situations.

During the audit, the experts discuss with the Industrial Engineering programme coordinators the focus of the educational objectives. The expert group notes that these address neither "technical systems" nor "business" and ask why there is no more focus in business area. The programme coordinators explain that the focus of the programme is on the field of management. They emphasize that the objectives and learning outcomes are reviewed every 6 years by a curricular commission formed by the most important lecturers, students, alumni, representatives of companies and other institutions as well as from the Association of Engineers. The reference for the programme's objectives was the Institute for Industrial Engineering as well as international institutions such as US and European universities. In

addition, the experts learn that these objectives are in accord with the industry situation as well as the existent job opportunities in Peru. Furthermore, the auditors take note that the IS programme focus on management and business as its application environment.

After reviewing the programme objectives and learning outcomes and discussing them with the various stakeholders, the experts conclude that the descriptions of the qualification objectives are comprehensive and include the competences achieved and the possible career opportunities for graduates. The objectives and learning outcomes are made available to all stakeholders as they can be found on the USMP website. In addition, they are anchored and published in a transparent manner, making them available to students, lecturers and interested third parties. On the basis of an Objectives-Learning Outcomes Matrix and a Learning Objectives-Module Matrix presented in the SAR, which describes the relationship between learning outcomes and programme objectives and the modules in which students learn the skills envisaged in the PLOs, the expert group considers that the intended learning outcomes of the programmes are suitable for producing qualified graduates. They observe that, in general, the students and graduates seem to be satisfied with their respective study programs and feel well prepared for their future careers.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment-Report (SAR)
- Discussion during the audit
- University Website: https://usmp.edu.pe/

Preliminary assessment and analysis of the peers:
According to the SAR, the names of the programme– Information Systems (span. Ingeniería de Computación y Sistemas) is in accordance with the definition of Information Systems specified in the IS2010 - Curriculum Guidelines for Undergraduate Degree Programs in Information Systems, proposed by Association for Computing Machinery (ACM) and Association for Information Systems (AIS).

The name of the programme Industrial Engineering (span. Ingeniería Industrial) corresponds, as stated in the SAR, with the definitions of the Institute of Industrial Engineering (USA) and the Subject Specific Criteria of the Technical Committee 06 of ASIIN.

The experts consider that the names of the programmes correspond to the intended programme and learning outcomes. They agree that the teaching and learning content and the competence profile are consistent with the proposed titles of the programme.

Criterion 1.3 Curriculum

Evidence:

- Module Handbooks
- Study Plan 2023-I
- Learning Outcomes-Module Matrices
- Self-Assessment-Report (SAR)
- Samples of Surveys
- Regulations for the Revision and Modification of the Curriculum and Syllable
- University Website: https://usmp.edu.pe/
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The **bachelor's degree Information Systems (IS)** is a five-year programme, upon completion of which graduates are awarded a Bachelor of Engineering (B.Eng). In order to obtain this degree, students have to fulfil university, faculty and departmental requirements and complete 222 ECTS credit hours (196 mandatory credits and 26 electives credits).

As part of the module handbook, USMP presents the distribution of the programme mandatory courses according to the ASIIN category in following table:

USMP Area	ASIIN Category	CODE	TERM / COURSES	CREDITS
			I	
Area: Math and Basic Sciences	Other Fundamentals	09066801051	Discrete Math	5
Area: Math and Basic Sciences	Other Fundamentals	09066301040	Analytic Geometry	4
Area: Humanities	Other Fundamentals	09000301030	Philosophy	3
Area: Humanities	Other Fundamentals	09070901030	National Reality	3
Area: Humanities	Other Fundamentals	09066201020	Introduction to Engineering	2
Area: Humanities	Other Fundamentals	09000201020	Spanish	2
Area: Humanities	Other Fundamentals	09071001020	Study Methods	2
Area: Humanities	Other Fundamentals	TR000501010	Activities I	1
Area: Humanities	Other Fundamentals	TR000101010	English I	1
			II	
Area: Math and Basic Sciences	Other Fundamentals	09036602050	Linear Algebra	5
Area: Math and Basic Sciences	Other Fundamentals	09065502050	Calculus I	5
Area: Computer Science	Informatics fundamentals	09111402050	Introduction to Programming	5

Area: Information Systems	Informatics fundamentals	09066502031	Web Design Fundamentals	3
Area: Management	Business fundamentals	09127402030	Introduction to Economy	3
Area: Humanities	Other Fundamentals	TR000602010	Activities II	1
Area: Humanities	Other Fundamentals	TR000202010	English II	1
			III	
Area: Computer Science	Informatics fundamentals	09005303050	Algorithms and Data Structures I	5
Area: Math and Basic Sciences	Other Fundamentals	09005603050	Physics I	5
Area: Information Technology	Business informatics	09111503050	Information Technology I	5
Area: Quantitative Methods	Other Fundamentals	09005403040	Statistics and Probabilities I	4
Area: Information Systems	Business informatics	09127603030	Information Systems	3
			IV	
Area: Computer Science	Informatics fundamentals	09006904050	Algorithms and Data Structures II	5
Area: Math and Basic Sciences	Other Fundamentals	09007404050	Physics II	5
Area: Quantitative Methods	Other Fundamentals	09006004040	Statistics and Probabilities II	4
Area: Management	Business fundamentals	09007704040	Microeconomy	4
Area: Information Technology	Business informatics	09114904040	Information Technology II	4
			V	
Area: Information Systems	Business informatics	09093205051	Process Management	5
Area: Computer Science	Informatics fundamentals	09008905050	Data Base Theory and Design	5
Area: Management	Business fundamentals	09012205043	General Accounting	4
Area: Management	Business fundamentals	09009005040	Administrative Engineering	4
Area: Information Technology	Business informatics	09127905040	Operating Systems and Servers	4
			VI	
Area: Software engineering	Business informatics	09011906050	Software Engineering I	5
Area: Computer Science	Informatics fundamentals	09067106050	Programming I	5
Area: Management	Business fundamentals	09013106041	Costs Engineering	4
Area: Quantitative Methods	Other Fundamentals	09008506040	Operations Research I	4
Area: Management	Business fundamentals	09008806040	Systems General Theory	4
			VII	
Area: Software engineering	Business informatics	09013707050	Software Engineering II	5

Area: Software engineering	Business informatics	09112107050	Project Workshop	5
Area: Management	Business fundamentals	09014507040	Financial Management	4
Area: Computer Science	Informatics fundamentals	09066607040	Artificial Intelligence and Robotics	4
			VIII	
Area: Information Systems	Business informatics	09128808040	Business Architecture	4
Area: Information Systems	Business informatics	09072108040	Systems Design and Implementation	4
Area: Management	Business fundamentals	09054808040	Projects Formulation and Evaluation	4
Area: Information Systems	Business informatics	09066408040	IT Resources Management	4
			IX	
Area: Information Systems	Business informatics	09093409040	Business Intelligence	4
Area: Information Systems	Business informatics	09067009040	IT Strategic Planning	4
Area: Information Systems	Business informatics	09067309040	Project I	4
Area: Information Systems	Business informatics	09067909040	Information Systems Security and Audit	4
Area: Humanities	Other Fundamentals	09066700021	Oratory and Leadership	2
			X	
Area: Management	Business fundamentals	09134910040	Digital Marketing	4
Area: Information Systems	Business informatics	09007010040	Project II	4
Area: Humanities	Other Fundamentals	09003410022	Ethics and Moral	2

The percentage in credits by area is as follows: Business Fundamentals = 18%; Business Informatics (in the strict sense) = 35%: Informatics Fundamentals = 16% and Other Fundamentals = 31%.

The duration of the **Bachelor's Degree programme Industrial Engineering (IE)** is also 5 years (10 semesters) each of which is divided in two terms of seventeen weeks. The modules included in the curriculum belong to three main areas: Math & Basic Sciences, Engineering Topics and General Education. Following table presented by the university in its SAR shows the percentage in credits for each area and their equivalents in "academic years":

Category	% credits	Academic Years
Math & Basic Sciences	20,4	1,02
Engineering Topics	54,9	2,75
General Education	24,7	1,24

The curriculum includes several areas and prepare students in topics such as people (Management of Personnel and Labor Legislation Conflict and Negotiations, Industrial and Organizational Psychology), materials (Industrial Chemistry, Materials Engineering, Mechanics of Materials), information (General Accounting. Marketing Research, Costs Engineering, and others), equipment (Industrial Instrumentation and Control, Industrial Automation, etc.), processes (Process Manufacturing, Modern Manufacturing Workshop, Quality Control, etc.) and energy (Electrical and Electronic Engineering, Process engineering). The specific courses of Industrial Engineering provide the concepts and tools to design, develop, implement and improve integrated systems to obtain products or services (Methods Engineering, Design of Project Formulation and Evaluation Production, Operations Planning and Control, Maintenance, Operations Research, Financial Management Security and Occupational Health, Supply Chain Management, Project Management, Operations Planning and Control, etc.) The practical part of the curriculum can be basically found in the Design courses of Projects in Industrial Engineering I and II as well as in the pre-professional practices in companies of at least six months.

During the audit, the experts learn that there is a recent update of the curriculum of both programmes. In the curriculum of the IE programme, there is no significant changes, only the course “Intercultural Citizenship” was integrated in the first semester instead of the course “National Reality” and the course “Disability and Inclusion” in the third semester. For the IS programme, there are more modifications in the curriculum. For instance, the courses “Introduction to information systems” and “Intercultural Citizenship” were integrated in the first semester instead of the courses “Introduction to Engineering” and “National Reality”, respectively. In addition, the course “Project Workshop” is planned now for the 8th semester instead of the 7th semester, in which electives are now included; “Pre-professional practices” were added to the curriculum in the 10th semester.

The programme coordinators of the IS programme explain that these improvements come from the results of the last accreditation procedure. They remark that the course “Pre-professional practices” is a six-month mandatory internship which was before not included in

the curriculum. The internship was used to be in the Peruvian HEIs outside of the curriculum and only as pre-requisite for other courses and for the graduation. The auditors take note that there is an application for the registration of the internship and that, after conclusion of the internship, the students present a report.

The students express their satisfaction with the curricula during the audit. They appreciate, in particular, courses with social relevance such as “Disability and Inclusion” or “Intercultural Citizenship” and the variety of electives choices. They confirm that they have been informed about the changes in the curriculum. However, some students would like to include more project presentations in the courses and, in the IS programme, more courses in programming. Additionally, the experts learn from the students that the language English courses included in the curriculum are online through a platform and consist mostly of resolving some exercises. There are also courses that are held in English or include a short presentation, a discussion or exam in English, but the content of the course is in Spanish. The students would prefer face-to-face language courses and to have courses only in English, in order to improve their communicative skills. Furthermore, the representatives of the industry emphasize that the student’s soft skills have to be more trained in the courses. Moreover, the auditors discuss with the programme coordinators and teachers about some contents that are, in their opinion, missing in the curricula such as business informatics in the IS programme or management competencies in IE. In detail, the auditors discuss why a dedicated module on microeconomics is part of the IS programme, but not a module on macroeconomics. Furthermore, some course offered as elective courses, like database administration and big data, contribute to the core of IS topics and would probably be better placed as mandatory courses, while courses like digital marketing or systems general theory could likely go into the set of elective courses.

Periodic Review of the Curriculum

According to the SAR provided by USMP, the curriculum of all programmes under review is revised and updated every three years or when appropriate depending on the scientific or technological advances in the area in accordance with Article 7 of the Regulations for Revision and Modification of the Curriculum.

For the revision and modification of the curriculum of the programme under review, the dean or director of the academic unit forms a commission. This is composed by the programme director, the heads of academic departments, one teacher for each of the curricular areas, the research director, a programme representative (for comprehensive review), a last year student, a graduate, a representative of the main organizations representing the professional practice of the study programme and a representative of the External Advisor

Committee of the academic programme. If the dean deems it convenient for the purposes of the commission, he may appoint additional members of the commission.

In addition, the IE program has implemented a continuous improvement system. For instance, a review of the programme results is carried out every year by the programme "Accreditation Committee", which is formed by the programme director and the teachers of the courses "Final Project of Industrial Engineering. In this procedure, they collect and analyse information on student achievement and graduate profile. They submit the proposal for evaluation to the "Programme's Constituents Commission". Furthermore, a "comprehensive curricular review", takes place every 6 years and focuses on the programme educational objectives analysing the consequences of the changes made in the last 5 years.

Student mobility

In its self-report, USMP emphasizes that there are general agreements with international institutions for the student mobility, especially, in Latin-Americans countries. Specifically for IE, agreements for student mobility with the Andres Bello University in Chile and the Universidad Iberoamericana (UNIBE) in the Dominican Republic are being initiated. There are incoming students from University-Bucaramanga in Colombia. The programme has also student exchange with Colombian universities and received students from different Mexican universities.

The IE programme coordinators explain that an agreement with the University of Missouri, which includes a double degree, was signed in 2019. The aim was that the students spend the study last year in USA. Due to the pandemic situation, the agreement did not work, but they are trying to enhance it. The studies abroad are recognized, in particular, with the elective courses. Before the student's stays abroad, there are communication with the foreign university and the syllabus is evaluated. They accept that the number of outgoings is lower than before Covid-19 and they are trying to improve the situation. The main reason is in their opinion that a stay abroad is very expensive. Therefore, they are developing a strategy to offer scholarships and funds for support the international mobility.

During the audit, the students confirm that they are informed about some mobility agreements. Some of them are very interested in one-semester stay abroad. The representatives from the rectorate and the programmes under review emphasize that they are working currently to increase the number of international agreements and to promote mobility among students. Furthermore, they are of the opinion that the regular monitory and review process of the curriculum

Altogether, the auditors conclude that it becomes clear which knowledge, skills and competences the students acquire in each module and that the learning outcomes are clearly

defined for each module. In addition, the experts are of the opinion that the electives allow for individual focal points and complementary topics. Furthermore, they also appreciate that the curriculum is periodically reviewed through a variety of systematic review procedures, which include different stakeholders.

They judge that the curriculum content of both programs provides good foundational knowledge in theory and practice. In addition, they highlight that the students and graduates seem very happy with their respective study programs and feel well prepared for their future careers.

Nevertheless, regarding the **Bachelor's degree programme IS**, the experts recommend to introduce in the curriculum more contents to business informatics such as macroeconomics. In general, the curriculum has to be more consistent with the sequence of the courses. In addition, the areas of data analysis and databases theory and design should be more related to data management in the higher semesters and should be more integrated in the curriculum, in order to reach the basic level. Currently, IS-related topics like Big Data and Databases are only available as electives and topics like Data Analytics, Data Visualization, e.g. are fully missing. The incorporation of courses related to mobile development or cloud computing or advanced data processing could be also considered. Furthermore, they believe that more courses on artificial intelligence could be introduced. Students should have also the possibility, at the beginning of their studies, to get knowledge or basic courses in spreadsheet calculation software, like MS Excel.

Regarding the **Bachelor's Degree Programme IE**, the experts are of the opinion that management competencies like risk management and safety management should be included in the curriculum. Furthermore, they remark, that it is necessary to make sure that topics to IoT and Industry 4.0 find their way in the laboratories.

Moreover, based on the feedback of the students and industrial representatives, the experts come to the conclusion that student's scientific writing abilities and soft skills (e.g. through more presentations) have to be improved and more trained in the courses of both programmes under review.

The experts also recommend to improve and further develop the internationalization strategy for both programmes under review in different aspects. Firstly, the support for the international mobility for students needs to be strengthened. In addition, the English language competences of students should be improved and the level and methodology of the offered English language courses for students need also to be improved. To improve that, the experts suggest to offer courses only in English and invite foreign lecturers for this and to organise lecture series or international summer schools with the participation of foreign lecturers.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report (SAR)
- USMP Admission Regulations
- University Website: https://usmp.edu.pe/
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Admission of new students to programmes offered by USMP is carried out according to the University Law N° 30220 and the University Admission Regulations. The admission process is managed by the Admission Office, which is responsible for planning, organizing, implementing, controlling and evaluating the procedure. According to the admission regulations, every person who has finished school education (secondary level) is allowed to apply for a university place. There are different modalities for the admission to a USMP study programme that are described in following table:

TYPE OF ADMISSION	SELECTION TEST
A) REGULAR ADMISSION EXAM	Admission Exam
B) STUDENTS EXEMPTED FROM THE REGULAR ADMISSION EXAM b.1 First Choice b.2 Excellence Agreement b.3 Academic Excellence School (CEA) b.4 First or Second Place in High School b.5 Top Third of the Class b.6 Academic Complementation b.7 Applicant with a Degree from the University System b.8 National External Transfer b.9 International External Transfer b.10 Internal Transfer b.11 National or International Agreement b.12 National and International Athlete b.13 Skill and Experience-based Education (ECEL)	Special Exam
b.14 Schools affiliated to International Baccalaureates	Personal Interview
b.15 Internal Transfer between Campuses (TIES)	(*)
C) PRE-UNIVERSITY CENTER	Permanent Evaluation

(*) **The general weighted average of the student substitutes the Selection Test.**

The regular admission exam contains questions to general knowledge and culture as well as to specific skills according to the official contents of the high school curriculum. Applicants with a disability will be evaluated according to their limitations. In the types of admission of Academic Excellence Schools and Excellence Agreement, the applicants may be also evaluated at the facilities of their schools, at the request of the Principal's Office. The Interview is personal and assesses the applicant's proficiency and their knowledge of the professional program they wish to apply for. The Admission Office is allowed to establish a minimum entrance score and determine the type of evaluation. According to the places offered, the vacancies will be filled strictly by ranking. The results of the selection are published in the university website or other places that the Admission Office may deem advisable.

The admission requirements are published on the university website and inform potential students in detail about the requirements and the necessary steps to apply for admission into the programmes. Since the rules are based on official regulations, the auditors deem them binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

Criterion 1.5 Workload and Credits

Evidence:

- Self-assessment report (SAR)
- Module handbooks
- Guide for Diploma Supplement Preparation and ECTS Equivalence
- University Website: https://usmp.edu.pe/
- Discussions during the audit

Preliminary assessment and analysis of the peers:
USMP emphasize that, in line with the accreditation process, they are working to align the Peruvian workload with that of the European Credit Transfer System (ECTS). As explained in the SAR submitted by the university, the Credit Points (CP) system in Peru only takes into account the hours spent by students in classroom and laboratory (or workshop) training. One credit represents one hour of theory (45 minutes) or two hours of practical or laboratory training (90 minutes). The academic year is divided into two academic semesters of 17 weeks each, and students can take up to 22 credits per semester, unless authorised by the admissions officer, in which case the student can take a maximum of 26 credits. It means approximately 44 hours per week of study and students on average have an approximate

workload of 25.5 hours per credit. Currently, a calculation based on European references is being used as an undergraduate equivalence, in which each hour of class requires 1.5 hours of individual study. Following conversion formula of credits points (CP) into ECTS used in the Freie Universität Berlin was taken over to calculate the equivalences: ECTS course = CP course* (60*years_of_degree)/total_credits_of_degree). According to the university, based on this calculation, the equivalence between a USMP credit with an ECTS credit is 1.35.

The experts learn during the discussion with the programme coordinators that the study programme is usually completed in a maximum of six years. In addition, the experts note that the pre-professional internship is only one CP in both programmes and discuss this aspect during the evaluation. The programme coordinators explain that the internship is evaluated but not credited and the one CP refers to the internship report. The students note that in the course "Pre-Professional Practice", for which the 6-month practice is a prerequisite, they learn how to write a report and discuss the experiences and results. The students expressed their satisfaction with the internship. Although the workload could be very high (approx. 12 hours a day), they do not find it inconvenient and think that it depends on their discipline and motivation.

The experts are satisfied that the amount and composition of the workload is described in detail for each module in the module handbook. Students are also satisfied with the workload. Nevertheless, the evaluators conclude that the workload for the pre-professional internship needs to be clearly defined, taking into account the realistic time that students need for this.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-assessment report (SAR)
- Module handbooks
- Discussions during the audit

Preliminary assessment and analysis of the peers:
According to the SAR, USMP apply a student-centered teaching approach and the teachers use methodological strategies relevant to the objectives and contents of learning, in particular, active methods, which privilege the participation of students (debates, case studies, problem solving and others). In addition, as stated in the SAR, the teaching/learning evaluation is a basic element for its continuous improvement. Digital tools are used in the

courses and the use of the internet and social networks is encouraged in the teaching-learning process, as well as in teacher-student communication.

In the SAR, it is also emphasized that the most extended teaching method is multimedia supported lectures (power point, video, etc.), delivered through the USMP Virtual Classroom platform and MS Teams platform. Project and teamwork is also an important part of the courses, e.g. in Project I and Project II require the elaboration of projects by teams. There is a special focus on scientific research and innovation in these courses. The project has to be devoted to solving a problem identified in a certain context (organization or society), applying technology and information systems approach. At the end of Project II, students must present and defend their project.

In the discussions during the on-site visit, the teaching staff explains its teaching experience during the pandemic. Although this time was challenging for students and teachers both, teacher learned to use and implement new digital tools in the courses and new methodologies for teaching. They participated in training activities focused on digital teaching. As stated in the SAR, the used learning and teaching methods are reviewed continuously.

The experts appreciate the diversity of teaching methods and believe that they ensure that the course objectives and the overall intended learning outcomes are achieved. However, they recommend to introduce more practice and presentations in the courses, in order to develop the student's soft skills.

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

USMP states that the remarks provided by the ASIIN evaluators regarding updating of the workload for the pre-professional internship will be transmitted and evaluated by the respective curricular committees in the next curricular review according to the corresponding procedure in order to clearly defined this aspect. According to the university, it should be noted that in Peru pre-professional practices or internship are usually recognized as a formal work experience and are regulated by Law N° 31396, which establishes that interns cannot dedicate more than 6 hours a day to this activity and they must also receive a salary compensation for this work. The auditors take note of these explanations and conclude that the requirement (A1) has to be maintained, because, according to the curriculum and the discussions with the students during the on-site visit, the credits awarded for the pre-professional practice do not correspond to the actual workload of the students.

Regarding the recommendation to increasing topics of macroeconomics in IS Programme, USMP explains in its response statement that some topics referred to macroeconomics are included in the mandatory course Introduction to Economy in Term II (Unit III: Organization,

production, costs and market structures; Unit IV: Macroeconomics. International Trade). The university also states that the updating of the IS curriculum and the IE curriculum will be transmitted and evaluated by the respective curricular committees in the next curricular review according to the corresponding procedure. Furthermore, according to the HEI, they will improve aspects related to the mobility of teachers and students as well as to the level of knowledge of the English language. USMP also states that the return to face-to-face teaching after the pandemic is allowing an increase in the number of practical activities and presentations by students in different subjects or modules. In addition, it is being reviewed which other subjects can also be increased, in a short term, with more practical activities and presentations by students in order to continue improving support for the development of the student's soft skills.

The auditors understand and appreciate the explanations given and the measures taken. However, the auditors are of the opinion that there is still room for improvement in these areas. For this reason, they stand by their previous assessment and, consequently, by the proposed recommendations for this criterion.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, concept and organisation

Evidence:

- Self-assessment report (SAR)
- Module handbooks
- Assessment Regulations ("Reglamento de Evaluación del Aprendizaje")
- Assessment schemes
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Exams in the Bachelor's degree study programmes under review follow the examination rules as stated in the Assessment Regulations of USMP. According to these, in the curriculum of the degree programme, the procedures for the assessment of competences are defined. The learning assessment procedures are aimed at determining the level of achievement of the competences defined in the graduate profile. The syllabus of each subject shall include the assessment procedures for the learning outcomes, indicating precisely the type and number of assessments and academic tasks to be carried out by the students. Depending on course frequency and objectives, the types of assessment are: entrance assessment, continuous assessment, partial assessment, final assessment and graduation assessment.

According to the module handbook for both programmes, the modules include different types of exams such as written and oral exams as well as quizzes, reading controls, laboratory practices, team and project work.

The grading system uses a vigesimal scale from zero (00) to twenty (20) and the minimum passing grade is eleven (11). A half (1/2) point in favour of the student will be taken into account when averaging the final grades. The Academic Coordination Office prepares an examination schedule for some courses and for the final written exam of all courses. For the other courses, called unscheduled evaluation, teachers propose the evaluation schedule. The grades are entered by the teachers in the system "SAP Academic Portal". The Academic Records Office monitors and controls this procedure.

During the audit, the students explain that the exams include the contents have been taught in class. They emphasize that the teachers give them valuable recommendations during the lessons and, if they have any doubts about the exam, the teachers give them very good advice. They are informed during the first class session about assessment forms and conditions for completing the module.

The experts learn that the students have to complete a thesis, which is not included in the curriculum. The programme coordinators and teaching staff explain that the thesis is not the same as the courses Project I and II for IS and Final Project I and II for IE that are offered in 9th and 10th semester, respectively. The process is very similar, but the quality and level of the thesis is higher than that of the final year project. Most students decide to continue with the same subject of the internship and develop it further. The research methodology is dealt with in the course in order to obtain a scientific publication. The auditors take note that there are, usually, two degrees types in Peru that are regulated in different ways: the Bachelor's degree and the Professional Title. The academic Bachelor's degree is obtained in accordance with the regulations of the Peruvian University Law N° 30220 and the Regulations of Degrees and Titles of the USMP. This includes also the professional title. According to Article 45 of the University Law, the minimum requirements for the awarding of a Bachelor's Degree are as follows: having passed the undergraduate studies, as well as the approval research work and knowledge of a foreign language, preferably English or a native language. For awarding the professional title is required the bachelor's degree and the approval of a thesis or a professional sufficiency work. Accredited universities may establish additional modalities to the latter. The professional title can only be obtained at the university where the bachelor's degree was obtained.

The auditors revise the sample of exams and final projects provided by the HEI. According to them, the documents prove that the level of the students' academic performance and the modules' contents is sufficient for the respective programme. Furthermore, they are of

the opinion that the number and distribution of exams ensure an adequate workload as well as sufficient time for preparation. However, the experts conclude that, as recommended in the last accreditation procedure, it is necessary to include a thesis or final project in the curriculum where the students are able to work more independently on a task.

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

Regarding the thesis or final project, USMP explains in its statement that according to the University Law 30220, the thesis is a requirement to opt for professional title and this title is obtained after having the academic bachelor's degree. Therefore, according to the university, the thesis cannot be included in the curriculum like obligatory, since its fulfilment would be required as a requirement to obtain the academic bachelor's degree and it would not be in accordance with the University law. In addition, USMP emphasizes that the same law establishes that the graduate can obtain the professional title by supporting a thesis work or professional experience, with which it cannot be required that all students develop a thesis. Modules like Project I and Project II prepare students to be able to develop a thesis for the professional title.

The auditors appreciate these explanations, but remark that the two projects in form of modules seem to be not suitable as a final project because an independent work is not guaranteed. For instance, project 1 has a very clear structure, but the students need a task with a higher degree of freedom. They are of the opinion that it would be better to include a final thesis as a part of the programme. This would not go against the university law since it would not replace the stipulated professional thesis. Therefore, the auditors conclude that this recommendation must be maintained.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report (SAR)
- Staff Handbook
- Study plan of the degree programme
- Module handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the SAR, there are 85 teachers for the **Bachelor's degree IS**. From them, 31 are employed in full time and 54 in part-time and fourteen are holder of a PhD degree and 46 of a Master's degree. The **Bachelor's degree programme IE** is composed of nine full professors and 43 contract professors. Nineteen of these 52 professors work on a full-time basis and thirty-three 33 work on a part-time basis. From them nine have a doctoral degree 36 a master's degree. In addition, the student/teacher ratio for IS Program is 5.15:1 and for IE 9.37:1. The university encourages the teaching staff with a Master's degree to pursue further qualification. In addition, the faculty regularly invites visiting lecturers from Peru and abroad to facilitate academic exchange. The academic staff is supported by a considerable number of administrative and technical employees at department, faculty, and university level

The academic position of each staff member is based on research activities, publications, academic education, supervision of students and other supporting activities. For example, there are lecturers who hold a Master's degree and lecturers who hold a PhD degree. A full professor needs to hold a PhD degree. The main difference of tasks and responsibilities based on academic staff position lies on the proportion of teaching and research activities. The higher the academic staff position is, the greater is the proportion of research activities, but the lower is the proportion of teaching activities. The latter may become professors once they have earned a certain amount of credits with regard to their academic work.

Recruiting new teaching staff follows a defined procedure starting with a needs analysis of the degree programme, the proposal for new positions to the university, a public announcement and finally the recruitment based on the results of a basic competence test, a field competence test and an interview.

The academic staff is actively involved in research projects funded by grants from the Peruvian government, the university itself through the vice-rectorate for research ("vicerrectorado de investigación") or other research funds, which results in a reasonable number of publications per year. USMP positions itself as a university with a research focus, which the expert group appreciates. They also learn that there are some research lecturers, who are mainly dedicated to research activities.

With regard to the staff development, workshops are held to refresh and to deepen various didactic competences in each semester. During the audit, the teachers explain that in the general training programme, they can choose trainings for development of assessments, classroom management, methodology and learning. During the pandemic, the training focused on virtual classrooms and digital tools. The lecturers can also regularly participate in

external didactical trainings offered and funded by the government. Moreover, the teaching staff is encouraged to study abroad or to participate in international research projects and conferences in order to enhance their knowledge, increase their English proficiency and to build international networks.

In summary, the experts confirm that the composition and scientific orientation of the teaching staff are suitable for successfully implementing and sustaining the degree programme. Both students and staff members confirm that in case of questions or problems, there is always an academic advisor available to solve the issues together with the student. In general, the students have a very good relationship to their teachers and the alumni keep still contact with the institution and staff and are very proud of the institution. However, the auditors conclude that the English language competences of staff members have to be improved, for example, through mandatory English courses for teachers. In addition, they are of the opinion that the international mobility for the teaching staff could be more supported by the university. In addition, the experts also recommend that the university create organizational structures that support the development of research and teaching networks, with a special focus on international staff mobility.

Criterion 3.2 Funds and equipment

Evidence:

- Self-Assessment Reports
- On-site visit of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the experts:
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 programme under review to be solid.

During the on-site visit, the experts took a look at some central facilities, relevant research and teaching facilities, the library and, in particular, all the different laboratories available for the study programmes under review. For instance, they visited the Research Centre for Industrial Production (CIPRI), Process Engineering Laboratory, Manufacturing Processes La-

boratory, Design and Simulation Laboratory, Industrial Production Research Center, Automation Laboratory and Industrial Engineering Laboratory. In addition, the expert team visit the Laboratory of Software and Interactive Technologies

They considered the university's facilities and available equipment in the laboratories to be of appropriate standards. The facilities offer sufficient opportunities for the professional and individual development of students and teachers. The technical staff in the labs demonstrated a high degree of expertise and responsibility. Students confirmed that access to the necessary software resources is possible also from their private computers and from home. In the lS laboratories, the auditors were able to see different technologies, like augmented reality, 3D printing, and research related to artificial intelligence. They get an overview about the research activities of teachers and students. The experts appreciate the projects exposed in the laboratory including processes of analysis, design and implementation. However, regarding the laboratories in the area of Information Systems, they believe that a continuous renewal of hardware is important to keep the technology available for students up to date.

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 programme (see also criterion 5), 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 profile of graduates and the curriculum meet the relevant requirements of the labour market in the country.

In summary, the expert team judge the available funds, the technical equipment, and the infrastructure (laboratories, studios, library, seminar rooms etc.) to comply with the requirements for adequately sustaining the degree programme. Library, lecture rooms and laboratories are, in the opinion of the experts, suitable for didactical training and digitalization. Nevertheless, as mentioned-above, topics to IoT and industry 4.0 should find their way into the laboratories. A plan how to develop further the laboratories could be a possible step.

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

USMP explains in its statement that from 2019 to 2023 the Engineering and Architecture Faculty has repowered laboratories with new PCs. The university sent additional documents as evidence containing the asset registration documents of the PCs admitted to the faculty in recent years and a summary of the acquisitions.

The auditors appreciate these efforts to improve the faculty's equipment. Nevertheless, in their opinion, new topics like IoT and Industry 4.0 are essential. The auditors have seen laboratories, which are suitable for the basic education. However, for further development it is a suggestion to improve further the practical education in the topics mentioned above. Therefore, they stand by their previous assessment and, as a consequence, by the recommendation E8.

4. Transparency and documentation

Criterion 4.1 Module descriptions

Evidence:

- Self-Assessment Report
- Module descriptions
- University Website: https://usmp.edu.pe/
- Website of IS programme: https://usmp.edu.pe/fia/sistemas/
- Website of IE programme: https://usmp.edu.pe/fia/industrial/

Preliminary assessment and analysis of the experts:
The module handbook for the IS and IE degree programmes is published on the university's website and is thus accessible to the students as well as to all stakeholders. The experts observe that they contain the necessary information about the persons responsible for each module, the teaching methods, the credit points awarded, the intended learning outcomes, the applicability, the forms of assessment, the admission and examination requirements, the workload (incl. contact hours and self-study time) as well as the details explaining how the final grade is calculated.

Moreover, the experts note that the majority of the literature references in the study programme under review are in Spanish. The experts learn from the programme coordinators that the teaching staff of the study programme continuously encourage their students to also study independently by looking for current international literature in the library or the internet. Moreover, they explain that the teaching staff regularly shares English literature references with their students. The experts understand that the literature actually used in the study programme goes beyond the literature listed in the module descriptions. However, this is not reflected in the module descriptions. Consequently, the experts recommend to update the module descriptions in terms of literature references.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report (SAR)
- Guide for Diploma Supplement Preparation and ECTS Equivalence
- Sample Diploma for the degree programmes
- Sample Diploma Supplement for the degree programmes
- Sample Transcript of Records for the degree programmes

Preliminary assessment and analysis of the experts:
According to the SAR, the students of the IS and IE degree programme are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all courses that the graduate has completed, the achieved credit points, grades, and cumulative GPA.

The experts based on the samples of these documents confirm that the students of the programmes under review are awarded a Diploma Supplement as well as a Transcript of Records and these contain all necessary information about the degree programme.

Criterion 4.3 Relevant rules

Evidence:

- Self-Assessment Report (SAR)
- Student's regulations
- University Website: https://usmp.edu.pe/

Preliminary assessment and analysis of the experts:
The experts confirm that the rights and duties of both USMP and the students are clearly defined and binding. These are consigned in the student's regulations articles 10 and 11. All rules and regulations are published on the university's website in Spanish as well as in English and hence available to all stakeholders. In addition, the students receive all relevant course material in the language of the degree programme at the beginning of each semester.

Moreover, students have access to information regulations, codes and procedures on the website of the Faculty, and can use the Academic Intranet system for academic processes, and the revision of their grades and credits approved. The students interviewed seem to be satisfied with the Website and the Academic Intranet. They believe that it is very useful and easy to use. They state that they can find all important information such as the information about courses and teachers.

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

According to the university's statement, the syllables and module descriptions for the IE and IS programmes will be reviewed and updated in November 2023. As evidence, USMP sent some examples of the proposals that will be sent to the commissions in charge in accordance with the corresponding procedure.

The auditors appreciate these efforts and think that this strategy is adequate. Nevertheless, as this process is beginning and not already finished, the expert group maintain their previous assessment and the recommendation E10.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report (SAR)
- Learning Evaluation Regulations
- Regulations for the revision and modification of the curriculum and syllable
- Samples of assessment results
- Student's outcomes reports for the years 2016-2020
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Each programme of the Faculty of Engineering and Architecture of the USMP has an Academic or accreditation Committee responsible for the quality assurance. The evaluation is carried out by the Academic Committee of the Faculty. For the evaluation process, USMP 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 to 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 have 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. The experts also noted the clear orientation towards programme 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. In the audit, the experts inquire whether the results of the surveys are also shared and discussed with the students. The students explain that they only partly receive the survey results. However, students report that although their feedback is not officially discussed, they generally feel that their criticism is noticed as they have witnessed changes in the curriculum. Some students, for example, who had suggested changes to some modules, were able to see how those changes were implemented subsequently. Generally, students indicate to be satisfied with the programme to be accredited and confirm that the programme is very demanding but feasible. The experts are glad to hear that students are generally satisfied with the programme and that their feedback seems to be recognized. However, to create a closed feedback loop, the experts urge USMP to organise the teaching evaluation in such a way that a feedback of the results to the students is ensured.

Moreover, during the discussion with the students, the experts learn that before the COVID19-pandemic, students could contact student representatives in case of problems or needed assistance. According to the students, neither students nor graduates are repre-

sented in the Accreditation Committee to actively participate in the quality assurance process through meetings or focus groups where they can make their recommendations for the programme improvement and receive information on the evaluation process developed by the Accreditation Committee. Therefore, the experts recommend that students elected by the students take part in decision-making processes and be represented in the academic boards of the university.

In conclusion, the experts agree that USMP's quality management ensures a continuous assessment and improvement of the programmes under review. However, the experts identify a few deficits. Thus, a closed feedback loop must be implemented and formalized and the students should be involved in the academic boards of the university.

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

Regarding the students' participation in the university's and faculty's decisions, USMP explains that students can participate in the governing bodies of the university such as the University Assembly and the Faculty Council, through representatives elected in student elections. In addition, they are considered on aspects related to the study plan, educational objectives and learning results, as well as, evaluation of the teaching staff, infrastructure, equipment and the quality of the received services.

Regarding a closed feedback loop, the university states that meetings will be scheduled at the end of each evaluation period to provide feedback and timely inform students about the obtained results.

The auditors appreciate these explanations and strategies. However, they believe that a closed feedback loop needs to be implemented and formalized and the students' involvement and participation in the academic boards of the university should be intensified. Consequently, they decide to maintain this requirement (A2).

D Additional Documents

No additional documents needed.

E Comment of the Higher Education Institution (13.08.2023)

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

- Annex 1: asset registration documents of the PCs admitted to the faculty in recent years.

The following quotes the comment of the institution:

“Regarding the recommendation of increasing topics of macroeconomics in IS Programme, by now there are some topics referred to macroeconomics in the mandatory course Introduction to Economy in Term II:

They are:

1) Unit III: Organization, production, costs and market structures

Topics:

• Macroeconomic policy, fiscal policy and monetary policy - Gross domestic product (GDP). Gross national product (GNP). Differences between GDP and GNP

• The money. Functions of money. Value of money; nominal or legal and real or intrinsic. The quantitative equation. Money levels according to their liquidity. - Inflation. On-demand approach. Focus on costs. Structuralize approach

2) Unit IV: Macroeconomics. International Trade

Topics:

• International trade. Adam Smith's theory of absolute advantages. Theory of comparative advantages by David Ricardo. - Michael Porter's theory of competitive advantage. The balance of payments. Currencies and exchange rate policy.

The recommendations provided by the ASIIN evaluators regarding the updating of the IS curriculum and the IE curriculum will be transmitted and evaluated by the respective curricular committees in the next curricular review according to the corresponding procedure.

Likewise, the recommendations to improve aspects related to the mobility of teachers and students as well as to improve the level of knowledge of the English language will also be taken into account to redefine the necessary strategies and actions in this regard.

The recommendations provided by the ASIIN evaluators regarding the updating the workload for the pre-professional internship will be transmitted and evaluated by the respective curricular committees in the next curricular review according to the corresponding procedure in order to clearly defined it.

It should be noted that in Peru pre-professional practices or internship are recognized as a formal work experience and are regulated by Law N° 31396, which establishes that interns cannot dedicate more than 6 hours a day to this activity and they must also receive a salary compensation for this work.

The return to face-to-face teaching after the pandemic is allowing an increase in the number of practical activities and presentations by students in different subjects or modules. In addition, it is being reviewed which other subjects can also be increased, in a short term, with more practical activities and presentations by students in order to continue improving support for the development of the student's soft skills.

USMP Answer to "Exams: System, Concept and Organisation":

According to the University Law 30220, in force, the thesis is a requirement to opt for professional title and this title is obtained after having the academic bachelor's degree.

Therefore, the thesis cannot be included in the curriculum like obligatory, since; its fulfilment would be required as a requirement to obtain the academic bachelor's degree and it would not be in accordance with the law.

On the other hand, the same law establishes that the graduate can obtain the professional title by supporting a thesis work or professional experience, with which it cannot be required that all students develop a thesis.

In any case, actually, modules like Project I and Project II prepare students to be able to develop a thesis later if they want to.

USMP Answer to "Resources":

Like the answer provided for the Criterion 1.3 Curriculum, the recommendations to improve aspects related to the mobility of teachers and students as well as to improve the level of knowledge of the English language will also be taken into account to redefine the necessary strategies and actions in this regard and to have better results.

From 2019 to 2023 the Engineering and Architecture Faculty has repowered laboratories with new PCs. In Annex 1 the asset registration documents are sent as evidence of the PCs admitted to the faculty in recent years.

This is de summary of acquisitions:

N° Assset Registration	Date	PCs Quantity	Model
022 -19 - CPS	25 / 06 / 2019	30	HP Elite Desk 800 G4 WKS TWR
067 – 19 -CPS	18 / 10 / 2019	30	HP Elite Desk 800 G4 WKS TWR
090 – 22 - CPS	06 / 12 /2022	60	HP Z2 Tower G9 Workstation
087 – 2023 - CPS	17 / 07 /2023	50	HP Z2 Tower G9 Workstation
098 – 2023 - CPS	20 / 07 /2023	87	HP Z2 Tower G9 Workstation

A total of 120 PCs have been assigned to the IS laboratories as shows below:

LABORATORY CLASSROOM	PC QUANTITY	MODEL	PROCESSOR	RAM MEMORY	STORAGE	VIDEO CARD
1A	30	HP Z2 Tower G9 Workstation	Intel Core i7-12700 12th Generation	32 GB	SSD: 512 GB HDD: 1TB	NVIDIA T1000 - 8GB
1B	30	HP EliteDesk 800 G4 WKS TWR	Intel Core i7 - 8700 8th Generation	32 GB	HDD: 2TB	NVIDIA GeForce GTX 1080 - 8GB
1D	30	HP Z2 Tower G9 Workstation	Intel Core i7-12700 12th Generation	64 GB	SSD: 512 GB HDD: 1TB	NVIDIA T1000 - 8GB
1E	30	HP Z2 Tower G9 Workstation	Intel Core i7-12700 12th Generation	32 GB	SSD: 512 GB HDD: 1TB	NVIDIA T1000 - 8GB

Laboratories 1A, 1D and 1E have received new 90 PCs last July 2023.

USMP Answer to “Transparency and documentation”:

Below are some examples of the proposals that will be sent to the commissions in charge of reviewing and updating the syllables and module descriptions for the IE and IS programmes (next November) in accordance with the corresponding procedure.

Project Workshop

Source of reference

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- Swaraj, N. (2022). Accelerating DevSecOps on AWS: Create secure CI/CD pipelines using Chaos and AIOps.
- Shrivastava,S; Srivastav, Neelanjali (2022). Solutions Architect's Handbook - Second Edition
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Information Systems Security and Audit

Source of reference

• Auditoría III. Control Interno. Áreas específicas de implantación. Procedimiento y control. Didáctica Multimedia, Tomo 3.

• Compendio de Normas Legales.

• Tim Rayner, (2023) Hacker Culture and the New Rules of Innovation

• David J. Amarante (2022) (Auditoría de Sistemas de Información: Una guía práctica para aprender auditoría incluso si sólo cuentas con conocimientos básicos de informática

• ISO 27001:2022 – Técnicas de Seguridad de Información, ciberseguridad y Privacidad de Datos

• ISO 27002:2022 – Técnicas y controles de Seguridad de Información, ciberseguridad y Privacidad de datos

• ISO 2705:2014 – Gestión de Riesgos de Seguridad de Información

• ISO 27032:2015 Ciberseguridad

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USMP Answer to “Quality management: quality assessment and development”

In accordance with the general regulations of the USMP, students participate in the governing bodies of the university, such as the University Assembly and the Faculty Council, through representatives elected in student elections.

Students participate in the continuous improvement of their program by being considered as constituents or group of interest and having representatives in the curricular committees and all students being consulted on aspects related to the study plan, educational objectives and learning results, as well as, evaluation of the teaching staff, infrastructure, equipment and the quality of the received services.

Meetings will be scheduled at the end of each evaluation period to provide feedback and timely inform students about the obtained results.”

F Summary: Peer recommendations (29.08.2023)

Taking into account the additional information and the comments provided by USMP, the auditors summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Information Systems	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Industrial Engineering	With requirements for one year	30.09.2030	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Requirements:

For all programmes:

A 1. (ASIIN 1.5) Ensure that the credits awarded for the internship ("pre-professional practice") correspond with the actual workload of the students.

A 2. (ASIIN 5) The teaching evaluation is to be organised in such a way that a feedback of the results to the students is ensured.

Recommendations

For the Bachelor's degree programme Information Systems

E 1. (ASIIN 1.3) It is recommended to include in the curriculum more contents in the area of business informatics, in particular, in microeconomy.

E 2. (ASIIN 1.3) It is recommended to increase, especially in the higher semesters, courses in the field of data management, data analysis and databases theory and design.

E 3. (ASIIN 1.3) It is recommended to offer at the beginning of the studies basic courses in MS Excel.

For the Bachelor's degree programme Industrial Engineering

E 4. (ASIIN 1.3) It is recommended to include in the curriculum courses in the area of management competencies e.g. relating to risk management and safety management.

E 5. (ASIIN 1.3, 3.2) It is recommended to make sure that the topic IoT and Industry 4.0 find their way in the laboratories.

For all programmes:

E 6. (ASIIN 1.3, 3.1) It is recommended to enhance the internationalization strategy by improving English language competences of staff members and students, stronger support for international mobility of students and teaching staff and more exchange with foreign institutions and lecturers.

E 7. (ASIIN 1.3, 1.6) It is recommended to enhance the training of students' soft skills and scientific writing abilities, in order to increase employability.

E 8. (ASIIN 1.3) It is recommended to include a thesis in the curriculum.

E 9. (ASIIN 3.1) It is recommended to establish organizational structures that support the development of research and teaching networks.

E 10. (ASIIN 4.1) It is recommended to review and update the module handbook.

G Comment of the Technical Committees

Technical Committee 06 – Engineering and Management, Economics (12.09.2023)

The Technical Committee discusses the accreditation. In particular, their focus lies on the recommendation E8, which suggests the university to reconsider including a thesis within the study program. When reading the report and also consulting with the respective programme manager, the members of the Technical Committee understand that the Bachelor's Degree ends with two final projects that have a scientific scope equal to that of a classic Bachelor's thesis. The students are then awarded the Bachelor's Degree. Afterwards, they may write a "classic" Bachelor thesis to be awarded the professional title of "engineer". The Technical Committee agrees with the experts that it would be beneficial to include the thesis as mandatory in the curriculum but that the two final projects are sufficient to equate EQF Level 6.

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 parts of Subject-Specific Criteria of the Technical Committee 06 – Engineering and Management, Economics.

The Technical Committee 06 – Engineering and Management, Economics recommends the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Industrial Engineering	With requirements for one year	30.09.2030	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Technical Committee 07 – Business Informatics/Information Systems (08.09.2023)

Assessment and analysis for the award of the ASIIN seal:

The technical committee discusses the procedure and especially the fact that no compulsory final thesis is foreseen. There is a final project in the last two semesters, but the experts describe in the report that "the two projects in form of modules seem to be not suitable as a final project because an independent work is not guaranteed." Therefore, in the opinion of the TC, there is no thesis or equivalent at EQF level 6, which is why the TC is in favour of a corresponding new requirement (A3). Furthermore, TC 07 cannot follow recommendations E1 and E2 according to the current state of the report. On the one hand, the terms in recommendation E1 are not appropriate, as "microeconomy" is not a direct area of "business informatics". The TC suspects that the experts mean "business fundamentals" here, but would like to return this to the experts first. As things stand, the TC cannot fully understand recommendation E2, as all the explicitly described topics are already included in the curriculum. Therefore, the TC is in favour of deleting recommendations E1 and E2 at this point. For recommendation E3, the TC is in favour of replacing the word "MS Excel" with "spreadsheet programme" so that a specific programme is not mentioned. The TC is also in favour of shortening recommendation E 7.

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

The Technical Committee deems that the intended learning outcomes of the degree programme do comply with the Subject-Specific Criteria of the Technical Committee 07 – Business Informatics/Information Systems.

The Technical Committee 07 – Business Informatics/Information Systems recommends the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Information Systems	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030

H Decision of the Accreditation Commission (22.09.2023)

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

The Accreditation Commission discusses the accreditation procedure and, particularly, the fact that no compulsory final thesis is foreseen and whether the level of the final project included in the curriculum of both degree programmes under review is enough. Regarding this point, the Accreditation Commission decides to follows the proposal of the Technical Committee 07 to add a new requirement (A3). In addition, the initial recommendation to include a thesis in the curriculum is deleted and included in A3 as alternative, as both aspects are interconnected. Furthermore, the Accreditation Commission corrects some imprecisions in E1 and E2.

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

The Technical Committee deems that the intended learning outcomes of the Industrial Engineering degree programme comply with the engineering specific parts of Subject-Specific Criteria of the Technical Committee 06 – Engineering and Management Economics.

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

The Accreditation Commission deems that the intended learning outcomes of the degree programme comply with the Subject-Specific Criteria of the Technical Committee 04 – Informatics/Computer Science.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Information Systems	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Industrial Engineering	With requirements for one year	30.09.2030	EUR-ACE®	Subject to the approval of the ENAEE Administrative Council

Requirements

For all programmes

A 1. (ASIIN 1.5) Ensure that the credits awarded for the internship ("pre-professional practice") correspond with the actual workload of the students.

A 2. (ASIIN 5) The teaching evaluation is to be organised in such a way that a feedback of the results to the students is ensured.

A 3. (ASIIN 1.1, 1.3) The final project must be raised to a level that corresponds to a final thesis at EQF 6 level. Alternatively, a final thesis must be a mandatory part of the curriculum.

Recommendations

For the Bachelor's degree programme Information Systems

E 1. (ASIIN 1.3) It is recommended to include in the curriculum more contents in macroeconomy.

E 2. (ASIIN 1.3) It is recommended to offer at the beginning of the studies basic courses in a spreadsheet programme.

For the Bachelor's degree programme Industrial Engineering

E 3. (ASIIN 1.3) It is recommended to include in the curriculum courses in the area of management competencies e.g. relating to risk management and safety management.

E 4. (ASIIN 1.3, 3.2) It is recommended to make sure that the topic IoT and Industry 4.0 find their way in the laboratories.

For all programmes:

E 5. (ASIIN 1.3, 3.1) It is recommended to enhance the internationalization strategy by improving English language competences of staff members and students, stronger support for international mobility of students and teaching staff and more exchange with foreign institutions and lecturers.

E 6. (ASIIN 1.3, 1.6) It is recommended to enhance the training of students' soft skills and scientific writing abilities, in order to increase employability.

E 7. (ASIIN 3.1) It is recommended to establish organizational structures that support the development of research and teaching networks.

E 8. (ASIIN 4.1) It is recommended to review and update the module handbook.

I Fulfilment of Requirements (21.08.2024)

Analysis of the experts and the Technical Committees (13.09.2024)

Requirements

For both degree programmes

A 1. (ASIIN 1.5) Ensure that the credits awarded for the internship ("pre-professional practice") correspond with the actual workload of the students.

Initial Treatment	
Peers	fulfilled Justification: The USMP states that, in accordance with the Rectoral Resolution No. 054-2024-CD-P_USMP of February 20, 2024 on the Regulations for Degrees and Diplomas, the requirements for pre-professional practices, their inclusion or not in the curriculum of each programme and their evaluation are defined and evaluated in accordance with the directives of each Faculty and Institute. In the case of the bachelor's degree courses in Industrial Engineering and Information Systems, the curriculum has been updated by deciding that pre-professional practice will no longer be included as a subject within the curriculum, but as an activity outside the curriculum (extracurricular), which will remain a compulsory requirement for graduation from the 2025-1 academic semester. In addition, the university remarks that it was considered in the past and accepted in the last ASIIN-accreditations (2009 and 2016) without any observations in this regard.
TC 06	fulfilled Vote: unanimous Justification: The TC follows the expert's assessment.
TC 07	fulfilled Vote: unanimous Justification: The TC follows the expert's assessment.

A 2. (ASIIN 5) The teaching evaluation is to be organised in such a way that a feedback of the results to the students is ensured.

Initial Treatment	
Peers	fulfilled

	Justification: The USMP explains that the Microsoft Teams platform is being used for more fluid communication with students on both programmes. A screenshot provided by the university demonstrates the implementation. Students have access to information about the results of the continuous improvement processes, as well as important announcements such as job offers, internships, volunteer opportunities, events and free courses. Students also have access to an online chat with the school director and a suggestion box where their concerns, suggestions and complaints are collected to strengthen the continuous improvement process. These measures are considered adequate by the experts. However, they believe that direct communication between teachers and students would be beneficial.
TC 06	fulfilled Vote: unanimous Justification: The TC follows the expert's assessment.
TC 07	fulfilled Vote: unanimous Justification: The TC follows the expert's assessment.

A 3. (ASIIN 1.1, 1.3) The final project must be raised to a level that corresponds to a final thesis at EQF 6 level. Alternatively, a final thesis must be a mandatory part of the curriculum.

Initial Treatment	
Peers	fulfilled Justification: The USMP provides examples of final projects from both programmes and explains the basic structure of these as well as of the Final Project I and II courses. According to the experts, the final projects appear to be at EQF 6 level and to ensure that each individual student acquires and is assessed on the relevant learning outcomes. The basic structure of the final project is appropriate and suitable for an academic project report. However, it seems to leave almost no room for the student to be creative or to work in a structured way. The experts consider that the academic level of the final project should be further monitored and evaluated.
TC 06	fulfilled Vote: unanimous Justification: The TC follows the expert's assessment.
TC 07	fulfilled Vote: unanimous Justification: The TC follows the expert's assessment.

Decision of the Accreditation Commission (24.09.2024)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Information Systems	All requirements fulfilled	EUR-Inf	30.09.2030
Ba Industrial Engineering	All requirements fulfilled	EUR-ACE	30.09.2030

Appendix: Programme Learning Outcomes and Curricula

According to the University Website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Informations Systems:

"Program Educational Objectives

1. Generate information systems solutions to respond to problems or needs in a business environment.
2. Adequately work, with analytic and communicative capacity, to provide solutions which generate value 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 of our society.
5. To be a professional committed with continuous learning for his/her personal development.

Student outcomes

Graduates of the program will have an ability to:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Support the delivery, use, and management of information systems within an information systems environment.
7. Recognition of the need for and an ability to engage in continuing professional development."

According to the University Website the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Industrial Engineering:

“EDUCATIONAL OBJECTIVES OF THE INDUSTRIAL ENGINEERING PROGRAM

1. Analyze, design, develop, implement and/or improve integrated organizational systems with a sustainable, innovative and entrepreneurial approach.
2. Rationally and optimally utilize available resources in order to satisfy the needs of society.
3. Practice an ethical and moral professional practice with social responsibility, shared value and care for the environment.
4. Lead, direct and/or actively participate in multidisciplinary work teams using effective communication.
5. Acquire new competencies to continuously improve their performance in the environments where they operate.”

“Student Learning Outcomes concisely describe the profile that our graduates should have and that is a product of the academic training process, these competencies are:

(1) Ability to identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics.

(2) Ability to apply engineering design to produce solutions that meet specific needs considering health, safety, and public welfare, as well as global, cultural, social, environmental, and economic factors.

(3) Ability to communicate effectively with different types of audiences.

(4) Ability to recognize ethical and professional responsibility in engineering practice and to make informed judgment, which should consider the impact of engineering solutions in global, economic, environmental, and social contexts.

(5) Ability to work effectively in teams, exercising leadership, creating collaborative and inclusive environment, set goals, plan tasks, and accomplish objectives.

(6) Ability to develop and conduct experimentation appropriately, analyse and interpret data, and use engineering judgment to draw conclusions.

(7) Ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

(8) Ability to manage projects and demonstrate knowledge and understanding of the principles of engineering management.”

The following **curriculum** for the **Bachelor's degree programme Information Systems** is presented:

INFORMATION SYSTEMS PROGRAMME
PLAN OF STUDY
ACADEMIC SEMESTER 2023-I

The Information Systems programme carried out its last curricular update during the year 2022 so that it enters into force as of the present year 2023

CODE	TERM / COURSE	CREDITS	REQUIREMENTS
	I		
09066801051	Discrete Math	5	----------
09066301040	Analytic geometry	4	----------
09000301030	Philosophy	3	----------
09990601020	Intercultural Citizenship	2	----------
09230001020	Introduction to Information Systems	2	----------
09000201020	Spanish	2	----------
09071001020	Study Methods	2	----------
TR000501010	Activities I	1	----------
TR000101010	English I (*)	1	----------
		22	
	II		
09036602050	Linear Algebra	5	----------
09065502050	Calculus I	5	09066801051 09066301040
09111402051	Introduction to Programming	5	09066801051
09066502032	Web Design Fundamentals	3	09230001020
09127402031	Introduction to Economy	3	09990601020
TR000602010	Activities II	1	TR000501010
TR000202010	English II (*)	1	TR000101010
		23	
	III		
09005303051	Algorithms and Data Structures I	5	09111402051
09005603053	Physics I	5	09036602050 09065502050
09111503051	Information Technology I	5	09111402051
09005403040	Statistics and Probabilities I	4	09065502050
09127603031	Information Systems	3	09066502032
		22	
	IV		
09006904051	Algorithms and Data Structures II	5	09005303051
09007404052	Physics II	5	09005603053
09006004040	Statistics and Probabilities II	4	09005403040
09007704041	Microeconomy	4	09127402031
09114904041	Information Technology II	4	09111503051
		22	
	V		
09093205052	Process Management (*)	5	09006904051 09127603031
09008905051	Database Theory and Design (*)	5	09006904051
09012205045	General Accounting	4	80 Credits Approved
09009005044	Administrative Engineering	4	09007704041
09140005040	Operating Systems and Platforms	4	09114904041
		22	
	VI		
09011906051	Software Engineering I (*)	5	09093205052 09140005040
09067106051	Programming I (*)	5	09008905051
09013106042	Costs Engineering	4	09012205045
09008506043	Operations Research I	4	09006004040 09230001020
09008806041	Systems General Theory	4	09009005044
		22	
	VII		
09013707051	Software Engineering II	5	09011906051
09014507042	Financial management	4	09013106042

09140707040	Artificial intelligence	4	09067106051
09140507020	Software Architecture for IS	2	09011906051
09990707010	Disability and Inclusion	1	133 Credits Approved
	Elective	6	
		22	

CODE	TERM / COURSE	CREDITS	REQUIREMENTS
	VIII		
09112108050	Project Workshop (*)	5	09013707051 09140707040
09128808041	Business Architecture	4	09008806041 09140507020
09072108041	System Design and Implementation	4	09013707051
09054808041	Projects Formulation and Evaluation (*)	4	09014507042
09066408041	IT Resources Management	4	09013707051
09140108020	Introduction to Research and Computer Science	2	156 Credits Approved
		23	
	IX		
09093409042	Business Intelligence	4	09128808041
09067009041	IT Strategic Planning	4	09066408041
09067309041	Project I (*)	4	09112108050 09054808041
09067909041	Information Systems Security and Audit	4	09072108041
09066709021	Oratory and Leadership	2	100 Credits Approved
	Elective	2	
	Elective	2	
		22	
	X		
09134910041	Digital Marketing	4	09054808041
09007010041	Project II (*)	4	09067309041
09003410022	Ethics and Moral	2	170 Credits Approved
09991210012	Pre-professional practices (*)	1	154 Credits Approved 6 months of Pre-professional internships completed
	Elective	11	
		22	

SPECIALTY ELECTIVE COURSES

INFORMATION SYSTEMS

CODE	TERM / COURSE	CREDITS	REQUIREMENTS
090861E1041	Database Administration	4	09008905051
090205E1040	E-commerce	4	134 Credits Approved
090933E1040	Knowledge Management	4	150 Credits Approved
091119E1042	Integrated Management Systems - ERP	4	09066408041
090608E1041	Business Creativity Workshop	4	09112108050
091406E1030	Big Data	3	150 Credits Approved
092301E7020	External Rotation IS	2	09011906051 09067106051 09013106042 09008806041 09008506043

INFORMATION TECHNOLOGIES

CODE	TERM / COURSE	CREDITS	REQUIREMENTS
090675E2041	Networks and Connectivity I (CCNA I Cisco)	4	09140005040
090676E2041	Networks and Connectivity II (CCNA II Cisco)	4	090675E2041
090677E2041	Networks and Connectivity III (CCNA III Cisco)	4	090676E2041
090862E2041	Information Security	4	09067909041

SOFTWARE ENGINEERING

CODE	TERM / COURSE	CREDITS	REQUIREMENTS
090658E3041	Software Quality	4	091124E3041
090672E3041	Programming II	4	09067106051

091124E3041	Software Testing	4	09013707051
090659E7020	Applications Development I	2	09067106051
090660E8020	Applications Development II	2	090659E7020

CODE	TERM / COURSE	CREDITS	REQUIREMENTS
091126E4041	Games Development	4	09013707051
09061700040	Strategic Management	4	120 Credits Approved
09085209041	Project Management - PMI	4	09054808041
09011607043	Operations Research II	4	09008506043
092302E9020	Entrepreneurship Fundamentals	3	09112108050
090147E4021	Organizational Behavior	2	09009005044
09086300021	Innovation Management	2	09054808041
092303E3020	Social Projection	2	- - - - - - - - - - - -
099913E1020	Quechua	2	176 Credits Approved

(*) **Courses taught virtually.**

REQUIREMENTS TO OBTAIN THE ACADEMIC DEGREE OF BACHELOR IN INFORMATION SYSTEMS

1. Have passed at least a total of two hundred and twenty-two (222) credits.
2. Have passed all mandatory courses, which add up to a total of 201 credits.
3. Have passed at least 21 credits in Elective courses.
4. Students who have entered, from the academic semester 2016 - I, must pass the support of a research work.
5. Accredit, in accordance with the current Regulations of Degrees and Titles, knowledge of the English language or another language at the required level.
6. Others, as indicated in the Regulations of Degrees and Titles in force.

The following **curriculum** for the **Bachelor's degree programme Industrial Engineering** is presented:

INDUSTRIAL ENGINEERING PROGRAM
PLAN OF STUDY
ACADEMIC SEMESTER 2023-I

The industrial engineering programme carried out its last curricular update during the year 2022 so that it enters into force as of the present year 2023

CODE	TERM	CREDITS	PRE-REQUISITES	
	I			
09066801051	Discrete Mathematics	5	-----	
09066301040	Analytical Geometry	4	-----	
09000301031	Philosophy	3	-----	
09990601020	Intercultural Citizenship	2	-----	
09066201020	Introduction to Engineering	2	-----	
09000201020	Spanish	2	-----	
09071001020	Study Methods	2	-----	
TR000501010	Activities I	1	-----	
TR000101010	English I*	1	-----	
		22		
	II			
09036602050	Linear Algebra	5	-----	
09065502050	Calculus I	5	09066801051	09066301040
09111402051	Introduction to Programming	5	09066801051	
09066102030	Drawing and Graphic Design	3	09066301040	
09127402031	Introduction to Economics	3	09990601020	
TR000602010	Activities II	1	TR000501010	
TR000202010	English II*	1	TR000101010	
		23		
	III			
09065603050	Calculus II	5	09065502050	
09005603053	Physics I	5	09036602050	09065502050
09007203051	Industrial Chemistry	5	09065502050	
09007703041	Microeconomics	4	09127402031	
09017703031	Industrial Computer Design	3	09066102030	
09990703010	Disability and inclusion	1	09990601020	
		23		
	IV			
09005304051	Algorithm and Data Structure I	5	09111402051	
09007404052	Physics II	5	09005603053	
09041204040	Differential Equations	4	09065603050	
09005404040	Statistics and Probabilities I	4	09065603050	
09008604041	Engineering Materials	4	09005603053	09007203051
		22		
	V			
09114205052	Electrical and Electronic Engineering	5	09007404052	09041204040
09139405051	Mechanics of Materials	5	09008604041	09017703031
09012205045	General Accounting	4	80 credits approved	
09006005040	Statistics and Probabilities II	4	09005404040	
09009005043	Administrative Engineering	4	09007703041	
		22		
	VI			
09013106042	Cost Engineering	4	09012205045	
09141906040	Process Management *	4	09009005043	09006005040
09011806042	Methods Engineering I *	4	09006005040	
09008506042	Operations Research I	4	09006005040	09066201020
09014006041	Manufacturing Process	4	09139405051	
09139506021	IT Tools Workshop *	2	09005304051	
		22		
	VII			
09016407041	Quality Control	4	09141906040	
09014507042	Financial Management	4	09013106042	
09013207042	Methods Engineering II *	4	09011806042	09139506021
09011607042	Operations Research II	4	09008506042	
09013407042	Marketing	4	09009005043	
09114307021	Industrial Instrumentation and Control	2	09114205052	
		22		

	VIII		
09017008041	Industrial Automation	4	09114307021
09054808041	Project Formulation and Evaluation *	4	09014507042
09114408041	Maintenance, Safety and Occupational Health	4	09011607042 09013207042
09014108042	Production Planning and Control I *	4	09013207042
09084908041	Total Quality Management TQM *	4	09013207042 09016407041
09068208022	Modern Manufacturing Workshop	2	09014006041
		22	
	IX		
09016509042	Production Systems Design	4	09017008041 09068208022
09085209041	Project Management PMI	4	09054808041
09015609042	Production Planning and Control II *	4	09014108042
09069009042	Final Project of Industrial Engineering I	4	09054808041 09014108042
			09084908041 09114408041
09068309020	Industrial and Organizational Psychology	2	174 credits approved
	Elective of Specialty	4	
		22	
	X		
09085010041	Supply Chain Management	4	09015609042
09068110041	Personnel Management and Labor Legislation	4	09068309020
09069110042	Final Project of Industrial Engineering II	4	09015609042 09069009042
09003410022	Ethics and Morals	2	170 credits approved
09991210010	Pre-professional Practices	1	154 credits approved
	Elective of Specialty	3	
	Elective of Specialty	2	
	Elective of Specialty	2	
		22	

	ELECTIVE COURSES	**CREDITS**	**PRE-REQUISITES**
090685E1041	Advanced Cost Engineering	4	09013106042
091393E1041	Digital Marketing	4	09054808041
090201E1042	Product Planning, Development and Engineering	4	09013407042
090800E1032	Foreign Trade and Financing	3	09013407042
090732E1030	Conflict and Negotiations	3	176 credits approved
091396E1031	Ergonomics	3	09114408041
090203E1031	Industrial Securities Market	3	09014507042
091350E1032	ERP Systems	3	09015609042
090851E1031	Industrial Monitoring and Supervision HMI	3	09017008041
09086300021	Innovation Management *	2	09054808041
090667E1021	Oratory and Leadership	2	100 credits approved
099913E1020	Quechua	2	176 credits approved

*** Courses taught virtually.**

REQUIREMENTS TO OBTAIN THE ACADEMIC DEGREE OF BACHELOR IN INDUSTRIAL ENGINEERING

1. To have passed all the mandatory courses, which total 211 credits.
2. To have passed at least 11 credits in elective courses.
3. To have passed at least a total of two hundred and twenty-two (222) credits.
4. Students who have entered, from the academic semester 2016 - I, must pass the support of a research work.
5. Accredit, in accordance with the current Regulations of Degrees and Titles, knowledge of the English language or another language at the required level.
6. Others, as indicated in the Regulations of Degrees and Titles in force.