

# **ASIIN Seal**

# **Accreditation Report**

Bachelor's Degree Programmes *Civil Engineering Urban and Regional Planning* 

Provided by Institut Teknologi Kalimantan, Balikpapan

Version: September 24<sup>th</sup>, 2024

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# **A** About the Accreditation Process

Name of the degree pro- gramme (in original language)	(Official) English translation of the name	Labels applied for <sup>1</sup>	Previous ac- creditation (is-	Involved Technical
	hame		suing agency,	Committee
			valiaity)	(10)
Sarjana Teknik (S.T.)	Bachelor of Engi- neering	ASIIN	BAN-PT (grade B, until 2023)	03
Sarjana Perencanaan Wilayah dan Kota (S.PWK)	Bachelor of Urban and Regional Planning	ASIIN	BAN-PT (grade B, until 2023)	03
Date of the contract: 04.04.2022				
Submission of the final version of	f the self-assessmen	<b>t report:</b> 30.09.20	)22	
Date of the onsite visit: March 1 <sup>st</sup>	<sup>t</sup> – 2 <sup>nd</sup> 2023			
at: Balikpapan, ITK campus				
Peer panel:				
UnivProf. DrIng. Tim Ricken, University of Stuttgart				
Prof. Dr. Manfred Krafczyk, Technische Universität Braunschweig				
DrIng. Martin Rumberg, Technical University Kaiserslautern				
Hendricus Andy Simarmata PhD, Center of Strategic and Global Studies Universitas Indo- nesia				
Faatira Azzahra Scientiva Kurniapi	ramono, student at G	Gadjah Mada Univ	versity	
Representative of the ASIIN head	l <b>quarter:</b> Yanna Sum	kötter		
Responsible decision-making con	nmittee: Accreditatio	on Commission		
Criteria used:				
European Standards and Guidelines as of 15.05.2015				
ASIIN General Criteria, as of 28.03.2014				

<sup>&</sup>lt;sup>1</sup> ASIIN Seal for degree programmes

<sup>&</sup>lt;sup>2</sup> TC: Technical Committee for the following subject areas: TC 03 - Civil Engineering, Geodesy and Architecture

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

# **B** Characteristics of the Degree Programmes

a) Name	Final degree (original/Eng- lish translation)	b) Areas of Spe- cialization	c) Corre- sponding level of the EQF <sup>3</sup>	d) Mode of Study	e) Dou- ble/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Civil Engineering	Bachelor of En- gineering	Structure, Ge- otechnical, Hy- dro Engineering, Construction Management, Transportation	6	Full time	/	8 semes- ters	144 SKS (equivalent to 217,6 ECTS)	Annually / 2012
Urban and Re- gional Planning	Bachelor of Ur- ban and Re- gional Planning	Urban Develop- ment and De- sign, Urban Ecosys- tem Manage- ment, Regional Devel- opment, Spatial Analytics and Geo-Computa- tion	6	Full time	/	8 semes- ters	144 SKS (equivalent to 217,6 ECTS)	Annually / 2013

For the <u>Bachelor's degree programme Civil Engineering</u> the institution has presented the following profile in the self-assessment report:

"The Bachelor's degree programme in Civil Engineering was established to support the primary strategy of increasing the capacity of human resources, science, and technology in the Kalimantan Economic Corridor as set out in the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI) 2011-2025. Therefore, the programme strives to prioritize the potential for developing Kalimantan's natural resources so that it becomes one of the unique things in this study programme. In line with this goal, the programme curriculum has the main learning outcome of producing competent and professional graduates in solving civil engineering problems, considering the code of ethics and the surrounding environment."

Thus, the programme provides opportunities for graduates to work in the following positions:

<sup>&</sup>lt;sup>3</sup> EQF = The European Qualifications Framework for lifelong learning

- "Practitioners: able to apply scientific knowledge professionally in the field, both identifying, solving problems in the field comprehensively and paying attention to environmental sustainability;
- Academic: someone who is able to work professionally as an educator and researcher who develops skills and knowledge in the field of civil engineering in accordance with the latest technological developments;
- Policy maker: someone who is able to formulate policies that suit the needs of the community;
- Entrepreneur: a person who is able to take advantage of business opportunities, work in harmony, manage human resources effectively and efficiently."

For the <u>Bachelor's degree programme Urban and Regional Planning</u> the institution has presented the following profile in the self-assessment report:

"The Bachelor's degree programme in Urban and Regional Planning was established to answer the challenges of resource needs in spatial planning, especially in Indonesia, due to increasingly dynamic spatial problems and demands for sustainable economic development. Urban and Regional Planning is the only study programme focusing on East Kalimantan spatial planning. It has the main learning outcome of producing graduates who think critically, adaptively, and collaboratively in implementing the entire spatial planning process for sustainable development. Therefore, the curriculum is designed in stages, from basic mastery of oral and visual communication skills and basic planning in the early period as well as hard skills in the form of good spatial and ethical product preparation practices at the final stage."

Thus, the programme provides opportunities for graduates to work in the following areas:

- "Government institution or private (Researcher and Data Analysis); Able to identify problems that require analysis, Compile databases and manage data, informative and creative data visualization, advanced and predictive data analysis from big data, publish ideas and problem solving
- Urban and Regional Planners; who is mastering skills of plan-making and project evaluation as well as the texhniques for involving wide range of people in making decisions
- Project Managers; who is able to successfully take a project from start to finish with more efficiency
- Public Facilitators and Community Empowerment; who is able to provide the methods and means that enable groups and individuals to craft answer to complex issues facing their community without necessarily being a subject matter expert.

- Housing Development; who is able to increase the value of the are by organizing a property complete with infrastructure and social facilities needed by its resident community.
- Economic Development; able to identify economic potential using relevant analytical methods
- Environmental, Natural Resources and Energy Planners; Able to identify the potential of regional natural resources, able to analyze the potential of regional natural resources.
- Food Security Groups; who is able to identify food availability, food price stability, and food accessibility.
- Disaster Mitigation and Adaptation Groups; who is able to formulate, determine, and coordinate the inplementation of disaster mitigation and adaptation activities in an integrated and comprehensive manner.
- Land Development, Urban Parks, and Recreation Planners; who is responsibility for the development, revitalizing or rebuilding of an area.
- Financial / Banking Planner Managers; who is able to responsible for assisting business planning and decision making by providing appropriate financial device.
- Transportation Planners; Able to analyze trip generation and distribution, as well as demand projection."

## **C** Peer Report for the ASIIN Seal

### 1. The Degree Programme: Concept, content & implementation

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

#### Evidence:

- Objective-module-matrices
- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Website
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

The experts refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committees 3 (Civil Engineering, Geodesy and Architecture), the objective-module-matrices for each degree programme, the matching learning objectives and the modules as a basis for judging whether the intended learning outcomes of the <u>Bachelor's degree programme Civil Engineering and Urban and Regional Planning</u> correspond with the competences as outlined by the SSC. The descriptions of the qualification objectives are comprehensive and include the achieved competencies and possible career opportunities of the graduates.

The Institut Teknologi Kalimantan (ITK) has described and published programme educational objectives (PEOs) and programme learning outcomes (PLOs) for each of the two degree programmes under review. While the PEOs are developed based on the vision and mission of the university as well as the respective faculty and are rather general and concise, the PLOs describe in great detail the competences the students should acquire during their studies. By means of being published on the websites of the degree programmes, the PEOs and PLOs are easily accessible for students as well as other stakeholders. Furthermore, there are regular revision processes in place that take into account feedback by external and internal stakeholders. A minor curriculum adjustment is done every year whereas a major revision including consultations of stakeholders takes place every five years.

The experts note that the relationship between PEOs and PLOs has been established in a comprehensible and logical manner. The development of PLOs of the study programmes involves both internal and external stakeholders so that the curricula can be adapted and modified according to the needs of the industry and the graduates on a regular basis. For example, ITK regularly conducts surveys, through which the different stakeholders get the chance to assess the programmes and their main objectives and adapt them if necessary. Internal stakeholders include all of ITK members (students, teaching staff, and non-academic employees), while the external stakeholders include the industry, alumni, the government, and society.

At the end of their studies, graduates of the <u>Bachelor's degree programme Civil Engineering</u> are able to apply mathematics, science, and engineering principles to create or modify models in solving complex engineering problems in the fields of structural engineering, water resources engineering, transportation engineering, geotechnical engineering and construction management. They know how to take into account economic, security, public safety and environmental sustainability factors including the ability to identify, formulate, analyze and find sources of civil engineering problems, propose the best solution for solving civil engineering, transportation engineering and geotechnical engineering as well as select resources and utilize the most suitable, effective and efficient design and analysis tools in solving problems in the mentioned fields. Therefore, graduates of this study programme are capable of working in several professions, especially as practitioners, policy maker, entrepreneur or researcher.

The aim of the <u>Bachelor's degree programme Urban and Regional Planning</u> is to produce graduates who have basic knowledge in theoretical concepts and methods of urban and regional planning and are able to apply this knowledge in the aspects of space, land, infrastructure, socio-demography, economy, transportation, and environment. Graduates of this programme know how to apply analysis methods based on science and technology, spatial and non-spatial planning methods in decision making as well as spatial and sectoral planning techniques by utilizing information and communication technology. Moreover, they must be able to indicate norms and values in urban and regional planning, to document the process and communicate the results to stakeholders. Consequently, graduates of this programme are capable of working in the field of project management, urban and regional, environmental, natural resources and energy planning, land development planning, transportation planning or housing or economic development.

Next to the professional skills, the students of both study programmes are supposed to acquire personal and social skills such as critical and creative thinking, communication skills, adaptability, the capacity to work in (international) teams, and leadership skills. In addition, they should be able to solve (engineering) problems through research and the application of different concepts and methods.

In the experts' opinion, the intended qualification profiles of both degree programmes are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of ITK are much sought after in the labor market. The representatives of industry emphasize the high quality of the graduates of both programmes under review and students as well as graduates are satisfied with and well aware of their good job perspectives.

In summary, the experts confirm that the two <u>Bachelor's degree programmes</u> adequately reflect level 6 of the European Qualification Framework (EQF). The programme learning outcomes of both programmes are consistent with the respective ASIIN Subject-Specific Criteria of the Technical Committee of Civil Engineering, Geodesy and Architecture. They aim at the acquisition of specific competences and are well-anchored, binding and easily accessible to all stakeholders.

#### Criterion 1.2 Name of the degree programme

#### Evidence:

- Self-Assessment Report
- Diploma Supplements

#### Preliminary assessment and analysis of the experts:

The titles of the degree programmes follow the rules for naming study programmes set by the Indonesian Ministry of Education. The experts hold the opinion that the English translation and the original Indonesian name of the <u>Bachelor's degree programmes Civil Engineering and Urban and Regional Planning</u> correspond with the intended aims and learning outcomes as well as the main course language.

#### **Criterion 1.3 Curriculum**

#### Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Academic regulations
- Module descriptions
- Objective-module-matrices
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

The curricula of the two degree programmes are designed to comply with the programme objectives and learning outcomes and they are subject to constant revision processes (cf. chapter 1.1). As such, the curricula are reviewed regularly and commented on by students and teachers as well as by external stakeholders such as alumni or partners from government and the private sector. Regular changes are made to ensure that the curricula are up to modern standards. Besides the PEOs and PLOs defined by ITK itself, the curricula also take into account the Indonesian standards of higher education and the Indonesian national qualifications framework as well as the recommendations from industry. In the Self-Assessment Report and the curriculum for each programme, ITK describes how the PEOs and PLOs of each programme are to be achieved in the individual modules and thus explains the significance of each module for the programme as a whole. The curricula are reviewed by the experts in order to identify whether the described learning objectives can be achieved by the available modules. Course descriptions as well as matrices matching the general learning objectives and the module contents were provided for a detailed analysis.

The <u>Bachelor's degree programme Civil Engineering</u> comprises 144 Indonesian credit points (SKS). The degree programme normally spans over eight semesters but can be completed in a maximum of fourteen semesters. The students of the study programme get an overview of basic mechanics of materials, civil building drawing, algorithm and programming, fundamentals of chemistry, geomatics and geographic information system as well as Mathematics, Pancasila, Civics and languages (Indonesian and English) in the first two semesters. Over the course of the first six semesters, they take mandatory courses in the different areas of civil engineering, such as fluid mechanics and hydraulics, traffic engineering, design of highway geometrics, elements of concrete structure and steel structure, irrigation system and hydraulic building and bridge structure. Besides the theoretical classes, they also acquire practical competences through projects in various areas and community service. Moreover, in semesters 6 and 7, the students can choose from a wide range of electives covering contents of water resources management, modelling in civil engineering, trans-

portation modelling, sustainable construction and highway economics. The seventh semester also contains the mandatory internship. The students prepare their undergraduate thesis, which is written in the final semester, by drafting a topic and handing in a proposal.

The <u>Bachelor's degree programme Urban and Regional Planning</u> comprises 54 courses and 144 Indonesian credit points (SKS). The degree programme normally spans over eight semesters but can be completed in a maximum of fourteen semesters. The courses in the first two semesters convey basic knowledge of planning processes, planning and design, planning communication techniques, social theory and demographics as well as algorithm and programming, mathematics, Pancasila, civics and languages (Indonesian and English). Courses on the different urban and regional planning sciences (transportation, regional, urban and site and land use planning, housing and settlement, urban design history and planning, urban and regional economics, transportation system) are offered from the third to the sixth semester. Moreover, the students need to complete several design and study projects. The elective courses, through which the students can gain further insights in some of these areas, are spread out over semester 6, 7 and 8. The seventh semester also contains the mandatory internship. The students write their thesis in the eighth semester.

Overall, the experts are in principle satisfied with the curricular structure of <u>both pro-</u><u>grammes</u>. They see that the programmes are well structured and that the modules build on each other in a reasonable way, enabling the students to effectively reach the learning outcomes as laid down for the programmes as a whole.

However, the experts note that according to the study plan of the <u>Bachelor's degree pro-</u><u>gramme Urban and Regional Planning</u>, fundamentals in practical planning are taught at a late stage in the curriculum. So far, only one module that deals with the introduction to planning and design is included in the first semester and one about planning processes in the second semester. The experts point out that, in order to be able to achieve the desired problem-solving and creative competence of the graduates, fundamentals in practical planning need to be taught at an earlier stage in the curriculum. The module about planning communication techniques could for instance be moved from the first semester to a later stage in the curriculum if the students already know the content object of the communication.

The importance of the increase of practical planning and project-based contents at an early stage of the curriculum could be additionally supported by strengthening the credit load of the studios. The current curriculum includes four studios worth 4 SKS each. By increasing their credit load to at least 6 SKS for each, the studios could complement the high propor-

tion of general engineering, spatial data processing, socio-economic conditions and infrastructure systems in the degree programme. Therefore, the experts recommend to strengthen the credit load of the studios.

Moreover, the experts wonder where in the <u>Urban and Regional Planning</u> curriculum the aspects of transportation and urban mobility are taught, because they realize that graduates of this programme should be able to recognize the integrative relationships between urban development, transport infrastructure and mobility behaviour and respond to them in planning. While students of this programme seem to learn a lot about spatial analysis and modelling, it seems, however, that less time and workload is attached to the mentioned topic. From the programme coordinators, the experts learned that students hear about transportation and urban mobility for instance in the elective module "management and transportation institutions". The experts underline though that planning skills in this area are fundamentally important. Therefore, the experts recommend to strengthen the mentioned aspects in the electives or even mandatory, for instance by collaborating with the civil engineering department.

With regard to the <u>Bachelor's degree programme Civil Engineering</u> the experts note that the curriculum does not contain sufficient workload about building physics. As this however is a crucial component of the curriculum, because it is the basis for educating the future civil engineers to design and build residential and office buildings which deliver appropriate comfort while still being energy efficient and thus sustainable. The experts urge ITK to include building physics (diffusion, advection, radiation) including differential equations and boundary conditions in the curriculum of the degree programme.

Furthermore, the experts wonder whether fundamentals of structural analysis are sufficiently included in the <u>Civil Engineering</u> curriculum. It is noticeable that the workload of this subject area has been reduced in the past, e.g. for the module "Fundamental Physics 1" (3 SKS), "Fundamental Physics 2" (3 SKS) from a total of 6 SKS to 2 SKS. The programme coordinators explain that the missing content has been moved to other modules. However, the experts have identified that the content and volume are not sufficient by far and point to the fact that the introduction of those fundamentals is crucial, because the students need to master the theory first in order to be able to apply the different methods, like for instance finite elements. Therefore, ITK must include fundamentals in structural analysis (foundations of beam, shell, plate theory) as well as in linear Finite Element Method (FEM) in the <u>Civil Engineering</u> curriculum.

In addition, the experts realize that the module "Applied Engineering Mathematics" of the <u>Civil Engineering degree programme</u> deals with basic aspects of engineering and structural mechanics. Yet, the module is insufficient to achieve the intended competencies w.r.t. "To

solve complex engineering problems in the fields of structural engineering, water resources engineering, transportation engineering, geotechnical engineering and construction management based on engineering principles". Missing contents are e.g. stereostatics (Equilibrium of forces & internal forces) and elastostatics (Concept of strain, stress & Euler-Bernoulli beam theory) as well as basic background of dynamics, at least for the mass point. Applied engineering mathematics is strongly interrelated with the numerical solution of differential equations. For civil engineers it is thus important to get to know the basic types of differential equations occurring in civil and environmental engineering (Poisson problem, advection / transport and radiation to name a few). Therefore, the experts point out that ITK must strengthen the credit load of the module "Applied Engineering Mathematics" and include Fourier Series and linear and non-linear oscillators. In return, one could consider to spare the contents of Basic Physics 2 or replace the contents of this module omitting electricity (electricity-magnetism), light and relativity (special relativity).

With regard to the elective modules in the <u>Bachelor's degree programme Civil Engineering</u>, the experts point to the fact that the electives in modelling of systems for civil engineering, software for civil engineering, foundation of rocks, dynamics of foundation and engineering geology have been removed in the course of the last curriculum review. However, as these topics constitute fundamental aspects of civil engineering, they recommend to reintroduce them.

Moreover, the experts note that the module description of the "Algorithms & Programming" module does not provide sufficient information about the algorithms taught. As a basic introduction to object oriented methods should be part of the aspects taught in the module, the experts ask whether these contents are not included in the module at all or whether the information is simply missing in the module descriptions. From the programme coordinators, the experts learn that the focus of this module is presently to get a first impression of using a programming language. Yet, a programming language itself is not a fundamental aspect for engineers. Therefore, they recommend to modify the content of the module "Algorithms & Programming" to include basics of object oriented programming, basics of using computer algebra systems (e.g. MatLab, Maple, Mathematica) and unified modelling language (UML). While Python is a reasonable choice for a programming language, it bears the risk of not getting acquainted with strong typing (w.r.t. data types) which is why one could alternatively consider using Java or C++.

Furthermore, the experts recommend to create a combined compulsory module addressing basics of computer aided design (CAD) and building information modelling (BIM), because future civil engineers will be not only responsible for designing and building infrastructure, but have to provide a complete documentation of this infrastructure over its entire life cycle. Thus, the fundamentals of Building Information Modeling (BIM) should be taught.

Finally, the experts recommend to assign the majority of the modules of b<u>oth degree pro-</u> <u>grammes</u> to specific Sustainable Development Goals (17 SDGs) as defined by the United Nations. This is supposed to create and increase awareness of the fact that especially civil engineering will substantially have to contribute to increase the level of sustainability in all of its resource intensive activities both in terms of material and energy consumption especially during the complete life cycle of infrastructure ranging from design over building, utilization and demolition (including recycling).

With regard to the internships, the experts learn that the fieldwork practice or the so-called "practical work" in companies is mandatory in both <u>Bachelor's degree programmes</u>. It usually takes a total of 6 months which is valued by the students as this allows them to apply the skills they learned in the programmes in a real working environment. The students highlight that the university is very supportive in finding placements for the internship and that they are always encouraged to gain as much practical experience as possible. The university has established useful guidelines for these internships and every student has one advisor at the company and one at the university to ensure that the work contributes to achieving the programme's learning outcomes. The assessment methods to evaluate this phase is comprehensive and includes a written report, a seminar and an oral test. To what extent ITK must formulate criteria for substituting the internship credits to the elective modules credits and make them accessible to students and other stakeholders will be further explained in chapter 2.2.

Furthermore, the experts discuss with ITK the ways in which the students can improve their English proficiency. They learn that in <u>both Bachelor's degree programmes</u> English literature is used occasionally as can be seen from the literature suggested for the individual modules in the module descriptions. Students have the possibility to join the English study club, which is offered by the Language Centre. Students are also obliged to achieve the required TOEFL score in order to graduate from their studies. The experts appreciate these efforts. However, the industry representatives also underline that the English skills of the students who absolve internships in their companies or of the graduates who are employed in these could still be improved. The students themselves confirm this impression and wish for a more targeted training. Therefore, the experts recommend to teach more classes in English in order to improve the corresponding language skills of the students.

Finally, the experts ask how the teaching staff and the prospective employers evaluate the soft skills of the students. They learn that the students from ITK are particularly resilient in

many respects: both in terms of competition and in terms of their perseverance. In spite of this, the industry representatives also underline that specific soft skills as the ability to publicly speak, present in front of an audience and write, entrepreneurship and project management skills could still be improved. Consequently, the experts recommend to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, writing skills, entrepreneurship and project management skills.

#### **Criterion 1.4 Admission requirements**

#### Evidence:

- Self-Assessment Report
- Academic regulations
- Students handbook
- Websites
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

According to the Self-Assessment Report, admission of new students to ITK is possible via different modes of entry (national and local modes). The different modes of entry are designed not only to select the top-quality students from high schools, but also to provide opportunities for high school students from all over Indonesia, especially those from rural areas.

There are three different paths of admission into the two Bachelor's degree programmes under review:

1. National Selection of Higher Education or University (Seleksi Nasional Masuk Perguruan Tinggi Negeri, SNMPTN), a national admission system, which is based on the academic performance during high school.

2. Joint Selection of Higher Education or University (Seleksi Bersama Masuk Perguruan Tinggi Negeri, SBMPTN). This national selection test is based on the results of a test (UTBK) which is held every year for university candidates. It is a nationwide written test (subjects: mathematics, Bahasa Indonesia, English, physics, chemistry, biology, economics, history, sociology, and geography).

3. Integrated Independent Entrance Examination (SUMMIT). Students are selected based on criteria determined by ITK itself. It mainly follows the results of UTBK, but also considers other citeria such as achievements and motivation of the students.

In average, 50% of the students got their submission with regard to their school grades (SNMPTN), 40% by national examination (SBMPTN), and 10% by institution examination (SUMMIT ITK).

For each academic year, the university determines the ratio of students admitted through these different ways. Generally, the number of applications in the two Bachelor's degree programmes is considerably higher than the number of admitted students. For the last three years 2019 - 2021, the acceptance rate was between 19,91 and 20,98 % for the <u>Bachelor's degree programme Civil Engineering</u> and between 19,28 and 25,66% for the <u>Bachelor's degree programme Urban and Regional Planning.</u>

The tuition fees for the programmes are determined by the Ministry of Finance based on a proposal from ITK. There are different levels for these fees, depending on the parents' income. For students from underprivileged families, there is no tuition fee. Furthermore, there are various options for scholarships that cover the tuition fees.

The admission website informs potential students in great detail about the requirements and the necessary steps to apply for admission into the programmes. Since the rules are based on decrees by the ministry of education and on the university's written regulations, the experts deem them binding and transparent.

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

Criterion 1.3:

With regard to the requirement to include building physics (diffusion, advection, radiation) including differential equations and boundary conditions in the Civil Engineering curriculum, ITK states in its response statement to follow up by including this material in the changes to the undergraduate programme curriculum for 2025-2029. However, as these plans haven't been implemented yet, the experts continue to adhere to this requirement.

Regarding the requirements to include fundamentals in structural analysis (foundations of beam, shell, plate theory) as well as in linear Finite Element Method (FEM) in the Civil Engineering curriculum, ITK explains in its response statement that in accordance with the peer questions about reducing the workload of modules "Fundamental Physics 1" and "Fundamental Physics 2" actually the credits of "Fundamental Physics I" and "Fundamental Physics 2" both in the previous curriculum and the current curriculum is fixed at 3 SKS for

each module with a total of 6 SKS. Regarding the basic theorem of beam, shell and plate has been provided on "mechanics of materials" (2 SKS) and "statically indeterminate structure" (3credits) courses. Further explanation of advanced theorem will be provided in "Applied engineering mathematics" (3 SKS) and "Civil engineering model" (2 SKS) courses. "Statically-determinate structures" consist of explanations about equilibrium of forces. ITK submits the corresponding module descriptions together with its response statement. Moreover, in accordance with the peer requirements regarding fundamentals of structural analysis that the content and volume are not sufficient, ITK states to follow up by including the basics in structural analysis (theoretical foundations of beams, shells, plates) as well as in the linear Finite Element Method (FEM) in changes to the undergraduate programme curriculum for 2025-2029. The experts appreciate these efforts, but as these plans haven't been implemented yet, the experts continue to adhere to both requirements.

Furthermore, with regard to the requirement to strengthen the credit load of the module "Applied Engineering Mathematics" and to include Fourier Series and linear and non-linear oscillators in the Civil Engineering curriculum, ITK states in its response statement that the stereotactic concepts are provided in 'Statically Determinate Structure", while Elastostatic concepts are provided in several courses, including "Mechanics of materials" (ex: stress and strain concept) and "Civil Engineering Models" for Euler-bernoulli concept. However, for the latter, it hasn't been delivered thoroughly. The system modeling elective courses, software for civil engineering, rock foundations, dynamic foundations and engineering geology have been removed in the new 2020-2025 curriculum.

Software courses for civil engineering are part of the compulsory courses, namely Certain Static Structures Courses (SAP2000), Embankment and Earth-Retaining Structures (Geostudio), Drainage (Hec-Ras), Transportation Modeling (VISSIM), Drawing Civil Buildings (Auto-Cad), Construction Management (Ms.Project) Engineering geology courses are part of the compulsory courses, namely Introduction to Geology and Soil Mechanics. In the new 2020-2025 curriculum, there are Kapita Selekta courses which can be opened according to industry needs or technological developments, so that the elective courses that have been deleted can be opened in the Kapita Selekta course. ITK submits the corresponding module descriptions together with its response statement. In accordance with peer recommendations, ITK states to follow up by including this material in the changes to the undergraduate programme curriculum for 2025-2029. However, as these plans haven't been implemented yet, the experts continue to adhere to this requirement.

In addition, with regard to the recommendation to modify the content of the module "Algorithms & Programming" to include basics of object oriented programming, basics of using computer algebra systems (e.g. MatLab, Maple, Mathematica) and unified modeling language (UML), ITK states in its response statement to follow up by including this material in the changes to the undergraduate programme curriculum for 2025-2029. As these plans haven't been implemented yet, the experts continue to adhere to this recommendation.

Additionally, regarding the recommendation to create a combined compulsory module addressing basics of computer aided design (CAD) and building information modeling (BIM), ITK explains in its response statement to follow up by including this material in the changes to the undergraduate programme curriculum for 2025-2029. Actually the degree programme is prepared to collaborate with the Construction Services Center (Balai Jasa Konstruksi), East Kalimantan Region, Directorate General of Construction of the Ministry of PUPR to conduct BIM training for alumni and students who will graduate. In addition, the relevant teaching staff attended BIM training as instructors. ITK submits the corresponding certificates together with its response statement. However, as these plans haven't been implemented yet, the experts continue to adhere to this recommendation.

With regard to the recommendation to assign the majority of the modules of both degree programmes to specific Sustainable Development Goals (17 SDGs) as defined by the United Nations, ITK states to include these changes during the undergraduate programme curriculum curriculum review 2025-2029. However, as these plans haven't been implemented yet, the experts continue to adhere to this recommendation.

Regarding the recommendation to teach more classes in English in both programmes in order to improve the corresponding language skills of the students, ITK states to follow up with training for students' English proficiency and deliver more classes in English. The experts appreciate these efforts and support the university to further pursue this matter. However, as these plans haven't been implemented yet, the experts continue to adhere to this recommendation.

With regard to the recommendation to strengthen the soft skills of the students of both programmes through designated coursework or integration into existing coursework, in particular public speaking, writing skills, entrepreneurship and project management skills, ITK responds that some courses in the Civil Engineering degree programme already have implemented several learning methods such as Case Method Learning and Project Based Learning. Additionally, ITK plans to include these changes into the undergraduate programme curriculum 2025-2029. As these plans haven't been implemented yet, the experts continue to adhere to this recommendation.

With regard to the requirement for the Urban and Regional Planning degree programme that fundamentals in practical planning need to be taught at an earlier stage in the curriculum, ITK states in its response statement that this will be used as input for reviewing the curriculum in 2024 for the academic year of 2025 to 2029. The current curriculum is the curriculum for 2020 – 2024 academic year. In addition, the study programme submits an

evaluation for the ITK curriculum guidelines to consider general courses that must be taken by students, so that the fundamental courses in practical planning could be carried out at the earlier stage. With regard to the related suggestion to move the planning communication techniques course to a later stage in the curriculum, ITK explains that this course is one of the fundamental courses, because the module content is not focused on the content object of the communication, but also on presenting data in various types of communication and situations, verbal, visual, and writing. These should help students to better formulate the studio or practical work outputs in later semesters and meet the scientific communication requirements. This module teaches about verbal communication in academic presentations, how to deliver planning reports, and presenting data using fundamental spatial mapping skills and data science. The practical method of using supporting software and computer is also utilized in delivering this module. The experts appreciate these efforts and support the university to further pursue this matter. However, as these plans haven't been implemented yet, the experts continue to adhere to this requirement.

With regard to the recommendation to strengthen the credit load of the studios, ITK explains that studio competencies in the Urban and Regional Planning programme are accommodated by two courses, namely pre-studio (theory and concept) and studio (practical). Pre-studio courses (such as planning process, urban planning, regional planning) with 3 SKS are the prerequisite courses that should be taken by the students before taking studio courses (Planning process Studio, Urban Planning Studio, Regional Planning Studio) that are worth 4 SKS. In total, each student has to complete studio courses worth 7 SKS. The experts appreciate these explanations, but understand that the courses on urban and regional planning, which lie before the studios in the curriculum, are declared "pre-studios". The experts, however, do not consider this to be the idea of studios, especially since the content is then spread over two semesters. The university does not make any further proposals on this point. Since we are in the digitalization era (more advanced planning hardwares and softwares are available), the experts think that the studio should take more credits so students may have more time to exercise, experiment, simulate, and iterate the data, and not be separated in two semesters. Therefore, the experts continue to adhere to this recommendation.

Finally, with regard to the recommendation to strengthen the field of transportation and urban mobility in the electives of the Urban and Regional Planning study programme, ITK explains that for transportation planner competence, the programme is focused on urban and regional transport supply demand and urban transport analysis. This focus competence is taught in three important modules such as transportation system module, transportation planning module and transportation modeling module. Other compulsory and elective modules are supporting transportation supply demand analysis related to the interaction

of transportation infrastructure and urban land use development such as regional planning module, urban planning module, infrastructure system module and management transportation. However, ITK plans to consider these contents again in the curriculum evaluation in 2024. As these plans haven't been implemented yet, the experts continue to adhere to this recommendation.

### 2. The degree programme: structures, methods and implementation

#### **Criterion 2.1 Structure and modules**

#### Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Objective-Module-Matrices
- Discussions during the audit
- Partnership agreements with other universities
- Overview of student's mobility

#### Preliminary assessment and analysis of the experts:

Both <u>Bachelor's degree programmes under review</u> are designed for four years and the students need to achieve 144 Indonesian Credit Points (SKS, which is roughly equivalent to 217,6 ECTS; cf. chapter 2.2 for more details). Roughly 90% of these credit points are awarded for compulsory, around 10 % for elective courses. Each semester is equivalent to 16 weeks, including 14 weeks of learning activities and two weeks of examination (midterm and final exams).

After analyzing the module descriptions and the study plans, the experts confirm that <u>both</u> <u>degree programmes under review</u> are divided into modules and that each module is a sum of coherent teaching and learning units. Both programmes allow the students to define individual focuses through broad ranges of electives (see chapter 1.3 for more details). The students confirm that the structure of the programmes allow them to reach the learning outcomes within the regular duration (see chapter 2.2 for more details).

The experts notice that there are a number of quite small modules with only 2-3 credit points. They learn that this is due to some regulation by ITK and the government and that it is common in Indonesia to have overall smaller modules compared to the German (or European) standard. Overall, the experts regard the module structure to be adequate, also because all students confirm that they are used to having smaller modules and that this does not have negative implications on the overall workload (see chapter 2.2 for more details).

In summary, the experts gain the impression that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved.

#### International Mobility

The Self-Assessment report as well as the discussions make it very clear that international recognition is one of ITK's primary goals for the next years. The experts point out that international mobility, with regard to lecturers as well as students, is a key factor in these efforts.

The experts learn that the university already provides various mobility opportunities for students. These include semesters abroad, short programmes, internships, and international conferences. To foster these, there are cooperation agreements with hundreds of partner institutions worldwide, with a certain focus on Asia (for instance Malaysia, China, Japan), but also including many institutions in Europe and North America. Partly due to the COVID-19 pandemic, the number of students participating in mobility programmes in 2020 and 2021 was relatively low, but is expected to markedly increase again after the pandemic. A student and alumni centre has been established in order to coordinate ITK's efforts and to support the students in the planning and administration of international mobility. Moreover, the university provides scholarships for international mobility programmes and manages various external scholarships sponsored by the Indonesian government, the US government or the European Union.

Furthermore, in 2020, the Indonesian Ministry of Education introduced a programme called "Kampus Merdeka" (MBKM) that is supposed to encourage all stakeholders of higher education institutions in Indonesia to create networks and provide opportunities for students to gain more comprehensive learning or/and job experiences outside their institution. This programme allows students for instance to participate in an online student exchange programme between universities in Indonesia or to spend up to 6 months in another university or do an internship in a company. MBKM has been adopted by ITK in 2020 and therefore implemented by the two degree programmes under review. This regulation is included in the Decree of the Rector of ITK. Qualifications obtained at other universities in Indonesia or abroad are recognized in line with the courses at ITK. Before a stay abroad, the university concludes a learning agreement with the respective student to ensure that the courses taken are relevant to the study programme and can thus be recognized. As the students confirm, there are no problems with credit transfer or the organization of student mobility. They emphasize that the student and alumni centreas well as their academic advisors are eager to support them and to find adequate study programs and courses.

The experts appreciate the efforts undertaken by the university to foster student mobility and they are very satisfied with the structures and support mechanisms for international mobility.

#### **Criterion 2.2 Work load and credits**

#### Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Survey of student satisfaction
- Module descriptions
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

Based on the National Standards of Higher Education of Indonesia (SNPT), the two Bachelor's degree programmes use a credit point system called SKS, which is regulated as follows:

- 1 SKS of teaching covers 50 minutes of contact hours + 60 minutes assignment/tutorial + 60 minute of self-studies per week
- 1 SKS of practical work covers 170 minutes per week
- 1 SKS of seminar covers 170 minutes per week

In comparison to the ECTS credit system, wherein 1 ECTS equals 25-30 hours of students' workload, it is determined that 1 SKS is awarded for 170 minutes of work per week. One semester usually consists of 14 class meetings. The students' workload (contact hours and self-studies) is measured in Indonesian credit points (SKS), and converted to the European Credit Transfer System (ECTS). Regarding the conversion from SKS to ECTS, ITK explains that 1 SKS equals 45.3 hours and thus 1.6 ECTS, based on 28.3 hours per ECTS. According to the

legal requirements, the actual number is 144 SKS (equivalent to 217,6 ECTS) for both <u>Bach-elor's degree programmes</u>. The experts acknowledge that a credit point system based on the students' workload is in place.

The workload is spread relatively evenly over the semesters. Moreover, the effective number of SKS the students can take depends on their achievements in the previous semester. In the two degree programmes under review, if their GPA is less than 2.5, they can take up to 18, between 2.5 and 3.0 up to 20, between 3.0 and 3.5 up to 22 and above 3.5 up to 24 SKS in one semester. The workload of the last semester is markedly reduced to give the students enough time for their final project as well as to already start looking for a job. This mechanism is supposed to ensure that the students can really handle the workload. It also means that theoretically, students can finish their studies in less than 8 semesters, although this is relatively rare due to the high workload in general.

The experts confirm that the workload in hours is indicated in the module descriptions and the distinction between classroom work and self-studies is made transparent and is in line with the credits awarded. At the end of each semester, the students' workload for every course is monitored and evaluated.

The experts notice that many modules are quite small in terms of credit points and they worry that this might lead to a very high number of exams per semester and consequently to a heavy workload for the students. They learn that this is to some extent countered by the fact that the length of the exams is proportionate to the amount of credit points for the module. The students also emphasise that they consider the workload high but manageable. As the statistical data provided by ITK shows, the average length of study was 8 semesters between 2018 and 2020 in the Bachelor's degree programme Civil Engineering and 9 semesters in 2021. According to the programme coordinators, the increased number in 2021 is due to the Covid-19 pandemic which demanded adjustments to the full onlinebased learning model. In the Bachelor's degree programme Urban and Regional Planning, the average length of study was 8 semesters between 2018 and 2021. Additionally, the experts see that almost all students complete the degree programmes as there have only been 6 students of the Bachelor's degree programme Civil Engineering and 13 students of the Bachelor's degree programme Urban and Regional Planning who dropped out of the degree programmes in the last 3 years. The data verifies that the two degree programmes under review can be completed in the expected period.

However, with regard to the mandatory internship in both Bachelor's degree programmes, the experts learn that the duration of the internship is usually 6 months. The internship is carried out in 5 working days and 8 hours per day and only after successful completion of semester 5 with a minimum number of 100 credits. While the internship is worth 2 SKS

according to the study plan of the programmes, the programme coordinators explain that in order to reach the necessary 20 SKS per semester, the students have the possibility to choose between two options: either they take the 5 electives stipulated by the study plan of each of the two degree programmes and complete an internship for the remaining credits, or they replace the complete number of electives with the internship. The experts appreciate the flexibility and choices offered to students in this way, as this can additionally help them to specialise in a particular field of interest. However, in case of equating internship with electives, the experts point out that the internship must fulfil the same competences and learning objectives that would actually be achieved through the elective subjects. For this reason, ITK must formulate specific criteria for substituting the internship credits to the elective modules credits, make them accessible to students and other stakeholders and must evaluate if these criteria have been fulfilled accordingly after the internship.

#### Criterion 2.3 Teaching methodology

#### Evidence:

- On-site visitation of the facilities
- Self-Assessment Report
- Module descriptions
- Samples of lecturer evaluation by students
- Websites
- Discussion during audit

#### Preliminary assessment and analysis of the experts:

As ITK explains in the Self-Assessment Report, various student-centered learning methods are utilized in the degree programmes under review. Through the Indonesian regulations on credit points (see chapter 2.2), an adequate balance between face-to-face activities and independent learning is already ensured for all courses. Besides the regular lectures, methods such as group discussions, project- and problem-based learning, simulations etc. are used. The students confirm that these methods are actually in use and that they are satisfied with the variety of teaching methods, which support them in achieving the learning outcomes.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. ITK wants to encourage the students to gain knowledge from different scientific areas and to introduce them to research activities.

Teaching and learning is supported by a broad range of media, both traditional (books, papers) and online (videos, presentations etc.). The university's online learning management system (LMS) supports teachers and students in communicating and disseminating learning material. In the course of the Covid-19 pandemic, the university has swiftly switched to online learning with videoconferences, recorded videos and other media.

The experts consider the teaching methodology employed in the degree programmes to be diverse, interactive and to show a healthy mixture between traditional and modern/alternative methods. They are well adapted to the aims and conditions of the individual courses and suitable to support the students in achieving the intended learning outcomes.

#### **Criterion 2.4 Support and assistance**

#### Evidence:

- Self-Assessment Report
- Students handbook
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

In order to support students in completing their studies on time with good achievements, the university and the faculty provide academic and personal support and assistance through various means. The offers can be divided into two types: academic support and non-academic support. Academic advice includes the academic advisors, the student and alumni centre, the programme coordinators, the Dean and the supervisors for the final projects. Non-academic support comprises the medical centre, the language centre, the career centre, the library, computer laboratories and student dormitories.

The main contact person for every student is their academic advisor, who is assigned to them in their first semester. An academic advisor shall help them develop an adequate schedule for their studies, choose electives according to their skills and interests and support them in case of academic and non-academic problems. Each student meets his or her academic advisor on a regular basis (at least twice per semester), who is also responsible for monitoring the study progress. The academic advisor also has to approve the student's study plan for the semester. As the experts learn and highly appreciate, the study progress is not only monitored by the academic advisor on an individual basis, but the faculty is automatically alerted when students fall below a certain number of credit points per semester and are thus threatened with dropping out. In these cases, additional advice can be provided. Therefore, at the beginning of each semester, GPA provides direction for the students regarding their study plans, targets to be achieved and strategies for selecting courses. During the semester, GPA monitors the academic progress of the students. At the end of the semester, GPA evaluates the student's achievement under their supervision by checking the GPA that the students achieve.

Furthermore, there is supporting staff in the student and alumni centre (cf. chapter 2.1), the career centre, the integrated service unit and the general academic administration. The career centre regularly organizes job fairs, seminars with potential employers, trainings for writing applications etc. in order to support the students in their career planning. Moreover, there are many scholarships offered to students, (e.g. from private companies, the government or other foundations). This includes scholarships for students from low-income families and for those with high academic achievements. New students can attend classes to develop their effective learning and soft skills.

In addition, every student who enrols for the final project course will be assigned one or two thesis supervisors. The role of the thesis supervisors is to help students to complete their thesis research; they also monitor the progress of the thesis in order to ensure the completion of the thesis in the intended amount of time. The students confirm towards the experts that they are supervised in the research group during their work on the thesis. There are regular meetings where the students present their results and receive feedback from the other members.

All students at ITK have access to the online-learning site (internal learning management system (LMS)). By using LMS, lecturers can upload their syllabus and learning materials or modules as well as assignment for students. Through LMS, students can also interact with other students and lecturers.

The experts conclude that there are enough resources available to provide individual assistance, advice, and support for all students. The support systems help the students to achieve the intended learning outcomes and to complete their studies successfully and without delay.

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

Criterion 2.2:

With regard to the requirement to formulate criteria for substituting the internship credits to the elective modules credits and to make them accessible to students and other stake-

holders, ITK states in its response statement that it has formulated specific criteria for substituting the internship credits to the elective module credits through the "ITK internship guide" and specifically also formulated at the study programme level through the Civil Engineering and Urban and Regional Planning study programm internship guide which can be accessed via the study programme websites. The experts appreciate these clarifications and understand that ITK set up criteria that clearly define the rules for substituting the internship credits to the elective modules credits. Therefore, they consider this requirement to be fulfilled.

### 3. Exams: System, concept and organisation

#### Criterion 3 Exams: System, concept and organisation

#### Evidence:

- Self-Assessment Report
- Module descriptions for each degree programme
- Websites
- Examination regulations
- Samples written exams and final theses

#### Preliminary assessment and analysis of the experts:

Each course has to determine objectives, which support the achievement of the Programme Learning Outcomes of the respective programme. Accordingly, each course must assess whether all defined learning outcomes stated in the module descriptions have been achieved. For this purpose, ITK utilizes various types of examination.

In each course, at least two assignments/quizzes, a mid-term and a final examination are employed. There are different assessment methods in the programmes, such as quizzes, written tests, practical performances, assignments, small projects, oral tests and presentations. In most courses, mid-term and final exam consist of written tests and additional quizzes or assignments are used. However, the other assessment methods are also used to a certain degree. Via the Academic Calendar, the students are informed about mid-term and final exams. The form and length of each exam is mentioned in the module descriptions that are available to the students via ITK' homepage and in the internal learning management system (LMS). It is common to hold small quizzes every two or three weeks, but there are generally no unscheduled tests. The final grade of each module is calculated based on the score of these individual kinds of assessment, whereby the lecturer determines the ratio between them in accordance with the Academic Guidelines. The exact formula is given in the module handbook. At the first meeting of a course, the students are informed about what exactly is required to pass the module and about how the final grade is determined through the teaching and learning plan. ITK uses a grading system with the grades A, AB, B, BC, C, D and E, where a C (equivalent to a Grade Point of 2) is necessary to pass a module.

Based on the academic regulation to be eligible to take final exam, students must attend at least 80 % of the total course sessions. Students who have obstacles due to illness or other reasons and are not able to fulfil 80% of the total course sessions need to inform the academic supervisor and related lecturers. The arrangement to re-sit an exam can be adjusted in advance as compensation for the student's disability by providing the evidence. Furthermore, students who are not able to attend the final exam due to illness or other reasons can provide proof and take the follow-up exam scheduled by the study programme. Students who have not reached the minimum score to pass the exam are allowed to improve their grades through a remedial process according to the regulations listed in the ITK Evaluation Guidelines.

The experts discuss with the students how many and what kind of exams they have to take each semester. They learn that for most courses there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or quizzes. The students confirm that a variety of assessment methods is used, including traditional methods such as written or oral exams, but also presentations or project reports are utilized. The mid-term exams are carried out in the 8<sup>th</sup> and the final exams in the 16<sup>th</sup> week of the semester, whereas the smaller quizzes and assignments take place in the other weeks. The final grade is the sum of the sub exams. Although this means that the total number of tests taken during a semester is comparatively high, the students do not complain about this workload and instead appreciate that there are several short exams instead of one big exam as this requires them to continuously study during the entire semester and not having to solely work for one final exam at the end of the semester. The students also confirm that they are well informed about the examination schedule, the examination form and the rules for grading.

Every student is required to do a final project in the last year of studies. Prior to the actual research work, the students are required to write a research proposal and present it in a seminar attended by lecturers and other students who form a research group. The research proposal has to be accepted by the Dean and the supervisor committee who will then appoint the research supervisors. Usually, there are one or two research supervisors for each student. One will act as the principal supervisor and the other act as co-supervisor. In case

the student writes her or his final project or thesis in collaboration with the industry, she or he is also assigned a supervisor from the industry. After completing the work on the final project, the student has to present and defend the results in front of teachers and fellow students.

The experts discuss with the programme coordinators, the members of the teaching staff, and the students about the process of finding suitable topic of the final project or thesis. There are two possibilities: either students can propose their own ideas or they can ask their academic advisor or other teachers for suggestions.

During the on-site visit, the experts were provided with a selection of exams and final projects to check. They confirm that these represent an adequate level of knowledge as required by the EQF level 6 for the two Bachelor's degree programmes. The forms of exams are oriented toward the envisaged learning outcomes of the respective courses, and the workload is distributed in an acceptable way.

The experts conclude that the criteria regarding the examinations system, concept, and organization are fulfilled and that the examinations are suitable to verify whether the intended learning outcomes are achieved or not.

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

Since ITK does not address this in its statement, the experts stand by their previous impression.

### 4. Resources

#### Criterion 4.1 Staff

#### **Evidence:**

- Self-Assessment Report
- Staff Handbook
- Evidence of staff workload
- Lecturer teaching Index Report
- Samples of lecturer evaluation by students
- Study plans of the degree programmes
- Module descriptions
- Websites
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

At ITK, the staff members have different academic positions. There are assistant professors and lecturers. 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.

There are 17 teaching staff for <u>the Bachelor's degree programme Civil Engineering</u> (13 assistant professors, 4 lecturers of whom 2 with a PhD degree, 1 PhD candidate and 2 with a Master's degree) and 12 for <u>the Bachelor's degree programme Urban and Regional Plan-</u> <u>ning</u> (11 assistant professors, 1 lecturer of whom 1 with a PhD degree, 2 PhD candidates and 10 with a Master's degree). The university encourages the teaching staff with a Master's degree to pursue further qualification. These numbers mean that the ratio between academic staff and students is 1:22 in the <u>Bachelor's degree programme Civil Engineering</u> and 1:30 in the <u>Bachelor's degree programme Urban and Regional Planning</u>. In addition, the faculty regularly invites visiting lecturers from Indonesia 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.

Recruiting new teaching staff follows a defined procedure starting with a needs analysis of the degree programmes, 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 Indonesian government, the university itself or other research funds, which results in a reasonable number of publications per year. ITK positions itself as a university with an applied research focus, which the experts appreciate. They also learn that students can be involved in research projects, for instance through their theses.

With regard to the absence of full and associate professors in both Bachelor's degree programmes Civil Engineering and Urban and Regional Planning, the experts learn from the programme coordinators that the academic position of each teaching staff member relies on regulations by the Indonesian Ministry of Education that determines certain minimum credit points of experience for reaching the next level. Every teaching staff has responsibilities in the fields of teaching, research, and community service. The academic teaching staff must complete 200 credits in order to become an assistant professor, 400 credits in order to become an associate professor and between 800 and 900 credits in order to become full professor. In this context, one publication is normally considered to be worth 40 credits and teaching one class for one semester is worth 1 credit. Furthermore, the teaching staff of ITK spends in average 50 % of their time on teaching, 35 % on research and 15 % on community service. In this context, the share of teaching and research is at least 12 SKS, which means 300 minutes of teaching and 360 minutes of research per week. The students confirm that the teaching staff actively integrate their research activities into teaching. The experts support these efforts, but also point out that among the teaching staff only 3 lecturers have a PhD degree (2 for Civil Engineering degree programme and 1 for Urban and Regional Planning degree programme), while three others are currently working on a PhD degree (1 for Civil Engineering degree programme and 2 for Urban and Regional Planning degree programme). Moreover, the university's staff development plans are designed for the long term and, according to the submitted overview chart, will result in the first lecturer attaining associate status in 2025, with full professorship starting in 2031. In light of the absence of full and associate professors and the rising number of students per year, the experts highly recommended to increase the academic qualification of at least 50 % of the teaching staff to at least a PhD level as soon as possible. Otherwise, the intended quality goals could not be met in the event of reaccreditation.

Moreover, the "plans of strengthening the capacity of National Human Resources (HR) and Science and Technology (IPTEK) in the Kalimantan Economic Corridor as set out in the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI) 2011-2025", leads to the fact that ITK encourages its teaching staff to acquire a PhD degree abroad and to participate in international research projects. With regard to this, the experts ask how the staff development plans of ITK provide for the teaching of all modules if all teaching staff with a Master's degree plan to complete a PhD degree in the near future. The programme coordinators explain that PhD candidates are released from their teaching and research duties at ITK as long as they complete their PhD degree abroad. In order to be able to carry out their research, PhD candidates receive appropriate scholarships. If additional technical equipment is required, PhD candidates have the possibility to apply for funding from the government or big companies the university collaborates with. The remaining modules will be taught by visiting lecturers. The experts appreciate ITK's plans to continuously strengthen the qualifications of the teaching staff and focus on increasing the PhD degrees of the faculty members. Nevertheless, it is of utmost importance that all modules can be delivered by adequately qualified full-time teaching staff. Therefore, ITK must ensure the compensation of teaching capabilities due to absence of PhD candidates during their studies abroad by hiring additional lecturers with at least PhD level.

In summary, the experts highlight the engaged staff members and confirm that the composition and scientific orientation of the teaching staff – besides the mentioned restriction – are suitable for successfully implementing and sustaining the degree programmes. 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.

#### **Criterion 4.2 Staff development**

Evidence:

- Self-Assessment Report
- Staff handbook
- Lecturer Development Certificates
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

According to the self-assessment report and the discussions during the on-site audit, ITK encourages the continuing professional development of ITK staff. For this purpose, various opportunities are provided. There is a mandatory didactic training for new academic staff that encompasses curriculum design, teaching material, and innovative teaching and learn-

ing methods. Moreover, workshops are held to refresh and to deepen various didactic competences in each semester. The lecturers can also regularly participate in external didactical trainings offered and funded by the government.

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. For this purpose, the university informs about possible scholarships to support academic mobility. In general, the staff training and exchange is managed and under the coordination of the Training and Development Center of ITK. Particularly for junior lecturers with a master's degree, ITK offers training to prepare them for acquiring a PhD abroad, for instance through English courses, information on foreign education systems, administrative support, and supporting (international) research collaborations. The extent to which this is of particular importance, as the academic qualification of at least 50 % of the teaching staff should be increased to at least a PhD level as soon as possible, has been explained in more detail under criterion 4.1. According to a statistical overview provided by ITK, in the last five years, lecturers of the two study programmes under review have been involved in international activities in order to conduct doctoral programmes and research collaboration.

Moreover, the experts learn from the teaching staff that there are many different options to apply for funding for research projects, not only from ITK but also from the government and big companies the university collaborates with.

In summary, the experts appreciate the university's efforts in the further development of ITK employees and consider the support mechanisms for the continuing professional development of the teaching staff adequate and sufficient.

#### **Criterion 4.3 Funds and equipment**

#### Evidence:

- List of laboratories and equipment
- On-site visitation of the facilities
- Facilities, Infrastructure, and Safety Report
- Self-Assessment Report
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

The university and the faculty are mainly funded by the Indonesian government and the community, through tuition fees and through grants for research projects in collaboration

with industry. The figures presented by the university show that the faculty's income is stable and the funding of the degree programmes is secured. The academic staff emphasize that from their point of view, the two degree programmes under review receive sufficient funding for teaching and learning activities as well as research, which results in wellequipped facilities and good access to literature, databases and modern software. The students confirm this positive impression and state their satisfaction with the available resources.

In the self-assessment report, ITK gives an extensive overview of the available learning spaces and library. Moreover, they list detailed information of all laboratories available per study programme. During the on-site visit, the experts take a look at some central facilities, relevant research and teaching facilities and, in particular, all the different laboratories available for the two study programmes. The university has licensed Microsoft Office and other standard software and provides the students full access to this software. The experts appreciate the range of learning tools and resources available to the students. They consider the university's facilities and available equipment in the labs to be of appropriate standards. The facilities offer sufficient opportunities for the professional and individual development of students and teachers.

In summary, the peer group judges 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 programmes.

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

#### Criterion 4.1:

With regard to the requirement to ensure the compensation of teaching capabilities due to absence of PhD candidates during their studies abroad by hiring additional lecturers with at least PhD level, ITK states that both study programmes agree to expand the staff base. Recently, the Urban and Regional Planning study programme submitted a document to the Ministry of Education to accept new lecturers with Ph.D. backgrounds. They proposed 10 lecturers, 4 Ph.D. and 6 master's degrees. They expect that in 2024 they will be able to hire 4 new Ph.D. lecturers as Assistant Professors in the Urban and Regional Planning study programme. Therefore, they already invited 2 practitioner Ph.D. lecturers from Indonesian National Research and Innovation Agency (BRIN) who will teach classes from autumn 2023 onwards. The experts appreciate these efforts and support the university to further pursue this matter in both study programmes. However, as these plans haven't been implemented yet, the experts continue to adhere to this requirement.

### 5. Transparency and documentation

#### **Criterion 5.1 Module descriptions**

#### Evidence:

- Module descriptions
- Websites

#### Preliminary assessment and analysis of the experts:

The experts conclude that the module descriptions reflect the Civil Engineering and Urban and Regional Planning curricula adequately and contain meaningful information about the individual modules. In particular, the descriptions provide comprehensive information about the persons responsible for each module, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the applicability, the admission and examination requirements, and the forms of assessment, and details explaining how the final grade is calculated.

The students confirm during the discussions that information about the courses is always available online and that details concerning examinations and contents are provided by the teaching staff at the beginning of each course. The experts conclude that the module descriptions are thus accessible to the students as well as to all stakeholders.

#### **Criterion 5.2 Diploma and Diploma Supplement**

#### Evidence:

- Sample Diploma Certificate for each degree programme
- Sample Transcript of Records for each degree programme
- Sample Diploma Supplement for each degree programme

#### Preliminary assessment and analysis of the experts:

The experts confirm that the students of the two degree programmes under review 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 Diploma Supplements are bilingual (Bahasa and English). The Diploma Supplement and the Transcript of Records contain almost all necessary information about the respective degree programme. However, some pieces of information should be added. The Diploma Supplement must contain detailed information about the access requirements of the degree programmes. Therefore, the experts urge ITK to include this information in the Diploma Supplements. Furthermore, the experts note that neither the Transcript of Records nor the Diploma Supplement contains the conversion of SKS into ECTS. The Diploma documents need to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. Therefore, the experts point out that the Diploma Supplement needs to follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

#### **Criterion 5.3 Relevant rules**

#### Evidence:

- Self-Assessment Reports
- All relevant regulations on the studies, examination, admission and quality assurance are published on the university's website

#### Preliminary assessment and analysis of the experts:

The experts confirm that the rights and duties of both ITK and the students are clearly defined and binding. All rules and regulations are published on the university's website in Bahasa 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 programmes at the beginning of each semester.

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

#### Criterion 5.2:

With regard to the requirements that the Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide and the Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme as well as to ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes, ITK states in its response statement that the SKPI document for graduates now contains all the necessary information, namely a list of courses with credits, additional activities with credits and grades, additional GPA, as well as information on converting credit scores to ECTS. Currently the process of changing the contents of the SKPI document is being submitted to the campus academic section, and will soon take effect through the Rector's regulations. The experts appreciate

these efforts, but as these plans haven't been implemented yet, the experts continue to adhere to this requirement.

## 6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

#### Evidence:

- Self-Assessment Report
- Internal Quality Audit Reports for each degree programme
- Rectorate Decree of Internal Quality Assurance System
- Overview of Main Duties and Functions of quality Assurance Team
- Academic regulations
- Discussions during the audit

#### Preliminary assessment and analysis of the experts:

The experts learn that there is an institutional system of quality management aiming at continuously improving the degree programmes. This system relies on internal (SPMI) as well as external (SPME) quality assurance.

SPME focuses on both national and international accreditations. Every degree programme and every Higher Education Institution in Indonesia has to be accredited by the national Accreditation Agency (BAN-PT). ITK as an institution as well as the two degree programmes under review have received the accreditation status B (good) from BAN-PT.

SMPI encompasses all activities focused on implementing measures for improving the teaching and learning quality at the university. ITK has a Center of Quality Assurance (PJM), which conducts regular scans of academic and non-academic quality criteria within the institution. Apart from this office, there are different quality assurance units in place, such as the Department's Quality Assurance Group (GJM) and the internal quality auditor group. Different measures are taken to gather information about a variety of qualitative aspects of the institution.

Since ITK is striving to become an internationally acknowledged university, the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. Internal evaluation of the quality of the degree programmes is mainly provided through student, alumni and employer surveys.

On the institutional level, ITK annually carries out an SPMI evaluation of ten standards concerning management, resources, strategic development and quality assurance procedures. The performance of the departments is continuously checked through a specific information system. There is a major curriculum revision process for each programme every five years and a minor one every year (cf. chapter 1). The graduates are followed by ITK through a regular tracer study conducted by the career centre. Internal and external stakeholders give input through these processes in various ways.

Lastly, at the end of each semester, the students give their feedback on the courses by filling out the questionnaire online. The questionnaires are developed by the course survey committee and include questions with respect to the courses in general and about the teachers' performance. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. This becomes apparent in the already mentioned constant curricular revision process that is performed under participation of students and industry partners. The industry representatives confirm in the discussion that the university is eager to receive feedback about new developments and trends and the employability of their graduates. The experts particularly appreciate that ITK implemented an advisory board consisting of government, alumni, different associations, students and other stakeholders who are involved in modifying and improving the curricula of the degree programmes.

Concerning the internal feedback loops, the results of the course evaluations are centrally assessed and analysed before they are communicated to the Head of Department who would then be responsible to initiate any measures if problems or needs for improvement have been detected. A summary of the results is made accessible to the students. In case the satisfaction of the students with staff members is deficient, the Heads of Department will contact the respective teacher, discuss the issue and propose solutions. If no improvement can be achieved over a longer period, the staff member will be dismissed. Thus, the experts agree that the quality management circles at ITK are well established and work under participation of all stakeholders.

In summary, the experts are satisfied with the quality management system at ITK, especially with the continuous feedback loops and the involvement of important stakeholder groups such as students, alumni and representatives from the industry.

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

Since ITK does not address this in its statement, the experts stand by their previous impression.

# **D** Additional Documents

No additional documents needed.

# E Comment of the Higher Education Institution (10.07.2023)

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

- Module descriptions for Civil Engineering
- BIM Certificates of Teaching staff
- Curriculum Evaluation Board for Urban and Regional Planning
- Semester Learning Plan of Planning Communication Technique for Urban and Regional Planning
- Overview of courses for studio competence (e.g. Urban Design Studio)
- Overview of courses for transportation competence
- Internship guide
- Academic regulations regarding practice work guide
- Overview of new lecturer requirements

# F Summary: Peer recommendations (21.07.2023)

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditaiton
Ba Civil Engineering	With requirements for one year	-	30.09.2029
Ba Urban and Re- gional Planning	With requirements for one year	-	30.09.2029

#### Requirements

#### For all degree programmes

- A 1. (ASIIN 4.1) Ensure the compensation of teaching capabilities due to absence of PhD candidates during their studies abroad by hiring additional lecturers.
- A 2. (ASIIN 5.2) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme.
- A 3. (ASIIN 5.2) Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

#### For Urban and Regional Planning programme

A 4. (ASIIN 1.3) Ensure that the fundamentals in planning practices are taught at an earlier stage in the curriculum.

- A 5. (ASIIN 1.3) Include building physics (diffusion, advection, radiation) including differential equations and boundary conditions in the curriculum.
- A 6. (ASIIN 1.3) Strengthen the credit load of the module "Applied Engineering Mathematics", include Fourier Series and linear and non-linear oscillators.

- A 7. (ASIIN 1.3) Include fundamentals in structural analysis (foundations of beam, shell, plate theory) in the curriculum.
- A 8. (ASIIN 1.3) Include fundamentals in linear Finite Element Method (FEM) in the curriculum.

#### Recommendations For all degree programmes

- E 1. (ASIIN 1.3) It is recommend to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, writing skills, entrepreneurship and project management skills.
- E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.
- E 3. (ASIIN 1.3) It is recommended to assign the majority of the modules to specific Sustainable Development Goals (17 SDGs) as defined by the United Nations.
- E 4. (ASIIN 4.1) It is highly recommended to increase the academic qualification of at least 50 % of the teaching staff to at least a PhD level as soon as possible.

#### For Urban and Regional Planning programme

- E 5. (ASIIN 1.3) It is recommended to strengthen the credit load of the studios.
- E 6. (ASIIN 1.3) It is recommended to strengthen the field of transportation and urban mobility in the electives.

- E 7. (ASIIN 1.3) It is recommended to reintroduce some of the electives in modelling of systems for civil engineering, software for civil engineering, foundation of rocks, dynamics of foundation and engineering geology.
- E 8. (ASIIN 1.3) It is recommended to modify the content of the module "Algorithms & Programming" to include basics of object oriented programming, basics of using computer algebra systems (e.g. MatLab, Maple, Mathematica) and unified modelling language (UML).
- E 9. (ASIIN 1.3) It is recommended to create a combined compulsory module addressing basics of computer aided design (CAD) and building information modelling (BIM).

# G Comment of the Technical Committee 03 – Civil Engineering, Geodesy and Architecture (04.09.2023)

#### Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the accrediting procedure and follows the assessment of the peers without any changes.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditaiton
Ba Civil Engineering	With requirements for one year	-	30.09.2029
Ba Urban and Re- gional Planning	With requirements for one year	-	30.09.2029

#### Requirements For all degree programmes

- A 1. (ASIIN 4.1) Ensure the compensation of teaching capabilities due to absence of PhD candidates during their studies abroad by hiring additional lecturers.
- A 2. (ASIIN 5.2) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme.
- A 3. (ASIIN 5.2) Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

#### For Urban and Regional Planning programme

A 4. (ASIIN 1.3) Ensure that the fundamentals in planning practices are taught at an earlier stage in the curriculum.

- A 5. (ASIIN 1.3) Include building physics (diffusion, advection, radiation) including differential equations and boundary conditions in the curriculum.
- A 6. (ASIIN 1.3) Strengthen the credit load of the module "Applied Engineering Mathematics", include Fourier Series and linear and non-linear oscillators.
- A 7. (ASIIN 1.3) Include fundamentals in structural analysis (foundations of beam, shell, plate theory) in the curriculum.
- A 8. (ASIIN 1.3) Include fundamentals in linear Finite Element Method (FEM) in the curriculum.

#### Recommendations

#### For all degree programmes

- E 1. (ASIIN 1.3) It is recommend to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, writing skills, entrepreneurship and project management skills.
- E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.
- E 3. (ASIIN 1.3) It is recommended to assign the majority of the modules to specific Sustainable Development Goals (17 SDGs) as defined by the United Nations.
- E 4. (ASIIN 4.1) It is highly recommended to increase the academic qualification of at least 50 % of the teaching staff to at least a PhD level as soon as possible.

#### For Urban and Regional Planning programme

- E 5. (ASIIN 1.3) It is recommended to strengthen the credit load of the studios.
- E 6. (ASIIN 1.3) It is recommended to strengthen the field of transportation and urban mobility in the electives.

- E 7. (ASIIN 1.3) It is recommended to reintroduce some of the electives in modelling of systems for civil engineering, software for civil engineering, foundation of rocks, dynamics of foundation and engineering geology.
- E 8. (ASIIN 1.3) It is recommended to modify the content of the module "Algorithms & Programming" to include basics of object oriented programming, basics of using computer algebra systems (e.g. MatLab, Maple, Mathematica) and unified modelling language (UML).

E 9. (ASIIN 1.3) It is recommended to create a combined compulsory module addressing basics of computer aided design (CAD) and building information modelling (BIM).

# 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 decides to merge the formal requirements about the Diploma Supplement (initially A2 and A3), as they fit together thematically. Apart from this, the AC follows the assessment of the peers and the TC without any changes.

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditaiton
Ba Civil Engineering	With requirements for one year	-	30.09.2029
Ba Urban and Re- gional Planning	With requirements for one year	-	30.09.2029

The Accreditation Commission decides to award the following seals:

#### Requirements For all degree programmes

- A 1. (ASIIN 4.1) Ensure the compensation of teaching capabilities due to absence of PhD candidates during their studies abroad by hiring additional lecturers.
- A 2. (ASIIN 5.2) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

#### For Urban and Regional Planning programme

A 3. (ASIIN 1.3) Ensure that the fundamentals in planning practices are taught at an earlier stage in the curriculum.

- A 4. (ASIIN 1.3) Include building physics (diffusion, advection, radiation) including differential equations and boundary conditions in the curriculum.
- A 5. (ASIIN 1.3) Strengthen the credit load of the module "Applied Engineering Mathematics", include Fourier Series and linear and non-linear oscillators.
- A 6. (ASIIN 1.3) Include fundamentals in structural analysis (foundations of beam, shell, plate theory) in the curriculum.
- A 7. (ASIIN 1.3) Include fundamentals in linear Finite Element Method (FEM) in the curriculum.

#### Recommendations

#### For all degree programmes

- E 1. (ASIIN 1.3) It is recommend to strengthen the soft skills of the students through designated coursework or integration into existing coursework, in particular public speaking, writing skills, entrepreneurship and project management skills.
- E 2. (ASIIN 1.3) It is recommended to teach more classes in English in order to improve the corresponding language skills of the students.
- E 3. (ASIIN 1.3) It is recommended to assign the majority of the modules to specific Sustainable Development Goals (17 SDGs) as defined by the United Nations.
- E 4. (ASIIN 4.1) It is highly recommended to increase the academic qualification of at least 50 % of the teaching staff to at least a PhD level as soon as possible.

#### For Urban and Regional Planning programme

- E 5. (ASIIN 1.3) It is recommended to strengthen the credit load of the studios.
- E 6. (ASIIN 1.3) It is recommended to strengthen the field of transportation and urban mobility in the electives.

- E 7. (ASIIN 1.3) It is recommended to reintroduce some of the electives in modelling of systems for civil engineering, software for civil engineering, foundation of rocks, dynamics of foundation and engineering geology.
- E 8. (ASIIN 1.3) It is recommended to modify the content of the module "Algorithms & Programming" to include basics of object oriented programming, basics of using computer algebra systems (e.g. MatLab, Maple, Mathematica) and unified modelling language (UML).

E 9. (ASIIN 1.3) It is recommended to create a combined compulsory module addressing basics of computer aided design (CAD) and building information modelling (BIM).

## I Fulfilment of Requirements (11.07.2024)

# Analysis of the experts and the Technical Committee (09.09.2024)

#### Requirements

#### For both degree programmes

A 1. (ASIIN 4.1): Ensure the compensation of teaching capabilities due to absence of PhD candidates during their studies abroad by hiring additional lecturers.

Initial Treatment				
Experts	Fulfilled.			
	Justification: ITK has implemented comprehensive strategies to			
	ensure that the pursuit of doctoral studies by our lecturers does			
	not disrupt the educational process. To manage this effectively,			
	each study programme head is mandated to develop a detailed			
	plan and mapping of lectures. This involves identifying lecturers			
	who will undertake doctoral studies and ensuring the continuous			
	development of the knowledge base within the study pro-			
	gramme through mapped specializations.			
	After mapping the existing lecturers and planning their			
	specializations, the management compiles a list of specializations			
	that strengthen their programme. This proactive approach en-			
	sures that all areas of teaching are adequately covered and that			
	the educational standards are maintained at a high level.			
	For every specialization that experiences a shortage of lecturers			
	due to the mobility of existing lectures (such as for doctoral study			
	abroad), the management plans for lecturer intake and schedules			
	when the new lecturers are expected to start teaching. This plan-			
	ning is crucial for maintaining the continuity and quality of educa-			
	Furthermore, for every existing lecturer who begins their doc-			
	toral degree, there is a corresponding plan to recruit additional			
	lecturers to cover the missing resources. This ensures that no gap			
	in teaching occurs and that students continue to receive a com-			
	prenensive educational experience.			
	I here are three options to fulfill these additional lecturers:			
	1. Additional lecture from another study program at ITK			
	2. Additional lecture from national recruitment			

	3. Additional lecture from industry/ other university
	In general, ITK presents the data as a table that compares active
	lecturers to academics who continue their studies. The table also
	shows each lecturer's competence and a list of additional lectur-
	ers who can cover these skills while the lecturer pursues his doc-
	torate. Civil Engineering (CE) classified their competencies into
	five categories: structural engineering, construction manage-
	ment, geotechnology, hydraulics, and transportation. Mean-
	while, Urban and Regional Planning (URP) is classified into nu-
	merous categories, including urban and regional planning and de-
	velopment, tourism, spatial modelling, disaster management,
	transportation planning and management, and GIS. Both CE and
	URP achieve lecture competence by bringing together lecturers
	from other campuses and practitioners from industry and gov-
	ernment.
TC 03	Fulfilled.
	Justification: The TC follows the assessment of the experts with-
	out any changes.
AC	Fulfilled.
	Justification: The AC follows the assessment of the experts and
	the TC without any changes.

A 2. (ASIIN 5.2): The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

Initial Treatment			
Experts	Fulfilled.		
	Justification: ITK has updated the Diploma Supplement to		
	include comprehensive statistical data on the distribution of final		
	grades and detailed access requirements for each programme.		
	The Transcript of Records now lists the ECTS points acquired per		
	course and total points awarded for the degree, facilitating		
	greater clarity and supporting student mobility across Europe.		
	Also, the Diploma Supplement now provides detailed information		
	regarding the access requirements for each degree program.		
TC 03	Fulfilled.		
	Justification: The TC follows the assessment of the experts with-		
	out any changes.		
AC	Fulfilled.		

Justification: The AC follows the assessment of the experts and
the TC without any changes.

#### For Urban and Regional Planning degree programme

A 3. (ASIIN 1.3): Ensure that the fundamentals in planning practices are taught at an earlier stage in the curriculum.

Initial Treatment			
Experts	Fulfilled.		
	Justification: URP organized a curriculum team, conducted a fo-		
	cus group discussion (FGD) on curriculum evaluation, and devel-		
	oped a new curriculum for 2025-2030 for URP ITK.		
	In the new curriculum 2025-2023, fundamental courses that sup-		
	port practical and advance courses are taught earlier, such as In-		
	troduction to Urban and Regional Planning, Housing and Settle-		
	ment, Planning Theory, Land Use Planning, Introduction to		
	Presentation and Spatial Data, Spatial Data Analysis, Social and		
	Demography, Planning Process, Planning Process Studio, Urban		
	Planning, Urban Design, Planning Analysis Techniques, Pattern		
	and Spatial Location. All fundamental courses including "Intro-		
	duction" and theoretical planning, will be given in the first three		
	semesters.		
	The alterations concern:		
	• Introduction to Spatial Data Course (Curriculum 2020-2025) in		
	the third semester was renamed Introduction to Presentation		
	and Spatial Data Course (Curriculum 2025-2029) and transferred		
	to the first semester.		
	• Planning Theory (Curriculum 2020-2025) moved from the		
	seventh semester to the second semester		
	• Urban Design Theory (Curriculum 2020-2025) moved from the		
	forth to the third semester.		
	ITK provides the corresponding study plan.		
TC 03	Fulfilled.		
	Justification: The TC follows the assessment of the experts with-		
	out any changes.		
AC	Fulfilled.		
	Justification: The AC follows the assessment of the experts and		
	the TC without any changes.		

#### For Civil Engineering degree programme

A 4. (ASIIN 1.3): Include building physics (diffusion, advection, radiation) including differential equations and boundary conditions in the curriculum.

Initial Treatment	Initial Treatment			
Experts	Fulfilled.			
	Justification: The CE programme has incorporated the necessary			
	topics of building physics, including diffusion, advection, and ra-			
	diation, into the most recent curriculum. These concepts are now			
	thoroughly covered in the module Fundamental of Physics 1. Ad-			
	ditionally, to address the inclusion of differential equations and			
	boundary conditions, these topics are integrated into the mod-			
	ules Analysis and Numerical Methods and Matrix Method in			
	Static Analysis. These courses provide comprehensive instruction			
	on differential equations and boundary conditions, ensuring that			
	students gain a deep understanding of these essential concepts.			
	ITK provides the corresponding module descriptions.			
TC 03	Fulfilled.			
	Justification: The TC follows the assessment of the experts with-			
	out any changes.			
AC	Fulfilled.			
	Justification: The AC follows the assessment of the experts and			
	the TC without any changes.			

A 5. (ASIIN 1.3): Strengthen the credit load of the module "Applied Engineering Mathematics", include Fourier Series and linear and non-linear oscillators.

Initial Treatment		
Experts	Fulfilled.	
	Justification: Previously, the module Applied Engineering Mathe-	
	matics was provided for structure analysis with matrix method as	
	foundation of Finite Element analysis. In the most recent curricu-	
	lum, the mentioned module is changed to the module Statics	
	Analysis by Matrix Method. As requested by ASIIN, the Fourier	
	Series and Linear and Non-Linear oscillators will be included in	
	the module Analysis and Numerical Method that will be the foun-	
	dation course before students can participate in the Statics Anal-	
	ysis by Matrix Method module. ITK provides the corresponding	
	module descriptions.	
TC 03	Fulfilled.	
	Justification: The TC follows the assessment of the experts with-	
	out any changes.	
AC	Fulfilled.	
	Justification: The AC follows the assessment of the experts and	
	the TC without any changes.	

A 6. (ASIIN 1.3): Include fundamentals in structural analysis (foundations of beam, shell, plate theory) in the curriculum.

Initial Treatment		
Experts	Fulfilled.	
	Justification: The CE programme has made substantial revisions	
	to the curriculum to include the fundamentals of structural anal-	
	ysis, specifically focusing on the foundations of beam, shell, and	
	plate theory. The fundamental concepts of structural analysis are	
	now covered in the following modules:	
	• Engineering Physics provides an introduction to basic structural forms	
	• Statically-Determinate Structure covers the fundamental analy-	
	sis for beam elements.	
	• Mechanics of Materials delves into the foundational aspects	
	and properties of beams.	
	Matrix Method in Static Analysis introduces the calculation	
	methods for plate and shell elements using the Finite Element	
	Method (FEM) approach.	
	ITK provides the corresponding module descriptions. These revi-	
	sions ensure that the students receive comprehensive	
	training in structural analysis, equipping them with the necessary	
	knowledge and skills to excel in their professional careers.	
TC 03	Fulfilled.	
	Justification: The TC follows the assessment of the experts with-	
	out any changes.	
AC	Fulfilled.	
	Justification: The AC follows the assessment of the experts and	
	the TC without any changes.	

A 7. (ASIIN 1.3): Include fundamentals in linear Finite Element Method (FEM) in the curriculum.

Initial Treatment		
Experts	Fulfilled.	
	Justification: The CE programme has integrated the fundamentals	
	of the linear Finite Element Method (FEM) into the most recent	
	curriculum. These essential concepts are now included in the fol-	
	lowing modules:	
	• Differential Analysis and Numerical Methods covers the theo-	
	retical foundations and practical applications of linear FEM.	
	<ul> <li>Civil Engineering Software introduces students to software</li> </ul>	
	tools used in civil engineering, with a focus on applying FEM tech-	
	niques to solve engineering problems.	

	ITK provides the corresponding module descriptions. These mod- ules provide students with a comprehensive understanding of lin- ear FEM, equipping them with the skills necessary to apply these methods in real-world engineering scenarios.
TC 03	Fulfilled. Justification: The TC follows the assessment of the experts with- out any changes.
AC	Fulfilled. Justification: The AC follows the assessment of the experts and the TC without any changes.

## Decision of the Accreditation Commission (24.09.2024)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Civil Engineering	All requirements fulfilled		30.09.2029
Ba Urban and Regional Planning	All requirements fulfilled		30.09.2029

# Appendix: Programme Learning Outcomes and Curricula

According to the curriculum handbook the following **objectives** and **learning outcomes (intended qualifcations profile)** shall be achieved by the Bachelor's degree programme <u>Civil</u> <u>Engineering</u>:

ILO	Description
ILO.1	an ability to communicate effectively in oral and written manners with a range of audiences
ILO.2	an ability to solve complex problems, and make informed judgments, which must consider the sustainability aspect as well as to utilize information technology and the potential of national resources with a global perspective.
ILO.3	an ability to collaborate effectively in multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
ILO.4	an ability to apply <i>Pancasila</i> values, ethical and professional responsibilities,
ILO.5	an ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies.
ILO.6	an ability to understand general science and mathematics
ILO.7	have deepened fundamentals concept in civil engineering
ILO.8	an ability to understand and apply standard code
ILO.9	have knowledge of advance technology and material in civil engineering
ILO.10	are able to develop concept, methods, and standard codes
ILO.11	an ability to assess projects by taking into account environmental aspect
ILO.12	are able to asses the implication of science and technolgy which uses natural resources to gain economic development



#### The following **curriculum** is presented:

According to the curriculum handbook the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme <u>Urban and Regional Planning</u>:

ILO	Description
ILO.1	an ability to communicate effectively in oral and written manners with a range of audiences
ILO.2	an ability to solve complex problems, and make informed judgments, which must consider the sustainability aspect as well as to utilize information technology and the potential of national resources with a global perspective.
ILO.3	an ability to collaborate effectively in multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
ILO.4	an ability to apply Pancasila values, ethical and professional responsibilities,
ILO.5	an ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies.
ILO.6	an ability to identify, apply, and formulate the concepts in urban and regional planning in the aspects of space, land, infrastructure, socio-demography, economy, transportation, and environment
ILO.7	an ability to identify and apply the principles and processes of urban and regional planning in the context of cities, regions, and thematic
ILO.8	an ability to apply analysis methods based on science and technology, spatial and non-spatial planning methods in decision making, spatial and sectoral planning formulation techniques by utilizing information and communication technology
ILO.10	an ability to analyze spatial and non-spatial potential and problems in urban and regional planning by applying big data management
ILO.9	an ability to demonstrate norms and values in urban and regional planning
ILO.11	an ability to formulate instruments of utilization and control of planning results
ILO.12	an ability to document and communicate the process and results of urban and regional planning to stakeholders

#### The following **curriculum** is presented:



Figure 2-2. Curriculum of Urban and Regional Planning