



**REPORT  
OF THE EXPERT PANEL  
ON THE  
RE-ACCREDITATION OF THE  
FACULTY OF CHEMISTRY AND TECHNOLOGY OF THE  
UNIVERSITY OF SPLIT**

**Date of preliminary site visit:  
5 May 2021**

**Date of on-line re-accreditation:  
11 – 13 May 2021**

June 2021

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## INTRODUCTION

The Agency for Science and Higher Education (the Agency) is an independent legal entity with public authority, registered in the court register, and a full member of the European Quality Assurance Register for Higher Education (EQAR) and European Association for Quality Assurance in Higher Education (ENQA).

All public and private higher education institutions are subject to re-accreditation, which is conducted in five-year cycles by the Agency, in accordance with the Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09) and subordinate regulations, and by following *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (ESG) and good international practice in quality assurance of higher education and science.

The Agency's Accreditation Council appointed an independent Expert Panel for the evaluation of Faculty of Chemistry and Technology University of Split.

Members of the Expert Panel:

- Dr. Colette Fagan, Ph.D., Associate Professor Department of Food and Nutritional Sciences, University of Reading, United Kingdom of Great Britain and Northern Ireland, Panel chair,
- Dr. Xiaodong Wang, senior lecturer, Lancaster University, United Kingdom of Great Britain and Northern Ireland,
- Prof. Bruno Zelić, Ph.D., Faculty of Chemical Engineering and Technology University of Zagreb, Republic of Croatia,
- Assoc. prof. Dominik Cinčić, Ph.D., Faculty of Science University of Zagreb, Republic of Croatia,
- Laura Markanović, Faculty of Chemical Engineering and Technology University of Zagreb, Republic of Croatia, student.

During the on-line re-accreditation, the Expert Panel held meetings with the following stakeholders:

- Management,
- Quality Assurance Board,
- Students,
- Heads of departments,

- Full-time teaching staff,
- ECTS, ERASMUS and CEEPUS coordinators
- Alumni
- Vice dean for Teaching Affairs ,
- External stakeholders.

Croatian Expert Panel members went to the preliminary site-visit on Wednesday, 5<sup>th</sup> May 2021, during which they had a tour of the work facilities, laboratories, library, IT classrooms, student administration office and classrooms, and attended sample lectures, where they held a brief Q&A session with students.

During the preliminary site visit, the Expert Panel examined the available additional documents and study programme descriptions (learning outcomes).

The Expert Panel drafted this Report on the re-accreditation of Faculty of Chemistry and Technology University of Split on the basis of Faculty of Chemistry and Technology University of Split Self-evaluation report, other relevant documents, preliminary site visit and on-line meetings.

The Report contains the following elements:

- Short description of the evaluated higher education institution,
- Brief analysis of the institutional advantages and disadvantages,
- List of institutional good practices,
- Analysis of each assessment area, recommendations for improvement and quality grade for each assessment area,
- Detailed analysis of each standard, recommendations for improvement and quality grade for each standard,
- Appendices (quality assessment summary by each assessment area and standard, and protocol),
- Summary.

In the analysis of the documentation, preliminary site visit to the Faculty of Chemistry and Technology University of Split, online meetings and writing of the Report, the Expert Panel was supported by:

- Matan Čulo, coordinator, ASHE,
- Petra Košutar, assistant coordinator, ASHE,
- Ivana Rončević, interpreter at the preliminary site visit and during the online meetings, ASHE,
- Lida Lamza, translator of the Report, ASHE.

On the basis of the re-accreditation procedure conducted, and with the prior opinion of the Accreditation Council, the Agency issues a following accreditation recommendation to the Minister for Higher Education and Science:

1. **issuance of a confirmation on compliance with the requirements** for performing the activities, or parts of the activities
2. **denial of license** for performing the activities, or parts of the activities
3. **issuance of a letter of expectation** with the deadline for resolving deficiencies of up to three years. A letter of expectation can include the suspension of student enrolment within a set period.

The accreditation recommendation also includes a quality grade of a higher education institution, and recommendations for quality improvement.

# SHORT DESCRIPTION OF THE EVALUATED HIGHER EDUCATION INSTITUTION

## NAME OF HIGHER EDUCATION INSTITUTION:

University of Split, Faculty of Chemistry and Technology

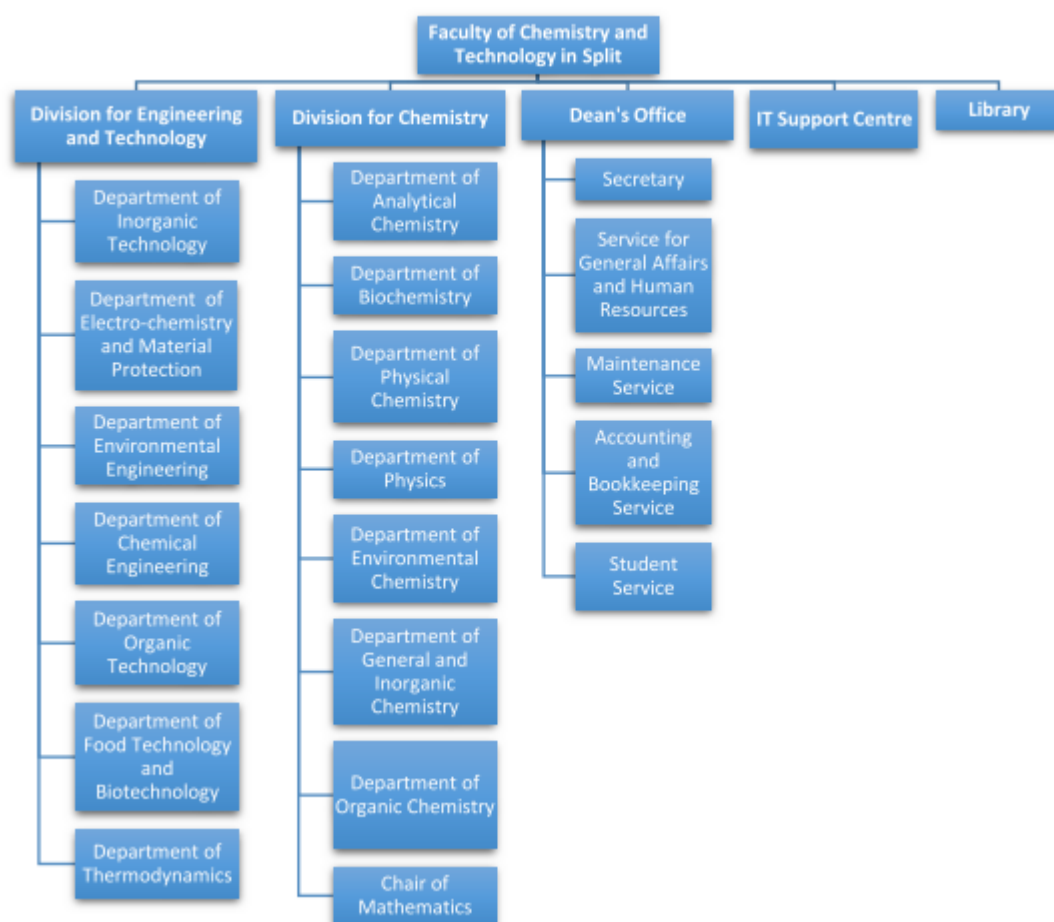
## ADDRESS:

Ruđera Boškovića 35, 21000 Split, Croatia

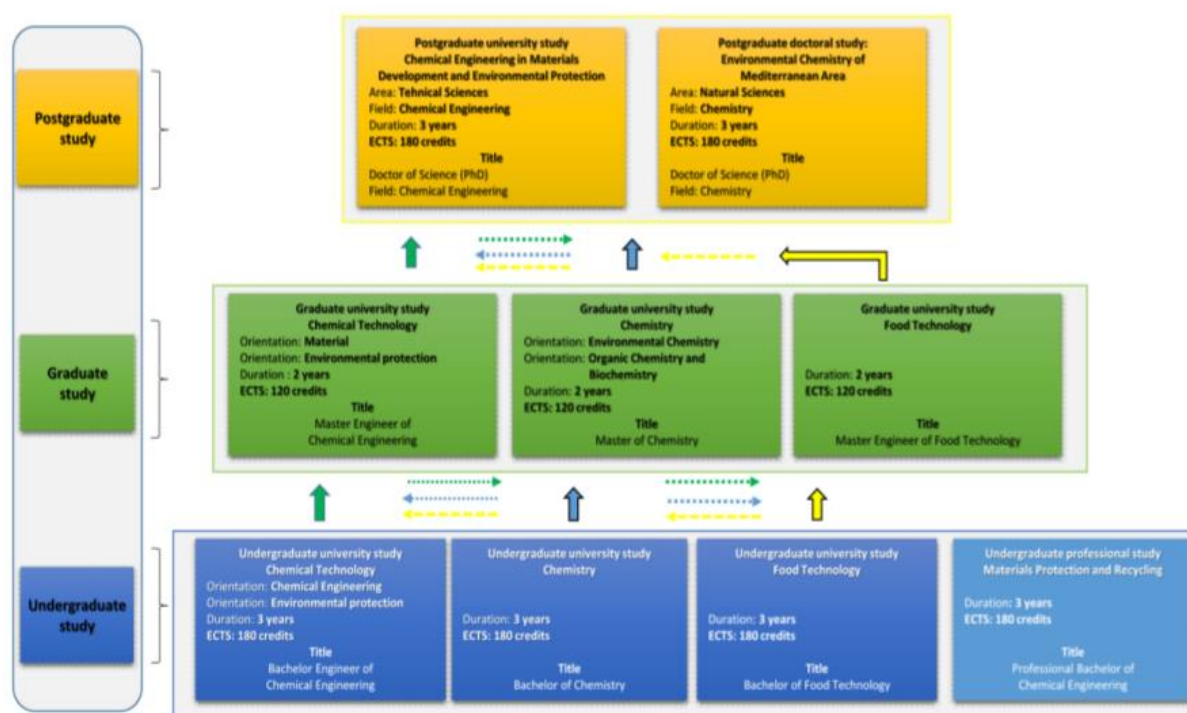
## DEAN:

Prof. Matko Erceg, Ph.D.

## ORGANISATIONAL STRUCTURE:



## STUDY PROGRAMMES:



## NUMBER OF STUDENTS:

**Table 3.1. Number of students per study programme for the evaluated academic year**

Study programme name	Full-time students	Part-time students
Chemical Technology (1475), undergraduate university study programme, Split	194	0
Chemistry (1476), undergraduate university study programme, Split	100	0
Chemical Technology (1477), graduate university study programme, Split	80	0
Chemistry (1478), graduate university study programme, Split	45	0
Pharmacy (1483), integrated undergraduate and graduate university study programme, Split	157	0
Food Technology (1485), undergraduate university study programme, Split	78	0
Materials Protection and Recycling (1486), professional undergraduate study programme, Split	32	0
Food Technology (1487), graduate university study programme, Split	30	0
Total	716	0

## NUMBER OF TEACHERS:

**Table 4.1.a Staff Structure - FOR UNIVERSITIES in the evaluated academic year**

Staff*	Full-time staff		Cumulative employment		External associates	
	Number	Average age	Number	Average age	Number	Average age
Full professors with tenure	8	56,88	-	-	-	-
Full professors	11	53,64	-	-	4	54,5
Associate professors	12	49,58	2	48	-	-
Assistant professors	17	41,18	4	48,75	2	43
Scientific advisor (permanent/ with tenure)	-	-	-	-	-	-
Scientific advisor	-	-	-	-	-	-
Senior Research Associate	-	-	-	-	-	-
Research Associate	-	-	-	-	-	-
Teaching grades	3	55	-	-	-	-
Assistants	10	38,8	2	50	21	34,75
Postdoctoral researcher	3	38,67	-	-	-	-
Employees on projects	3	32,33	-	-	-	-
Expert assistants	-	-	-	-	-	-
Technical staff	15	49,57	-	-	-	-
Administrative staff	12	50,5	-	-	-	-
Support staff	9	57,78	-	-	-	-



## **SHORT DESCRIPTION OF THE EVALUATED HIGHER EDUCATION INSTITUTION**

The Faculty of Chemistry and Technology in Split (FCT) was founded in 1960 in accordance with the realistic need for the engineers in the field of chemistry and technology, due to the development of the chemical industry in Dalmatia. It is the oldest technological faculty outside the City of Zagreb. Since they were founded, FCT study programs have continuously monitored the needs of the society and developmental trends. Furthermore, the study programs are based on their own scientific researches and the most recent scientific knowledge.

FCT's mission is to systematically develop and expand nationally and internationally recognized excellence in education and research, primarily in the area of natural sciences – scientific field of chemistry, and in the area of technical sciences – scientific field of chemical engineering, as well as in the area of biotechnical sciences – scientific field of food technology. This means the development of interdisciplinary sciences which shall provide the highest academic standards to students and which shall ensure knowledge corresponding to the needs of the society and to the national Strategy of Education, Science and Technology. Further, it shall enable the transfer and application of knowledge by connecting the science and technology with the economy, industry and public activities. Apart from the mentioned, the FCT's mission is to become an excellence centre, especially in teaching, research, innovation and entrepreneurship aiming at the sustainable development at national, Mediterranean and international level.

FCT's vision is to be highly positioned scientific and teaching institution in the Republic of Croatia, focused on the implementation of internationally recognizable scientific, developmental and expert researches, primarily in the area of natural, technical and biotechnical sciences, in accordance with those in the European Higher Education Area – EHEA and European Research Area – ERA.

FCT shall continue to educate internationally recognized high quality and competent experts, to implement internationally recognized scientific and expert researches and to provide maximal support to the economy development, especially in the region and Mediterranean area. By implementing quality policies, FCT shall continue working on its recognisability and visibility as a prominent higher education institution, and reliable economic partner to national and international scientific and educational institutions and to students.

In order to implement all of the above, FCT shall cooperate with academic and economical partners in the country and abroad, especially in the Mediterranean region. Furthermore, it shall ensure continuous quality supervision and growth, competitiveness and international competitiveness of teaching, scientific and expert work.

## **BRIEF ANALYSIS OF THE INSTITUTIONAL ADVANTAGES AND DISADVANTAGES**

### **ADVANTAGES OF THE INSTITUTION**

1. The Faculty has excellent, modern facilities, including instrumental equipment infrastructure. This is a unique selling point for the Faculty and provides a foundation for further expansion of scientific activity.
2. There has been a significant increase in the number of research outputs over the period of assessment for this accreditation.
3. There has been an increase in the number of Assistant Professors recruited over the period of assessment for this accreditation. This provides another strong foundation for the growth and development of the Faculty.
4. Staff demonstrate that there is an open policy between researchers and equipment owners enabling the shared use of equipment.
5. The Faculty has been active in scientific, teaching and professional sense for the first time on one location since February 2016. This move has also led to significant space being available for current use and future planning.

### **DISADVANTAGES OF THE INSTITUTION**

1. Student mobility is low: The processes on mapping and transferring ECTS credit from other institutions, and lack of financial support from the Faculty places additional barriers to student mobility.
2. Staff mobility is low: There is a lack of support available to staff to enhance uptake of international mobility at all career and life stages.
3. There is currently no equipment service and maintenance strategy for the Faculty. This could lead to the advances made in improving the facilities being lost over time.
4. Programme level outcomes do not fully reflect student attainment and outcomes.
5. There are currently a limited number of funded scientific research projects and funded PhD studentships.

## **LIST OF INSTITUTIONAL GOOD PRACTICES**

### **EXAMPLES OF GOOD PRACTICE**

1. The Faculty provides a detailed and honest reflection of the results of the activity implementation in accordance with the recommendations of previous accreditations.
2. Staff are collaborative in their use of equipment and facilities.
3. The Vice Dean for Teaching and Teachers are available to students for all forms of support during their studies.

4. The internal quality assurance system is fully developed and accompanied by appropriate documentation.

## **ANALYSIS OF EACH ASSESSMENT AREA, RECOMMENDATIONS FOR IMPROVEMENT AND QUALITY GRADE FOR EACH ASSESSMENT AREA**

### **I. Internal quality assurance and the social role of the higher education institution**

#### **Analysis**

The internal quality assurance system is fully developed and accompanied by appropriate documentation, but with the exception of activities related to the evaluation of teaching work, it is not carried out with understanding and largely not used to further develop the system and the institution as a whole.

The Faculty accepted the majority of the recommendations from the previous re-accreditation. This is largely due to a significant improvement in infrastructure and an increase in the number of teachers with the title of assistant professor. However, two remarks from previous re-accreditation should be solved: organizational structure and enrolment criteria for undergraduate studies.

The current organizational structure can cause potential problems regarding organization of teaching activities in the study of food technology, and it also results in research capacities being in an unequal position. This ultimately impacts the recognisability of the institution and/or study programs. A selection of the key performance indicators clearly indicate that the higher education institution should continue to consider additional enrolment criteria.

The higher education institution supports academic integrity and freedoms, and conducts its activities to the highest ethical standards.

A systematic approach in solving potential problems related to academic dishonesty (plagiarism, cheating), especially by students, is missing. Appropriate procedures (rules and regulations) should be defined that would apply only to students in case of academic dishonesty.

The Faculty should find additional ways to communicate with external stakeholders, prospective students, alumni and industry partners and other institutions. The Faculty's website is not sufficient to communicate with all these stakeholders.

Research-oriented activities related to the implementation of professional projects and technology transfer based on a commercial basis are negligible. Economic and technological mission of the higher education institution should be promoted to a greater degree. The involvement of Faculty employees in professional societies and their activities and in society in general is appropriate.

Lifelong learning programs practically do not exist at the Faculty and a significant step forward is needed in this area.

#### **Recommendations for improvement**

1. Ensure the existing quality assurance system should be applied with understanding and efficiency in all the elements it includes.

2. Ensure external stakeholders, especially employers, alumni and representatives of professional organizations are strongly involved in monitoring and evaluation of all activities of the higher education institution with special emphasis on the development of study programs, defining strategic research areas and increasing the intensity of professional work in cooperation with industry and the economy as a whole.
3. External stakeholders should be involved in the development of strategic documents of the higher education institution.
4. Continue to assess and develop new strategy for reorganizing the institution with the aim of moving away from a historical division based on disciplines (chemical engineering and chemistry).
5. Continue to evaluate and analyse the possibilities of defining enrolment criteria for undergraduate studies.
6. Develop procedures that will define actions to prevent and sanction academic dishonesty (plagiarism and cheating).
7. Increase the visibility of the Faculty in the media with an emphasis on social media.
8. Improve the Faculty's website visibility, especially in the part related to informing external stakeholders about the most important activities carried out at the Faculty. In doing so, publish more relevant information in English, not limited just to study programs and current research projects.
9. Organize activities that will increase the visibility and recognisability of the Faculty, such as open days or workshops for future students.
10. Inform stakeholders about the most important indicators of study success (such as pass rate, student employability, drop-out rate) and about outcomes of previous evaluations together with the most significant resulting improvements.
11. Increase the list of life-long learning programs. Revision and development of lifelong learning programs should be carried out systematically and on a regular basis.
12. Ensure life-long learning programs are in line with the mission and strategic goals of the higher education institution and with social needs.

### Quality grade

Satisfactory level of quality

## II. Study programmes

### Analysis

The Faculty provides study programmes that are in line with the mission and strategic goals of the higher education institution. The Faculty can, in part, demonstrate where students will achieve the intended learning outcomes of the study programmes it delivers. However, the quality of the current programme level learning outcomes should be improved. It is also unclear how the current programme level outcomes feed into course level learning outcomes. While the learning outcomes must be improved, a review of the

provided graded student assessment and the feedback from the stakeholder meetings indicate that student outcomes are aligned with the CroQF and EQF level descriptors. There is limited evidence that the voices of students, alumni and employers are captured and considered during the normal cycle of programme review and improvement. Overall students seemed content with the workload associated with courses with the same ECTS, and the Faculty does have a defined procedure for their allocation. It would be helpful for students if independent learning hours were included in the course descriptions. The majority, but not all of the offered programmes provide the opportunity for professional practice, which is a highly valuable experience for students. It is preferable that all students in the Faculty undertake this opportunity. In addition, the current allocated ECTS for profession practice is only 2.5 to 3. This limits the duration and learning experience of students. It would be preferable to extend its duration and restructure the programmes so it can take place during the standard teaching semester.

### Recommendations for improvement

1. Ensure professional practice is mandatory for all programmes.
2. As part of the recommended programme review determine the feasibility of increasing the ECTS assigned to professional practice.
3. As part of the recommend programme review try to standardise the ECTS assigned to electives at undergraduate and also graduate level.
4. Ensure that both recruitment and employment outcomes of the programmes inform the programme review to ensure they meet social and economic needs.
5. Review the programmes in order to revise programme level learning outcomes.
6. Ensure that programme level learning outcomes inform course level learning outcomes through the use of constructive alignment.
7. Use the outcomes of the programme review to consolidation courses as needed to ensure learning outcome are not repeated across courses and a wider range of electives could be offered.
8. Ensure that during the programme review there is a process in place for stakeholders to provide their inputs and feedback on the programme outcomes. This will ensure that intended learning outcomes clearly reflect the competencies required for employment, continuing education or other individual/society needs.
9. Ensure that the alumni and employer voice is captured as part of the process of continual programme improvement.
10. Ensure that there are appropriate mechanisms for the main body of the student community in the Faculty to express their opinion and thoughts on any programme amendments to ensure that perspectives are captured beyond those of student council representatives.
11. Ensure that feedback is given to students and stakeholders on their suggestion for course or programme improvements in a timely manner including when changes will be implemented or an explanation as to why change is not possible.

12. Course documentation should include the independent learning hours which will provide a more realistic estimation of student workload. This will enhance the transparency in relation to the allocation of ECTS and students will have greater clarity regarding workload expectations.

13. Ensure students can undertake professional practice during the semester, not summer holiday.

### Quality grade

Satisfactory level of quality

## III. Teaching process and student support

### Analysis

Criteria for the continuation of studies are in line with the requirements of the study programmes, they are clearly defined, published and consistently applied. Enrolment criteria should be analysed and improved in order to reduce drop-out rate in the first year of undergraduate study.

The Faculty gathers and analyses information on student progress. Unfortunately, measures to encourage student progress and reduce drop-out rates generally do not exist. The Faculty conducts various forms of teaching that are aimed at acquiring defined learning outcomes. Evidence that Faculty continuously evaluates and adapts teaching methods and different modes of program delivery is not available, beyond accommodations made for students with disabilities. Assessments of teaching methods used are not available, except those that are part of student survey.

The Faculty mostly ensures adequate student support but additional improvement is necessary to support first year undergraduate students to successfully progress to year 2 and to implement student mobility.

The Faculty ensures notable support to students from vulnerable and under-represented groups.

The Faculty allows students to gain international experience but there are a number of barriers to students ultimately taking up the opportunity for outgoing mobility such as recognition of ECTS credits gained, lack of personal funds and the lack of interest of students.

The incoming mobility of students is extremely low, and it is to be expected that it will improve through the graduate study program Chemical and Environmental Technology (in English).

An objective and consistent evaluation and assessment of student achievements can be linked to the institution to the greatest extent. In order to improve this, it is desirable to develop procedures for ensuring objectivity and reliability of grading.

The Faculty issues diplomas and Diploma Supplements in accordance with the relevant regulations.

The Faculty monitors the employability of its students and available labour market indicators. In order to improve this, procedures should be developed for informing students about the possibilities of continuing education and employment, and career and professional development training should be embedded within all programs.

### Recommendations for improvement

1. Continue to evaluate and analyse the possibilities of defining enrolment criteria for undergraduate studies.
2. Develop a procedure to ensure that the approval of transfer from another higher education institution is based on a precise analysis of competencies and previously acquired knowledge.
3. Develop a strategy with actions that will improve the progression of students on all undergraduate study programme, particularly in regards to progression from the first year.
4. Change/tighten the conditions for enrolment in the first year of undergraduate studies (review admission criteria to improve the quality and fit of recruited students).
5. The Faculty should access the opportunities to enhance the use of active teaching methodologies across all programmes.
6. The Faculty should map teaching methods at a programme level in order to ensure teaching methods are adapted to a diverse student population.
7. Develop a strategy, based on the barriers students and staff identify, to support first year undergraduate students to successfully progress to year 2.
8. Develop mechanisms to support students in taking up and completing periods of mobility during their study.
9. Develop and implement an action plan to increase mobility and monitor its outcome and adapt as needed in order to increase student mobility, both incoming and outgoing.
10. Establish procedures for monitoring student satisfaction with the quality of the support provided by higher education institution regarding mobility.
11. Improve the ECTS recognition system for students who have achieved mobility, through changes in study programs based on raising electives or by decreasing the number of mandatory classes in semester where students are likely to undertake mobility.
12. With the financial constraints of FCT implement a system of scholarships to financially support students to undertaken mobility.
13. Implement an English course to help prepare students for mobility as well as increase their confidence and interest regarding mobility.
14. Procedures for collecting feedback on satisfaction and needs of foreign students should be established.
15. Procedures for ensuring objectivity and reliability of grading such as double marking or Self-evaluation of teachers should be developed.
16. Procedures should be adopted to ensure that invigilation of exams is robust and fit for function.



17. Establish procedures for informing students about the possibilities of continuing education and employment.

18. Embed career and professional development training within all programmes to ensure students are adequately supported regarding future career planning.

### Quality grade

Satisfactory level of quality

## IV. Teaching and institutional capacities

### Analysis

The Faculty is very strong and promising in its teaching and institutional capacities. In the last five years, the Faculty had a relatively fixed total number of employees (99 on average) of which 80% of employees are involved in the teaching process whereas the administrative employees and support personnel form 20% of employees. In the current year, the Faculty has 48 full-time teachers elected to teaching and research positions. Also, the teaching process involves 3 senior lecturers, 10 associates and postdoctoral researchers and 16 technical personnel employees. The ratio of the number of students and full-time teachers at in the current academic year is 12.79.

The Faculty has clear procedures and documentations for the recruitment, advancement and re-appointment of teachers, assistants, research positions, where expert committee is appointed as required according to the regulations. The Faculty also has a promotion policy of teachers, associates and non-teaching personnel competences and promotes mobility of its employees. The Faculty was relocated to a new building in February 2016. Since then, the Faculty has been active in scientific, teaching and professional sense for the first time on one location since its foundation. Currently, the Faculty has access to a total surface area of 6193 m<sup>2</sup>. There has also been a significant investment in capital equipment which resulted in the purchase of various important instruments in 2019. The surface area of the Faculty library is 110 m<sup>2</sup> and comprises 7220 book volumes, 175 mandatory literature course book titles, 28 international journals' printed titles and 20 local journals' printed titles as well as the collection of graduate theses. The library ensures access to 14 848 electronic journals with whole texts. The Faculty has a policy of sustainable, efficient and appropriate financial resource management. The Faculty runs business activity in accordance with ordinances and has regulated and published a series of ordinances and procedures. Moreover, financial reports and plans and the public procurement data are available and transparent at the Faculty's webpages.

### Recommendations for improvement

1. Increase formal training opportunities on pedagogy should be provided to all teachers. Pedagogical training should be essential for early career researchers (e.g., newly appointed assistant professors).
2. Annual discussions with staff should specifically include an individual's Continuous Professional Development (CPD) plan.
3. The Faculty should develop mechanisms to improve the use of sabbatical leave to enhance staff CPD.
4. The Faculty should develop, with regards to diversity and inclusivity criteria, mechanisms to improve the uptake of mobility opportunities by teachers.
5. Develop a funding and maintenance strategy for new capital equipment purchased from 2019 onwards to ensure its longevity and the retention of scientific capacity long term.
6. The diversity of financial incomes should be improved, especially from international/national scientific projects and international cooperation.

### Quality grade

Satisfactory level of quality

## V. Scientific/artistic activity

### Analysis

The Faculty has excellent infrastructure and resources for high quality research and teaching. In the last five years the Faculty employees published a total number of 217 or 231 papers (according to the WoSCC base and the Scopus base, respectively), which is a 91% increase in the total number of published papers compared to the previous re-accreditation period. The five-year average of all published papers by full-time teachers amounts to 1.5. However, there is an obvious difference between the Faculty employees in their scientific output. In spite of the efforts and encouragement by the Faculty, the mobility of teachers and researchers is very low. Also, the Faculty had few incoming PhD students, postdocs and foreign teachers in the last five years. The Faculty employees actively promote scientific achievements at national and international conferences. In the last five years they published 69 reviewed papers and 275 abstracts at scientific and professional conferences. The Faculty has an adequate number of activities in collaboration with the public sector and economic entities through numerous contracts, agreements and projects. Also, the Faculty employees participate in professional, public and advisory bodies and committees in both the private and public sector. The Faculty has several employees who are highly recognised in the national and international context. Additionally, numerous employees were very active in organising various conferences that took place in the country and abroad, as well as in the work of editorial boards in scientific journals. Undergraduate, graduate and postgraduate students are involved in scientific processes alongside their teachers. In the last five years, the Faculty

employees published 50 papers with students as co-authors. Also, students of all levels are involved in dissemination activities at scientific conferences.

### Recommendations for improvement

1. The Faculty should try to increase the number of scientific projects as well as the number of PhD students and postdocs who are funded by projects.
2. The number of papers published in journals belonging to Q1/Q2 quartiles should be increased in relation to the number of papers published in journals belonging to Q3/Q4 quartiles.
3. The number of papers in high impact factor journals in which the Faculty researchers are the corresponding authors should be increased, with the aim of increasing the competitiveness of researchers when applying for international and national research projects.
4. More effort should be made regarding the mobility of young researchers and supporting them when applying for (installation/starting) research projects.
5. The Faculty must continue its collaborations with the private sector and should try to increase the number of professional projects.
6. The Faculty should develop a maintenance plan for the facility and instruments.
7. The Faculty should identify how they can better implement recognition of excellence and employee awards.
8. The number of participations from undergraduate and graduate students at conferences should be increased. The Faculty should not limit student dissemination activities only to local conferences.
9. The Faculty should increase the use of Faculty research facilities by students particularly for fundamental research.
10. The Faculty should organize seminars or extra courses on scientific research methodology and science communication.

### Quality grade

Satisfactory level of quality

## DETAILED ANALYSIS OF EACH STANDARD, RECOMMENDATIONS FOR IMPROVEMENT AND QUALITY GRADE FOR EACH STANDARD

### I. Internal quality assurance and the social role of the higher education institution

#### 1.1. The higher education institution has established a functional internal quality assurance system.

##### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Quality Policy of the University of Split
- Strategy of the Centre for Quality Assurance of the University of Split
- Regulation on the Quality Assurance System of the University of Split
- Manual for the Quality Assurance System of the University of Split
- Policy for the Quality Assurance of the Faculty of Chemistry and Technology
- Development Strategy for the Faculty of Chemistry and Technology
- Strategic Program for Scientific Research
- Regulation on the Quality Assurance System for the Faculty of Chemistry and Technology
- Regulation on the Procedure of Internal Periodical Evaluation of the Quality Assurance System at the Faculty of Chemistry and Technology
- Manual for the Quality Assurance System of the Faculty of Chemistry and Technology
- Meeting with Management
- Meetings with Quality Assurance Board

Internal quality assurance system provides all underlying documents necessary for analysis and evaluation of all activities of the higher education institution. In the internal quality assurance systems most of the relevant stakeholders, namely teachers, students and external stakeholders, are involved. The higher education institution has adjusted its quality assurance policy to its strategic documents. The institution's strategic documents are adopted in five-year periods. Most of the recommendations of the previous re-accreditation have been accepted and included in the strategic documents, which is an additional indicator of the effectiveness of the quality assurance system. SWOT analysis, strategic goals, persons responsible for implementation, monitoring and reporting mechanisms are implemented in the strategy. The basic problem of the quality assurance system is that external stakeholders are not fully aware of all elements of the strategy

except in the part related to the evaluation of teaching. Like most other board members, external stakeholders are focused mainly on the results of student surveys, although the higher education institution seems to collect and provide board members with other relevant data related to the processes taking place at the institution. External stakeholders in particular, but also all board members, need to be more involved in the development of study programs, scientific activities, professional activities, institution finances and all other activities that are the responsibility of the internal quality assurance system. In addition, they must understand all these elements, which does not seem to be the case at this time. In conclusion, it seems that the internal quality assurance system is fully developed and accompanied by appropriate documentation, but with the exception of activities related to the evaluation of teaching work, it is not carried out with understanding and largely not used to further develop the system and the institution as a whole.

### Recommendations for improvement

1. Ensure the existing quality assurance system should be applied with understanding and efficiency in all the elements it includes.
2. Ensure external stakeholders, especially employers, alumni and representatives of professional organizations are strongly involved in monitoring and evaluation of all activities of the higher education institution with special emphasis on the development of study programs, defining strategic research areas and increasing the intensity of professional work in cooperation with industry and the economy as a whole.
3. External stakeholders should be involved in the development of strategic documents of the higher education institution.

### Quality grade

Satisfactory level of quality

## **1.2. The higher education institution implements recommendations for quality improvement from previous evaluations.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Meeting with the Management
- Meetings with the Quality Assurance Board

The higher education institution accepted the majority of the recommendations from the previous re-accreditation and made a strong step forward in the quality development system. This is largely due to a significant improvement in infrastructure and an increase

in the number of teachers with the title of assistant professor. Two recommendations that have not been implemented are related to 1. the organizational structure and 2. the definition of enrolment criteria for undergraduate studies. Although the evidence provided in the Self-evaluation document and in meetings with the management indicates there are good rationale for not implementing these recommendations, there are a number of reasons why the Faculty should reconsider its current opinion regarding these recommendations:

The current organizational structure results in an uneven number of members in each department. Therefore, this can cause potential problems regarding organization of teaching activities in the study of food technology, and it also results in research capacities being in an unequal position. This ultimately impacts the recognisability of the institution and/or study programs.

A selection of the key performance indicators, such as the particularly high drop-out rate in the first year of undergraduate studies, clearly indicate that the higher education institution should continue to consider additional enrolment criteria.

### Recommendations for improvement

1. Continue to assess and develop new strategy for reorganizing the institution with the aim of moving away from a historical division based on disciplines (chemical engineering and chemistry).
2. Continue to evaluate and analyse the possibilities of defining enrolment criteria for undergraduate studies.

### Quality grade

High level of quality

## **1.3. The higher education institution supports academic integrity and freedom, prevents all types of unethical behaviour, intolerance and discrimination.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Statute of the Faculty of Chemistry and Technology in Split
- Code of Ethics of the Faculty of Chemistry and Technology in Split
- Regulation on the Internal Report of Irregularities
- the Regulation on the Procedure of Teaching Evaluation by the Students for the University of Split
- Meeting with management
- Meeting with teaching staff
- Meeting with students

The higher education institution supports academic integrity and freedoms, and conducts its activities to the highest ethical standards. The institution appears to have developed effective mechanisms to prevent unethical behaviour, intolerance, and discrimination. Fortunately, there are almost no examples of this practice, which certainly supports the previous claims. Procedures for sanctioning such behaviour are largely defined and the entire system for resolving conflicts and irregularities appears to be well implemented at the institution-wide level. Although there are programs used to prevent plagiarism, it seems that there is a lack of a systematic approach in solving potential problems related to academic dishonesty (plagiarism, cheating), especially by students. Students themselves reported invigilation of examinations was not rigorous enough to deter potential cheating. Therefore, appropriate procedures (rules and regulations) should be defined that would apply only to students in case of academic dishonesty.

#### Recommendations for improvement

1. Develop procedures that will define actions to prevent and sanction academic dishonesty (plagiarism and cheating).

#### Quality grade

Satisfactory level of quality

### **1.4. The higher education institution ensures the availability of information on important aspects of its activities (teaching, scientific/artistic and social).**

#### Analysis

Most of the information on study programs and other activities carried out at the higher education institution is publicly available through the website in the Croatian language. All relevant information on study programs and scientific projects currently being carried out at the Faculty is available on the English language website, but there is a lack of information on other significant activities carried out at the Faculty. Data on enrolment conditions, enrolment quotas, study programs, learning outcomes and qualifications, and student support are available on the Croatian language website, but from the available data it is not possible to find additional ways in which the higher education institution reports to external stakeholders. The data available on the Faculty's website show that the last Open Day was held in 2015, and the latest information on the Faculty's presence in the media available on the website is from 2019. According to the available data, there are no visible ways in which the higher education institution informs external stakeholders about important indicators of study success such as pass rate, student employability, drop-out rate except through the Faculty's website. It takes a long time to find this information even on the Faculty's website, and some of this information is not even publicly available. Therefore, the Faculty should definitely find additional ways to communicate with external stakeholders, prospective students, alumni and industry

partners and other institutions. In conclusion, it seems that the only way the Faculty communicates with the public is the Faculty website (in Croatian).

### Recommendations for improvement

1. Increase the visibility of the Faculty in the media with an emphasis on social media.
2. Improve the Faculty's website visibility, especially in the part related to informing external stakeholders about the most important activities carried out at the Faculty. In doing so, publish more relevant information in English, not limited just to study programs and current research projects.
3. Organize activities that will increase the visibility and recognisability of the Faculty, such as open days or workshops for future students.
4. Inform stakeholders about the most important indicators of study success such as pass rate, student employability, drop-out rate.
5. Inform stakeholder about outcomes of previous evaluations and the most significant resulting improvements.

### Quality grade

Minimum level of quality

## **1.5. The higher education institution understands and encourages the development of its social role.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Discussions during site visit
- Meetings with research staff and heads of departments

The higher education institution carries out a relatively small number of activities that promote the development of the local community. There is a particularly small number of research-oriented activities related to the implementation of professional projects and technology transfer based on a commercial basis. Economic and technological mission of the higher education institution should be promoted to a greater degree. On the other hand, the employees of the higher education institution participate in a large number of activities related to the organization of congresses, round tables, workshops, they are members of editorial boards of journals, they participate in the work of scientific and professional councils and bodies at the local, regional and international level. Faculty students are involved in various humanitarian actions that are carried out in cooperation with the local community. The premises of the Faculty are available to other faculties of the University and University offices, professional associations and for holding various



scientific and professional events. Programs for the promotion of science and scientific work, especially for young people, are also actively promoted.

#### Recommendations for improvement

1. Increase the number of professional projects and research-oriented technology transfers.
2. Develop a clear mechanism to enable the available capital equipment at the Faculty to be used by external stakeholders.

#### Quality grade

Satisfactory level of quality

**1.6. Lifelong learning programmes delivered by the higher education institution are aligned with the strategic goals and the mission of the higher education institution, and social needs.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Development Strategy for the Faculty of Chemistry and Technology

The number of lifelong learning programs is limited, in the last four years there have been no activities to encourage development and strategic planning related to lifelong learning programs. Existing lifelong learning programs have not been revised, new ones have not been developed and it seems that the higher education institution has no driving interest in implementing this activity. The involvement of students in lifelong learning programs has not been recorded, so it is not possible to assess their satisfaction with the few existing lifelong learning programs. Also, it is not possible to estimate whether life-long learning programs are aligned with the needs of society.

#### Recommendations for improvement

1. Increase the list of life-long learning programs.
2. Ensure life-long learning programs are in line with the mission and strategic goals of the higher education institution.
3. Ensure life long-learning programs are in line with social needs.
4. Revision and development of lifelong learning programs should be carried out systematically and on a regular basis.

#### Quality grade

Minimum level of quality

## II. Study programmes

### 2.1. The general objectives of all study programmes are in line with the mission and strategic goals of the higher education institution and the needs of the society.

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Development Strategy of the Faculty of Chemistry and Technology 2014-2021
- Detailed Proposals of the study programmes
- Data on graduate employment
- Regulations on the procedure for study programs evaluation of the University of Split
- Meeting with management and teaching staff
- Meetings with current students

Based on the above evidence, it is evidence that general goals of all study programmes are in line with the mission and strategic goals of the higher education institution.

The current study programmes, relevant to this reaccreditation, consist of three undergraduate programmes (Chemistry, Chemical Technology (Chemical Engineering or Environmental Protection pathways) and Food Technology. Enrolment requires completion of four years of secondary school and secondary school leaving exam. Selection is exclusively based on the ranking of students based on the State Matura exam. No additional entry requirements have been applied due to concerns about meeting enrolment quotas. Each undergraduate programme consists of 180 ECTS credits over 6 semesters (3 years). Graduate programmes consist of Chemistry (Environment Chemistry or Organic Chemistry & Biochemistry pathways), Chemistry Technology (Materials or Environment Protections pathways), Food Technology and Chemical & Environmental Technology. Graduate programmes consist of 120 ECTS credits over 4 semesters (2 years). All study programmes at undergraduate and graduate level consist of mandatory and elective courses, although this varies considerably across programmes. Undergraduate study in Chemistry consists of 8.5 elective ECTS points (albeit the electives listed would only allow a student to complete 8 or 9 ETCS), while the remaining undergraduate programmes offer between 15 and 19 elective ECTS. Both pathways on the graduate chemistry programme offer 15 ECTS, while graduate study of Chemistry Technology and Food Technology offer between 32 and 36 ECTS of electives. Based on details of the study programmes provided there is reasonable choice available to students

in the choice of electives. However, based on the feedback from current students and staff, the capacity of the Faculty of offer a selection of electives is limited due to staff capacity and students may vote as a group to determine what elective course(s) is run in a given year. Professional practice plays a key role in improving the employability of graduates. The majority of programmes contain mandatory Professional Practice with the exception of graduate programme in Chemistry. Professional practice only accounts for 2.5 to 3 ECTS per programme, and typically takes place during the summer break. Based on the feedback from staff and students, the timing and short duration of the professional practice hinders engagement by students. It is noted that the level of unemployment relative to numbers graduating from graduate programmes in Chemistry and Chemistry Technology is relatively high. This should also be seen in the context of the Faculty only filling half its quota for the graduate Chemistry programme.

### Recommendations for improvement

1. Ensure professional practice is mandatory for all programmes.
2. As part of the recommended programme review determine the feasibility of increasing the ECTS assigned to professional practice.
3. As part of the recommend programme review try to standardise the ECTS assigned to electives at undergraduate and also graduate level.
4. Ensure that both recruitment and employment outcomes of the programmes informs the programme review to ensure they meet social and economic needs.

### Quality grade

Satisfactory level of quality

**2.2. The intended learning outcomes at the level of study programmes delivered by the higher education institution are aligned with the level and profile of qualifications gained.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation document:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Detailed Proposals of the study programmes
- Interviews with staff, students, employers, alumni
- Examples of assessments, including thesis and exams

The programme level outcomes, along with the syllabi of all programmes, is available on the Faculty website. The syllabi contain links to course descriptions, including course learning outcomes. The Faculty can, in part, demonstrate where students will achieve the intended learning outcomes of the study programmes it delivers. However, the Panel does

have concerns regarding the quality of the current programme level learning outcomes, and how they feed into course level learning outcomes. This will impact on the assessment of achievement of graduates. In general, the learning outcomes at course level can be improved and aligned with Blooms taxonomy. They must be specific and measurable, achievable, realistic and time-appropriate.

The Panel reviewed the programme level learning outcomes of all programmes at the Faculty, relevant to this accreditation process. In general, they are often too broad and generic, in that they could be applied to many different programmes. Programme level outcomes should integrate and reflect the knowledge, skills and attributes of graduates. There was no evidence provided to the Panel that stakeholders, such as employers had played a role in the review of programme level learning outcomes.

The Panel noted that, while the learning outcomes must be improved, a review of the provided graded student assessment and the feedback from the stakeholder meetings indicate that student outcomes are aligned with the CroQF and EQF level descriptors.

- Undergraduate Study of Chemistry <https://nastava.ktf-split.hr/programi.php?lang=en&kod=PK>

The learning outcomes look to have been developed from course level learning outcomes. Some basic elements for this study are missing, such as chemical equations of chemical reactions and their qualitative and quantitative meaning, the basic knowledge of chemistry in the synthesis of chemical compounds, the structure and chemical reactivity of a substance as well as structural and energy changes, kinetics during chemical reactions and physical processes. Learning outcomes such as “solve problems applying knowledge of mathematical and physical principles” and “understand the basic principles of unit operations” are too vague and could be applied to many different scientific programme. There is also a lack of outcomes related to methods and techniques of qualitative and quantitative analysis.

- Undergraduate Study of Chemical Technology <https://nastava.ktf-split.hr/programi.php?lang=en&kod=PKT>

The learning outcomes for the study of Chemical Technology are generally defined and in part are not in line with the recommendations of the European Federation of Chemical Engineering. Essential elements for this study are missing such as the fundamental principles of chemical engineering for the modelling and simulation of chemical reactions and bio molecular processes, of energy, mass and momentum transport processes, and of separation processes, and the basic principles of measurement techniques and control. There is also a lack of outcomes related to (a) engineering analysis, such as: selection and application of suitable methods of analysis, (b) modelling, simulation and optimization and (c) chemical process and equipment design. For example, LU16 is limited to the design of chemical/engineering experiment whereas LU18 is only to be familiar with instead of being able to design process equipment.

- Undergraduate study of Food Technology <https://nastava.ktf-split.hr/programi.php?lang=en&kod=PPT>

The programme outcomes look to have been developed from course level learning outcomes. Outcomes such as 'list the main characteristics of food types and principles of healthy diet' are very low level outcomes, not appropriate at the programme level. Learning outcomes such as 'apply an appropriate approach to dissolve the problems using basic knowledge of mathematics, physics or chemistry' are too vague and could be applied to many different scientific programme. It may be helpful to review the standards and essential learning outcomes for Food Technology programmes used by the Institute of Food Technologists prior to revising the programmes learning outcomes.

- Graduate study of Chemistry <https://nastava.ktf-split.hr/programi.php?lang=en&kod=DK>

The learning outcomes look to have been developed from course level learning outcomes. Of the minimum of fifteen, only twelve outcomes are listed. The learning outcome "demonstrate the understanding of major concepts in all five major disciplines of chemistry: analytical, biochemistry, inorganic, organic and physical" is more appropriate for undergraduate study. This outcome should be written in the context of advanced knowledge and perhaps divided into several outcomes. There is also a lack of outcomes related to advanced interpretation of basic chemical concepts at factual and conceptual levels as well as about concepts and principles of quality management, requirements and criteria of testing laboratories.

- Graduate study of Chemical Technology <https://nastava.ktf-split.hr/programi.php?lang=en&kod=DKT>

Although the learning outcomes at the graduate level are largely in line with the recommendations of the European Federation of Chemical Engineering, some of them are specific and are a consequence of the specific structure of the study of chemical technology at the Faculty. Learning outcomes "Analyze and solve problems concerning polymers production, processing or characterization"; "Analyze and solve problems concerning properties of construction materials and their protection against corrosion"; "Analyze and solve problems concerning environmental protection during materials processing" should be generalized and integrated within one learning outcome. On the other hand, the learning outcome "Apply statistical and mathematical analysis in chemical engineering experiments and processes" is more appropriate for undergraduate study. Similar to the undergraduate study programme, learning outcome related to chemical process and equipment design is currently missing.

- Graduate Study of Food Technology <https://nastava.ktf-split.hr/programi.php?lang=en&kod=DPT>

The outcomes are not specific and measurable and should be aligned with Bloom's taxonomy. For example, in the outcome 'be able to critically evaluate the obtained data and use them to make appropriate conclusions', critical evaluation of data may be an appropriate learning outcome, but this should be written in the context of a Food Technology programme. The outcomes 'know how to think logically' is not an assessable learning outcome in the format it is currently written.

- Graduate Study of Chemical and Environment Technology [https://www.ktf.unist.hr/images/stories/repositorij/Elaborat-zajednicki\\_studij\\_na\\_engleskom-FKIT-KTF-2-ENG.pdf](https://www.ktf.unist.hr/images/stories/repositorij/Elaborat-zajednicki_studij_na_engleskom-FKIT-KTF-2-ENG.pdf)

### Recommendations for improvement

1. Review the programmes in order to revise programme level learning outcomes.
2. Ensure that programme level learning outcomes inform course level learning outcomes through the use of constructive alignment.
3. Use the outcomes of the programme review to consolidate courses as needed, in order to ensure learning outcome are not repeated across courses and a wider range of electives could be offered.
4. Ensure that during the programme review there is a process in place for stakeholders to provide their inputs and feedback on the programme outcomes. This will ensure that intended learning outcomes clearly reflect the competencies required for employment, continuing education or other individual/society needs.

### Quality grade

Minimum level of quality

## **2.3. The higher education institution provides evidence of the achievement of intended learning outcomes of the study programmes it delivers.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation document:

- Self-evaluation document
- Detailed Proposals of the study programmes
- Interviews with students, employers, alumni
- Examples of assessments, including thesis and exams

The Panel members attending the site visit reviewed the provided exams and thesis and concluded that they were appropriate to the course level. Although the learning outcomes

should be improved, the employers, and other stakeholders indicated they were very happy with the quality of students from the Faculty. They stated that students were very enthusiastic and had very specific technical background related to specific industry. One stakeholder indicated that the laboratory skills of graduates are good, albeit that was assessed against a very small sub-set of students.

#### Recommendations for improvement

None

#### Quality grade

High level of quality

### **2.4. The HEI uses feedback from students, employers, professional organisations and alumni in the procedures of planning, proposing and approving new programmes, and revising or closing the existing programmes.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation document:

- Self-evaluation document
- Faculty Quality Assurance Manual
- Detailed Proposals of the study programmes
- Surveys
- Meeting with teaching staff
- Meeting with current students
- Meetings with alumni
- Meetings with stakeholders
- Meeting with Quality Assurance Board

The stakeholders and alumni that were interviewed made many positive comments regarding the Faculty. However, there was no evidence that either group had any formal and meaningful route to provide feedback which would result in programme changes. This was further confirmed via meetings with the Quality Assurance Board. A small number of teaching staff were able to provide examples of how they used student feedback to improve their course or teaching, but there was not widespread evidence of student feedback being used as a catalyst for reflection and change. A number of programme amendments have taken place between 2016 and 2019. The majority of these resulted from changes to course designation (mandatory or elective), or credit weighting. There is limited evidence of students, employers, professional organisations and alumni feeding into this process in a meaningful way. It is also not clear from students that they understand how their feedback was used in course and programme improvements.

### Recommendations for improvement

1. Ensure that the alumni and employer voice is captured as part of the process of continual programme improvement.
2. Ensure that there are appropriate mechanisms for the main body of the student community in the Faculty to express their opinion and thoughts on any programme amendments to ensure that perspectives are captured beyond those of Student Council representatives.
3. Ensure that feedback is given to students and stakeholders on their suggestion for course or programme improvements in a timely manner including when changes will be implemented or an explanation as to why change is not possible.

### Quality grade

Minimum level of quality

## **2.5. The higher education institution ensures that ECTS allocation is adequate.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation document:

- Self-evaluation document
- Approved amendments to study programmes
- Meeting with current students

The Faculty has a defined procedure for calculating ECTS. The Self-evaluation document states “*the allocation of ECTS credits to an individual course is done by estimating the total working time spent by the average student of the pertaining study program for the full acquisition of the intended learning outcomes of that course, after which the course is awarded the ECTS value.*” However the course documentation only states the ‘Type of instruction (number of hour)’. It does not include the hours a student is expected to assign to independent learning. Therefore different course with the same ECTS will have different number of instructional hours, but it is unclear if there is a variation in the independent learning hours.

For example it is difficult to have clarity as to why Physics 2 (KTG102) is assigned 6 ECTS while Physics II (KTA107) is assigned 3.5 ECTS, yet the only difference is 5 additional weeks of classes (15 teaching hours) in Physics 2, bringing its duration to 15 weeks.

There is however evidence of ECTS allocation of courses being modified. Students, when asked, indicated that at time some modules with the same ECTS had significantly different workload. However, this was not identified as a strong theme throughout the discussion with students.



### Recommendations for improvement

1. Course documentation should include the independent learning hours which will provide a more realistic estimation of student workload. This will enhance the transparency in relation to the allocation of ECTS and students will have greater clarity regarding workload expectations.

### Quality grade

Satisfactory level of quality

## **2.6. Student practice is an integral part of study programmes (where applicable).**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation document:

- Self-evaluation document
- Regulations on the manner and conditions of performing student internships
- Detailed Proposals of the study programmes
- Meeting with teaching staff
- Meeting with current students
- Meetings with stakeholders
- Student records of professional practice

All programmes contain mandatory Professional Practice with the exception of graduate programme in Chemistry. Professional practice accounts for 2.5 to 3 ECTS per programme. There is a dedicated Student Internship Committee comprising 3 members. It is the Committee's responsibility to ensure all students have an internship, and its establishment and monitoring. There is also the opportunity for students to provide their own internship. The Student Internship Committee is also responsible for appointing a supervisor and ensuring the institution providing the internship provides a mentor. Internships must take place during a period where the student has no learning obligations at the Faculty. In reality this limits the time during which students can undertake their internship to outside of the semester. Based on the feedback from staff and students the timing and short duration of the professional practice hinders engagement by students.

### Recommendations for improvement

1. Ensure professional practice is mandatory for all programmes.
2. Determine the feasibility of increasing the ECTS credits assigned to professional practice
3. Ensure students can undertake professional practice during the semester, not summer holiday

## Quality grade

Satisfactory level of quality

### III. Teaching process and student support

**3.1. Admission criteria or criteria for the continuation of studies are in line with the requirements of the study programme, clearly defined, published and consistently applied.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to Self-evaluation
- Regulations on studies and the study system at the University of Split
- Regulations on studies and the study system at FCT
- University and Faculty website ([www.unist.hr](http://www.unist.hr) [www.ktf.unist.hr](http://www.ktf.unist.hr))

Criteria for both admission and continuation of studies are published on FCT's web page, publicly available for all stakeholders, and consistently applied. Decision-making procedures regarding the admission criteria and recognition procedures are clearly described by Regulations on studies and the study system at FCT. Examples of good practice concerning admission criteria and recognition procedure are available and in accordance with regulations. On the other hand, interviews and surveys dealing with feedback from students who have transferred from other higher education institutions are not available, recognition of their prior learning was based just on the list of passed exams, there is no evidence that the recognition of exams and the approval of transfers from another higher education institution is based on an analysis of previously acquired learning outcomes. There is lot of analysis of student performance on the study programmes. Unfortunately, these analyses are not used to change the conditions of enrolment in the 1st year of undergraduate studies, which is for some study programmes characterized by a high proportion of students who drop-out. There are no examples of improvements of admission criteria for the enrolment in the undergraduate study or for continuation of study based on the obtained results. Enrolment criteria should be reviewed and adapted for example adding enhanced admissions criteria connected with level of mathematics at the State Matura. For studies in the field of natural and technical sciences, high level of mathematics at the State Matura is definitely one of the most important mandatory criteria when enrolling (which is not case now, basic level of mathematics on State Matura is sufficient for enrolment).

### Recommendations for improvement

1. Continue to evaluate and analyse the possibilities of defining enrolment criteria for undergraduate studies.
2. Develop a procedure to ensure that the approval of transfer from another higher education institution is based on a precise analysis of competencies and previously acquired knowledge.

### Quality grade

Satisfactory level of quality

### **3.2. The higher education institution gathers and analyses information on student progress and uses it to ensure the continuity and completion of study.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Documents evidencing the thematic sessions (student progress) related to the quality of the teaching process
- Regulations on studies and the study system at the University of Split
- Regulations on studies and the study system at FCT

Data on student pass rates, completion and drop-out rates are continuously collected and analysed. Student progress is monitored, and appropriate procedures are defined and known. The problem of student progression is discussed at thematic sessions of the Faculty Council. Unfortunately, measures to encourage student progress and reduce drop-out rates generally do not exist or are limited to rare, minor changes in a small number of courses, usually in the second and third year of undergraduate and graduate study. Changes in the subjects of the first year of undergraduate studies were not recorded, as well as other measures by which the indicators of student progress (especially freshmen) can be improved. Therefore, it is necessary to introduce some differential courses for freshmen (mathematics, chemistry), change the conditions of enrolment and change the content of the courses, especially in the first year of undergraduate studies, and of course make an analysis of the measures introduced to study success. Termination of study programs, as is done with the study of UP-MPR, is certainly not the best solution to increase student progress.

### Recommendations for improvement

1. Develop a strategy with actions that will improve the progression of students on all undergraduate study programme, particularly in regards to progression from the first year.
2. Review admission criteria to improve the quality and fit of recruited students.

### Quality grade

Minimum level of quality

### **3.3. The higher education institution ensures student-centred learning.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Detailed Proposals of the study programmes
- Meetings with students
- Meeting with management
- Meeting with teaching staff

The FCT conducts various forms of teaching that are aimed at acquiring defined learning outcomes. In addition to the classic ex-cathedra classes, seminars and laboratory exercises are performed for most of the courses. There are opportunities to enhance the use of active teaching methodologies. The FCT conducts various forms of e-learning, and the repositories available on the FCT's website are used for teaching materials. In addition to this, field classes are regularly organized, and once a year a study trip is organized during which students have the opportunity to visit the most important industries related to the study program. Students are required to do an internship at both undergraduate and graduate level. Depending on the exam, they solve both individual and team tasks. A library is available to students, both for learning and preparation for classes and for searching various databases. Teachers are dedicated to teaching and available to students. Autonomy and accountability of students is encouraged by both teachers and higher education institutions. At the end of each semester, a student survey is conducted, and based on the results of the student survey, there are opportunities for teachers to adapt their teaching. Concrete evidence that the results of the student survey were used to improve study programs was not recorded. Teaching staff gave one or two examples during the meeting with them, but the Panel did not obtain evidence that FCT continually evaluates and adapts teaching methods and different modes of programme delivery. Assessments of teaching methods used are not available except those which are part of

student survey. There is no evidence that teaching methods are adopted to a diverse student population, beyond accommodations made for students with disabilities.

#### Recommendations for improvement

1. The Faculty should assess the opportunities to enhance the use of active teaching methodologies across all programmes.
2. The Faculty should map teaching methods at a programme level in order to ensure teaching methods are adapted to a diverse student population.

#### Quality grade

Satisfactory level of quality

### 3.4. The higher education institution ensures adequate student support.

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Meetings with management
- Meeting with teaching staff
- Meeting with students
- Meeting with alumni
- Discussions during site visit
- Regulations on studies and the study system at the University of Split
- Regulations on studies and the study system at FCT

There is a high dropout rate in year one of undergraduate study. FCT has not amended the entry requirements for undergraduate study to recruit better quality students. Therefore it is the responsibility of the FCT to ensure they have adequate supports in place to support first year undergraduate students' transition to higher education and to their programme of study in particular. These supports should be focused on helping students overcome the barriers to progression beyond year 1. Fully understanding the experience of first year students and the barriers they face may require a more innovative approach to gathering student feedback, for example through student led focus groups.

The library is available to students and employees every day from 8 am to 3 pm. The library services are appropriate and both staff and students demonstrated a high degree of satisfaction with the facilities and services provided.

Career guidance at a faculty level is dependent on supervisors/mentors and that the student actively seeks additional opportunities through the internship committee. This system may fail to address professional and career development of all students equally.

Student and staff were unanimous in their support of the Erasmus coordinator. Unfortunately, additional barriers exist to student mobility as identified elsewhere in this report, and additional support mechanisms are required to overcome them.

### Recommendations for improvement

1. Develop a strategy, based on the barriers students and staff identify, to support first year undergraduate students to successfully progress to year 2.
2. Embed the delivery of career and professional development into all programmes.
3. Develop mechanisms to support students in taking up and completing periods of mobility during their study.

### Quality grade

Satisfactory level of quality

### **3.5. The higher education institution ensures support to students from vulnerable and under-represented groups.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Meetings with management
- Meeting with teaching staff
- Meetings with students
- Meeting with commissioner for students with disabilities

Various needs of students from vulnerable and under-represented groups are monitored by FCT. Vice-Dean for Education, the Secretary General of the Faculty and the Commissioner for Students with Disabilities are on disposition for solving individual problems of students that require discreet treatment. The FCT building is completely adapted to people with disabilities. Websites are adapted for blind and partially sighted people. The possibility of using specialized equipment is also available for students with disabilities. The FCT encourages its students to provide peer support to colleagues. Through the Office for students and counselling for students with disabilities of the University of Split, additional support for students with disabilities is provided at all times. Examples were provided to the Panel where infrastructure or assessment methodology was adapted to meet student needs. According to its capabilities higher education institution provides support to students living in difficult situations.

## Recommendations for improvement

None

## Quality grade

High level of quality

### **3.6. The higher education institution allows students to gain international experience.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Meetings with management
- Meetings with staff
- Meetings with students
- University and Faculty website ([www.unist.hr](http://www.unist.hr) [www.ktf.unist.hr](http://www.ktf.unist.hr))

Students are informed by FCT and University web pages about the opportunities for completing part of their study abroad. International experience (outgoing mobility) is gained mainly within the Erasmus and CEEPUS international mobility programs. Vice Dean for Education is strongly involved in the conversation with students about the possibilities and ways of realizing student exchange programs. From that point of view, FCT strongly supports its students in applying for student exchange programs. However, there are a number of barriers to students ultimately taking up the opportunity for outgoing mobility. These include:

1. Recognition of ECTS credits gained at another higher education institution is exceptionally difficult and inflexible. Students do not have confidence that ECTS will be recognized, or it is seen as a highly burdensome process therefore reducing enthusiasm. This will be a major barrier to students. There is a focus at the FCT on limiting students to taking courses abroad that exactly matches courses the student would take at FCT. This is not in the spirit of true outgoing mobility. It will also be exceptionally limiting as it will be difficult to find programmes at international universities that exactly match those at FCT. Students should meet the programme level learning outcomes, which should be possible to meet using alternative course level learning outcomes from another institute. This is also the advantage of elective modules which enable greater flexibility in how they support the programme level learning outcomes. There should be no barrier to studying a foreign language or even a management course during a period of mobility, and

then transferring the ECTS back to FCT. Such courses help meet programme level learning outcomes around internationalization and employability.

2. Lack of personal funds to enable students to cover basic expenses. This is exacerbated by the availability of insufficient scholarships to support students.
3. The lack of interest of students to undertake mobility. This was mentioned by both staff and students. However, the Panel believes that if root causes such as in points 1 and 2 above are addressed, this can be overcome. In addition, FCT has a range of alumni with positive experiences of outgoing mobility who can be advocates for the experience.

Structured procedures for evaluating student satisfaction with the quality of support in the implementation of student exchange programs have not been established. However, during the meeting with a group of students they did state that they were satisfied with the support provided. List of institutions with which FCT has signed Erasmus mobility agreements is satisfactory and good base to increase student mobility, both, incoming and outgoing. From interviews with former students, it was evidently shown that students who achieve mobility acquire additional competencies that increase their employability in the country and abroad.

#### Recommendations for improvement

1. Develop and implement an action plan to increase mobility and monitor its outcome and adapt as needed in order to increase student mobility, both, incoming and outgoing.
2. Establish procedures for monitoring student satisfaction with the quality of the support provided by higher education institution regarding mobility.
3. Improve the ECTS recognition system for students who have achieved mobility through changes in study programs based on raising electives or by decreasing the number of mandatory classes in semester where students are likely to undertake mobility.
4. With the financial constraints of FCT implement a system of scholarships to financially support students to undertake mobility.
5. Implement an English course to help prepare students for mobility as well as increase their confidence and interest regarding mobility.

#### Quality grade

Minimum level of quality

### **3.7. The higher education institution ensures adequate study conditions for foreign students.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:



- Self-evaluation document
- Analytic supplement to the Self-evaluation
- University of Split Regulations on international mobility of students
- University of Split International Study Guide
- University and Faculty website ([www.unist.hr](http://www.unist.hr) [www.ktf.unist.hr](http://www.ktf.unist.hr))

Student mobility at FCT takes place through three programs: Erasmus+, CEEPUS and IAESTE. All information regarding the opportunities for enrolment and study are available to foreign students in a foreign language via the FCT website. The support for foreign students is provided by Vice Dean for Research and International Cooperation and University of Split's Department for International and Interuniversity Cooperation, and regulated by the Regulations on international mobility of students by University of Split. FCT offers courses within the graduate study program of Chemical and Environmental Technology, entirely held in English for incoming students. Learning Croatian language courses for foreign students are provided at the University level, organized by the Centre for Croatian Studies in the World at the Faculty of Philosophy in Split. Information packages for foreign students are available in the guide published on the University of Split website - UNIST INTERNATIONAL STUDENT GUIDE. Despite all these excellent resources, the incoming mobility of students is extremely low, and it is to be expected that it will improve through the graduate study program Chemical and Environmental Technology (in English). Data is not routinely collected regarding incoming student satisfaction.

### Recommendations for improvement

1. Procedures for collecting feedback on satisfaction and needs of foreign students should be established.

### Quality grade

High level of quality

## **3.8. The higher education institution ensures an objective and consistent evaluation and assessment of student achievements.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Faculty website ([www.ktf.unist.hr](http://www.ktf.unist.hr))
- Regulations on studies and the study system at the University of Split
- Sample student complaint
- Meeting with students

- Meeting with management
- Meeting with teaching staff

Students are informed about criteria and methods for evaluating and grading before the beginning of course through the curriculum and study program available at Faculty's website. The learning outcomes of individual courses are available on the Faculty's website, as well as teaching methods ensuring the achievement of outcomes. All details about individual courses are explained at the introductory lesson, and written instructions are available in the course materials. Assessments were carried out accordingly to the Regulations on studies and the study system at the University of Split and the Regulations on Studies and the Study System at Faculty. The public participation in the exams is ensured. Students have the right to appeal the exam grade for which there is an appropriate procedure as well as examples. The evaluation of grading is not available at the higher education institution. Examples of modification of the assessment procedures for student with disabilities were not recorded, but verbally explained to the Panel during the course of various meetings. Students reported a lack of faith in the robustness of exam invigilation to discourage and identify cheating.

### Recommendations for improvement

1. Procedures for ensuring objectivity and reliability of grading such as double marking or Self-evaluation of teachers should be developed.
2. Procedures should be adopted to ensure that invigilation of exams is robust and fit for function.

### Quality grade

Satisfactory level of quality

## **3.9. The higher education institution issues diplomas and Diploma Supplements in accordance with the relevant regulations.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Faculty website ([www.ktf.unist.hr](http://www.ktf.unist.hr))
- Regulations on the form of the diploma, diploma supplement and the content and form of the certificate, reports and diploma and certificate tube (University of Split)
- Regulations on Studies and the Study System (FCT)

Upon completion of their studies, students are issued appropriate documentation that includes a diplomas and diploma supplements. Diplomas and Diploma supplements are issued in accordance with relevant regulations, diploma supplement contains all prescribed information. The FCT issues diploma supplement in Croatian and English, free of charge.

#### Recommendations for improvement

None

#### Quality grade

High level of quality

### **3.10. The higher education institution is committed to the employability of graduates.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Faculty website ([www.ktf.unist.hr](http://www.ktf.unist.hr))
- Analytic supplement to the Self-evaluation

The FCT monitors the employability of its students and available labour market indicators. Faculty maintains contact with alumni, the Association of Alumni and Friends of FCT in Split has been active at FCT since 2009 and is mainly dedicated to maintaining contact with alumni and to improve their knowledge and competencies through popular, professional and scientific lectures. Unfortunately, there is no evidence that the alumni association is used to increase the employability of FCT students or that, for example, members of the association financially support activities carried out by the FCT. Admission quotas are constant, and they are not aligned with social and labour market needs. This is best seen in the fact that the number of unemployed alumni is growing according to available data, but this does not reflect on a possible reduction in enrolment quotas. There is no evidence that FCT provides students with support regarding future career planning (true carrier days or presentation of companies related to the FCT). This is partially performed through obligatory internships, but some students find their internship on their own, so this cannot be considered a systematic approach. The same is with information on opportunities to continue education or find a job after graduation, which is limited to contact of students with teachers, but this cannot be considered an institutional and systematic activity.

### Recommendations for improvement

1. Establish procedures for informing students about the possibilities of continuing education and employment.
2. Embed career and professional development training within all programmes to ensure students are adequately supported regarding future career planning.

### Quality grade

Satisfactory level of quality

## IV. Teaching and institutional capacities

### 4.1. The higher education institution ensures adequate teaching capacities.

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Analytic supplement to the Self-evaluation
- Meeting with management
- Meeting with teaching staff

The Faculty is very strong and promising in its teaching capacities. In the last five years, the Faculty had a relatively fixed total number of employees (99 on average), of which 80% of employees are involved in the teaching process whereas the administrative employees and support personnel form 20% of employees. In the current year, the Faculty has 48 full-time teachers elected to teaching and research positions, of which 8 full professors with tenure, 11 full professors in the first election, 12 associate professors and 17 assistant professors. Also, the teaching process involves 3 senior lecturers, 10 associates and postdoctoral researchers and 16 technical personnel employees. Of the 19 full professors, 11 are from the field of chemical engineering, 7 are from the field of chemistry and 1 is from the field of food technology. These employees cover about 80% of all lessons delivered by the Faculty whereas the remaining 20% are covered by external associates mainly for the delivery of practical classes. It is also noteworthy that in the following five-year period 8 teachers (6 full professors with tenure, one full professor and one associate professor) are to be retired so the newly employed assistant professors shall timely ensure their substitution. Moreover, the ratio of the number of students and full-time teachers at in the current academic year is 12.79.

The Faculty has however highlighted that not a single new associate was hired at the expense of the Ministry of Science and Education within the last 3 years which results in a very small number of associates and a high average age of associates in the Faculty. The

need to increase the number of full-time employees at associate level has been noted accordingly.

Of the 48 full-time teachers from the field of technical, natural and biotechnical sciences mentioned above, 21 teachers come from the field of chemical engineering, 21 from the field of chemistry (one teacher has election also in the field of food technology), 1 from the field of physics, 1 from the field of mathematics and 4 from the field of food technology.

### Recommendations for improvement

#### Quality grade

Minimum level of quality

### **4.2. Teacher recruitment, advancement and re-appointment is based on objective and transparent procedures which include the evaluation of excellence.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- The Statute of the University of Split
- Changes and Amendments of the Statute of the University of Split
- Decision for the Evaluation of Teaching and Expert Activity in the Teaching Position Election Procedure
- Decision on the form and the performance method of an inaugural lecture for the election to research-teaching position, artistic-teaching and teaching grades
- Meeting with management
- Meeting with teaching and research staff

The Faculty has clear procedures and documentations for the recruitment, advancement and re-appointment of teachers, assistants, research positions, where expert committee is appointed as required according to the regulations. The Faculty should consider additional institutional criteria that would reduce the differences between the existing national requirements for election to scientific titles in the fields of natural, technical and biotechnical sciences.

### Recommendations for improvement

1. In the recruitment and promotion of teachers, additional selection criteria should be introduced for a better evaluation of excellence.

#### Quality grade

Satisfactory level of quality

### **4.3. The higher education institution provides support to teachers in their professional development.**

#### **Analysis**

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Meeting with management
- Meeting with teaching and research staff

The Faculty has a promotion policy of teachers, associates and non-teaching personnel competences and promotes mobility of its employees. Teachers and associates are encouraged to improve their competences by attending various seminars, training workshops, organised professional classes, workshops and courses. The non-teaching personnel improve their competences by attending professional seminars, workshops, educational workshops and/or scientific-professional conferences related to their field of activity and through mobility programmes. These have been well received by the teachers, associates and other employees, as evident during the virtual visit/meetings.

#### **Recommendations for improvement**

1. Increase formal training opportunities on pedagogy should be provided to all teachers. Pedagogical training should be essential for early career researchers (e.g., newly appointed assistant professors).
2. Annual discussions with staff should specifically include an individual's Continuous Professional Development (CPD) plan.
3. The Faculty should develop mechanisms to improve the use of sabbatical leave to enhance staff CPD.
3. The Faculty should develop, with regards to diversity and inclusivity criteria, mechanisms to improve the uptake of mobility opportunities by teachers.

#### **Quality grade**

Satisfactory level of quality

### **4.4. The space, equipment and the entire infrastructure (laboratories, IT services, work facilities etc.) are appropriate for the delivery of study programmes, ensuring the achievement of the intended learning outcomes and the implementation of scientific/artistic activity.**

#### **Analysis**

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Site visit including discussions
- Meeting with management
- Meeting with teaching and research staff

The Faculty was relocated to a new building in February 2016. Since then, the Faculty has been active in scientific, teaching and professional sense for the first time on one location since its foundation. Currently, the Faculty has access to a total surface area of 6193 m<sup>2</sup> of which 18.33% (or 1135 m<sup>2</sup>) has been granted to the University Department of Health Studies for a temporary use meaning that the Faculty uses 81.67 % of the allocated surface area (or 5058 m<sup>2</sup>). There has also been a significant investment in capital equipment which resulted in the purchase of various important instruments in 2019. The space, equipment and the infrastructure have greatly impressed the Panel members during the site visit.

### Recommendations for improvement

1. Develop a funding and maintenance strategy for new capital equipment purchased from 2019 onwards to ensure its longevity and the retention of scientific capacity long term.

### Quality grade

High level of quality

**4.5. The library and library equipment, including the access to additional resources, ensure the availability of literature and other resources necessary for a high-quality study, research and teaching.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Site visit including discussions
- Meeting with management
- Meeting with teaching and research staff
- Meeting with students
- Guide for the users of the Faculty of Chemistry and Technology in Split
- Library fund procurement procedure

The surface area of the Faculty library is 110 m<sup>2</sup> and comprises 7220 book volumes, 175 mandatory literature course book titles, 28 international journals' printed titles and 20 local journals' printed titles as well as the collection of graduate theses. The library ensures access to 14 848 electronic journals with whole texts. The bibliographic base,

which is funded by the University/institution, amounts to 5857. 18 seats designed for study purposes and computers aimed at the library users are accessible within the library area. The library is available to students and employees every day from 7 am to 3 pm. During the virtual visit, teachers and students showed great satisfactions with the quality of the library and the services provided (including access to additional resources). Moreover, the library and its facilities have also impressed the Panel members during the site visit.

#### Recommendations for improvement

None

#### Quality grade

High level of quality

### **4.6. The higher education institution rationally manages its financial resources.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Meeting with management
- Meeting with teaching and research staff
- FCT's financial and procurement plans (2017 - 2020)
- Faculty website

The Faculty has a policy of sustainable, efficient and appropriate financial resource management which is evident from their financial reports in the 2015-2020 period. Notably, there has been a mild increase (22.813.403,6 to 24.117.685,65 kn; 5.7%) in the income from the Faculty's own activity from calendar year 2019 to 2020. The Faculty runs business activity in accordance with ordinances and has regulated and published a series of ordinances and procedures. Moreover, financial reports and plans and the public procurement data are available and transparent at the Faculty's webpages. The rationale of funding distribution was evident during the virtual visit. Overall, expenses were also well managed and consistent with the income generated.

It is noteworthy that in the calendar years of 2019 and 2020, there has been no income from international scientific projects, international cooperation, organization of academic conferences, journal subscription fees, maintenance, capital investments and equipment.

#### Recommendations for improvement

1. The diversity of financial incomes should be improved, especially from international/national scientific projects and international cooperation.



2. As mentioned in section 4.4, the Faculty should develop an equipment maintenance strategy.

### Quality grade

Satisfactory level of quality

## V. Scientific/artistic activity

### 5.1. Teachers and associates employed at the higher education institution are committed to the achievement of high quality and quantity of scientific research.

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Development Strategy of the Faculty of Chemistry and Technology in Split (2016 - 2021)
- Scientific Research Strategic Programme (2016 - 2021)
- Meeting with management
- Meeting with teachers and researchers

There has been a significant improvement related to this task over the accreditation period. In the last five years the Faculty employees published a total number of 217 or 231 papers (according to the WoSCC base and the Scopus base, respectively), which is a 91% increase in the total number of published papers compared to the previous re-accreditation period (2011–2015). Of the total number of 217 papers, 69 papers were published in co-authorship with scientists from other international institutions and 96 papers were published in co-authorship with scientists from other institutions in the Republic of Croatia. Furthermore, 102 papers were published in journals with above-average impact factors, whereas the other papers belong to Q3 or Q4 categories. The five-year average of all published papers by full-time teachers amounts to 1.5. However, there is an obvious difference between the Faculty employees in their scientific output. In spite of the efforts and encouragement by the Faculty, the mobility of teachers and researchers is very low. Also, the Faculty had few incoming PhD students, postdocs and foreign teachers in the last five years. The Faculty employees actively promote scientific achievements at national and international conferences. In the last five years they published 69 reviewed papers and 275 abstracts at scientific and professional conferences. In the last five years, only eight doctoral dissertations were defended at the

Faculty, five of which were in the area of technical sciences, field of chemical engineering, and three were in the area of natural sciences, field of chemistry.

### Recommendations for improvement

1. The number of papers published in journals belonging to Q1/Q2 quartiles should be increased in relation to the number of papers published in journals belonging to Q3/Q4 quartiles.
2. The number of papers in high impact factor journals in which the Faculty researchers are the corresponding authors should be increased, with the aim of increasing the competitiveness of researchers when applying for international and national research projects.
3. A strategy to increase the number of teachers/researchers undertaking period of mobility should be developed and there should be increased support for researchers when applying for research projects.
4. More effort should be made regarding the mobility of young researchers and supporting them when applying for (installation/starting) research projects.
5. The number of PhD students and postdocs (who are funded by projects) should be increased.

### Quality grade

Satisfactory level of quality.

## **5.2. The higher education institution provides evidence for the social relevance of its scientific / artistic / professional research and transfer of knowledge.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Development Strategy of the Faculty of Chemistry and Technology in Split (2016 - 2021)
- Scientific Research Strategic Programme (2016 - 2021)
- Meeting with teachers and researchers
- Meeting with alumni
- Meeting with stakeholders

The Faculty has a strategic programme for scientific research in the 2016–2021 period, based on the strategic document 'Development Strategy of the Faculty of Chemistry and Technology in Split'. The Development Strategy contains a description of strategic directions for Faculty research with defined scientific topics, work programme and goals. It also contains an annual action plan as well as expected outcomes.

Based on discussions with the management, full-time employed teachers and teaching assistants, the Faculty established a satisfactory level of cooperation between the departments and encourages cooperation and good employee relations.

The Faculty has an adequate number of activities in collaboration with the public sector and economic entities through numerous contracts, agreements and projects. Also, the Faculty employees participate in professional, public and advisory bodies and committees in both the private and public sector.

Based on a discussion with numerous representatives, external stakeholders, as well as alumni and members of the Quality Assurance Board, it is clear they do not play a strong role in defining the strategic direction of the Faculty.

### Recommendations for improvement

1. Ensure that external stakeholders, including alumni and members of the Quality Assurance Board, are more involved in defining the strategic programme for scientific research.
2. The Faculty must continue its collaborations with the private sector and should try to increase the number of professional projects.
3. The Faculty has the 'Ordinance on prizes and recognition' for its employees' scientific and teaching achievements, but not for activities related to the popularisation of science and successful collaborations with the private and public sectors. It could be improved in that regard.

### Quality grade

Satisfactory level of quality.

## **5.3. Scientific/artistic and professional achievements of the higher education institution are recognized in the regional, national and international context.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Faculty website
- Meeting with teachers and researchers

This task has been implemented. In the last five years, scientific research work at the Faculty was performed by participating in numerous international, national and local projects and with the support of the University of Split. However, there are currently very few active projects on both national and international levels (particularly projects funded by the Croatian Science Foundation).

The Faculty has several employees who are highly recognised in the national and international context. Additionally, numerous employees were very active in organising

various conferences that took place in the country and abroad, as well as in the work of editorial boards in scientific journals. There are obvious differences between the Faculty employees in their recognition on the national and international level.

#### Recommendations for improvement

1. The Faculty should try to increase the number of scientific projects.

#### Quality grade

Satisfactory level of quality.

### **5.4. The scientific / artistic activity of the higher education institution is both sustainable and developmental.**

#### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Faculty website
- Meeting with staff
- Meeting with management
- Development Strategy of the Faculty of Chemistry and Technology in Split (2016 - 2021)
- Ordinance on prizes and recognition
- Scientific Research Strategic Programme (2016 - 2021)

This task is highly implemented. The Faculty has excellent infrastructure and resources for high quality research and teaching. Improvements in the conditions related to the performance of scientific, professional and teaching activities were achieved through the project "Functional integration of the University of Split, PMF-ST, PF-ST and FCT-ST through the development of scientific-research infrastructure in the Three Faculty Building". Upon the realisation of this project, an additional 18 laboratories will be equipped alongside the currently operational 10 student and 3 semi-industrial laboratories. Based on discussions with the management, full-time employed teachers and teaching assistants, the Faculty established satisfactory cooperation between departments and easy access to all instruments and equipment, but didn't establish a maintenance plan for the facility and instruments. The Faculty makes efforts and encourages scientific excellence and has the 'Ordinance on prizes and recognition' for three award categories: i) Lifetime achievement award, ii) Special achievement award and iii) Young scientist award. However based on the discussion with full-time employed teachers and teaching assistants, there could be more effort to recognise excellence and better implementation of the employee awards.

### Recommendations for improvement

1. The Faculty should develop a maintenance plan for the facility and instruments.
2. The Faculty should identify how they can better implement recognition of excellence and employee awards.

### Quality grade

Satisfactory level of quality.

## **5.5. Scientific/artistic and professional activities and achievements of the higher education institution improve the teaching process.**

### Analysis

Evidence gathered during the onsite and virtual visit and indicators from the Self-evaluation documentation:

- Self-evaluation document
- Meeting with staff
- Meeting with students
- Site visit and discussions

Undergraduate, graduate and postgraduate students are involved in scientific processes alongside their teachers. However, there are obvious differences between Faculty employees in their scientific work with students. In the last five years, the Faculty employees published 50 papers with students as co-authors. Also, students of all levels are involved in dissemination activities at scientific conferences. However, most of these activities are very local.

### Recommendations for improvement

1. The number of participations from undergraduate and graduate students at conferences should be increased. The Faculty should not limit student dissemination activities only to local conferences.
2. The number of papers published in journals of Q1/Q2 quartiles co-authored with students (particularly graduate) should be increased.
3. The Faculty should improve the student internship as identified in section 2
4. The Faculty should increase the use of Faculty research facilities by students particularly for fundamental research.
5. The Faculty should organize seminars or extra courses on scientific research methodology and science communication.

### Quality grade

Satisfactory level of quality.

## APPENDICES

### 1. Quality assessment summary - tables

<i>Quality grade by assessment area</i>				
<i>Assessment area</i>	Unsatisfactory level of quality	Minimum level of quality	Satisfactory level of quality	High level of quality
<i>I. Internal quality assurance and the social role of the higher education institution</i>			<b>X</b>	
<i>II. Study programmes</i>			<b>X</b>	
<i>III. Teaching process and student support</i>			<b>X</b>	
<i>IV. Teaching and institutional capacities</i>			<b>X</b>	
<i>V. Scientific/artistic activity</i>			<b>X</b>	

<i>Quality grade by standard</i>				
<i>I. Internal quality assurance and the social role of the higher education institution</i>	<i>Unsatisfactory level of quality</i>	<i>Minimum level of quality</i>	<i>Satisfactory level of quality</i>	<i>High level of quality</i>
1.1. The higher education institution has established a functional internal quality assurance system.			X	
1.2. The higher education institution implements recommendations for quality improvement from previous evaluations.				X
1.3. The higher education institution supports academic integrity and freedom, prevents all types of unethical behaviour, intolerance and discrimination.			X	
1.4. The higher education institution ensures the availability of information on important aspects of its activities (teaching, scientific/artistic and social).		X		
1.5. The higher education institution understands and encourages the development of its social role.			X	
1.6. Lifelong learning programmes delivered by the higher education institution are aligned with the strategic goals and the mission of the higher education institution, and social needs.		X		

<i>Quality grade by standard</i>				
<i>II. Study programmes</i>	<i>Unsatisfactory level of quality</i>	<i>Minimum level of quality</i>	<i>Satisfactory level of quality</i>	<i>High level of quality</i>
2.1. The general objectives of all study programmes are in line with the mission and strategic goals of the higher education institution and the needs of the society.			X	
2.2. The intended learning outcomes at the level of study programmes delivered by the higher education institution are aligned with the level and profile of qualifications gained.		X		
2.3. The higher education institution provides evidence of the achievement of intended learning outcomes of the study programmes it delivers.				X
2.4. The HEI uses feedback from students, employers, professional organisations and alumni in the procedures of planning, proposing and approving new programmes, and revising or closing the existing programmes.		X		
2.5. The higher education institution ensures that ECTS allocation is adequate.			X	
2.6. Student practice is an integral part of study programmes (where applicable).			X	



<i>Quality grade by standard</i>				
<i>III. Teaching process and student support</i>	<i>Unsatisfactory level of quality</i>	<i>Minimum level of quality</i>	<i>Satisfactory level of quality</i>	<i>High level of quality</i>
3.1. Admission criteria or criteria for the continuation of studies are in line with the requirements of the study programme, clearly defined, published and consistently applied.			X	
3.2. The higher education institution gathers and analyses information on student progress and uses it to ensure the continuity and completion of study.		X		
3.3. The higher education institution ensures student-centred learning.			X	
3.4. The higher education institution ensures adequate student support.			X	
3.5. The higher education institution ensures support to students from vulnerable and under-represented groups.				X
3.6. The higher education institution allows students to gain international experience.		X		
3.7. The higher education institution ensures adequate study conditions for foreign students.				X
3.8. The higher education institution ensures an objective and consistent evaluation and assessment of student achievements.			X	
3.9. The higher education institution issues diplomas and Diploma Supplements in accordance with the relevant regulations.				X
3.10. The higher education institution is committed to the employability of graduates.			X	

<i>Quality grade by standard</i>				
<i>IV. Teaching and institutional capacities</i>	<i>Unsatisfactory level of quality</i>	<i>Minimum level of quality</i>	<i>Satisfactory level of quality</i>	<i>High level of quality</i>
4.1. The higher education institution ensures adequate teaching capacities.		X		
4.2. Teacher recruitment, advancement and re-appointment is based on objective and transparent procedures which include the evaluation of excellence.			X	
4.3. The higher education institution provides support to teachers in their professional development.			X	
4.4. The space, equipment and the entire infrastructure (laboratories, IT services, work facilities etc.) are appropriate for the delivery of study programmes, ensuring the achievement of the intended learning outcomes and the implementation of scientific/artistic activity.				X
4.5. The library and library equipment, including the access to additional resources, ensure the availability of literature and other resources necessary for a high-quality study, research and teaching.				X
4.6. The higher education institution rationally manages its financial resources.			X	

<i>Quality grade by standard</i>				
<i>V. Scientific/artistic activity</i>	<i>Unsatisfactory level of quality</i>	<i>Minimum level of quality</i>	<i>Satisfactory level of quality</i>	<i>High level of quality</i>
5.1. Teachers and associates employed at the higher education institution are committed to the achievement of high quality and quantity of scientific research.			X	
5.2. The higher education institution provides evidence for the social relevance of its scientific / artistic / professional research and transfer of knowledge.			X	
5.3. Scientific/artistic and professional achievements of the higher education institution are recognized in the regional, national and international context.			X	
5.4. The scientific / artistic activity of the higher education institution is both sustainable and developmental.			X	
5.5. Scientific/artistic and professional activities and achievements of the higher education institution improve the teaching process.			X	

## 2. Site visit protocol

### *Edukacija članova stručnog povjerenstva u virtualnom okruženju/Education of Panel members in virtual form*

	<b>Ponedjeljak, 3. svibnja 2021.</b>	<b>Monday, 3<sup>rd</sup> May 2021</b>
<b>10:00 –</b>	<ul style="list-style-type: none"><li>• Predstavljanje AZVO-a</li><li>• Predstavljanje sustava visokog obrazovanja u RH</li><li>• Postupak reakreditacije</li><li>• Standardi za vrednovanje kvalitete</li> <li>• Kako napisati Završno izvješće</li><li>• Priprema povjerenstva za posjet visokom učilištu (rasprava o Samoanalizi i popratnim dokumentima)</li></ul>	<ul style="list-style-type: none"><li>• Presentation of ASHE</li><li>• Overview of the higher education system in Croatia</li><li>• Re-accreditation procedure</li><li>• Standards for the evaluation of quality</li> <li>• How to write the Final report</li><li>• Preparation of the Expert Panel members for the site visit (discussion on the Self-evaluation report and supporting documents )</li></ul>

### **Preliminarni posjet Stručnog povjerenstva visokom učilištu / Preliminary site-visit of Expert Panel members to the HEI**

	<b>Srijeda, 5. svibnja 2021.</b>	<b>Wednesday, 5<sup>th</sup> May 2021</b>
<b>8:50– 9:00</b>	Spajanje dijela članova Povjerenstva na poveznicu (link) ZOOM	Joining the part of the Expert Panel members to the ZOOM meeting via link
<b>9:00 – 10:00</b>	Sastanak članova stručnog povjerenstva s dekanom i prodekanima	Meeting of Expert Panel members with the Dean and Vice-Deans
<b>10:00 – 10:15</b>	<i>Pauza</i>	<i>Break</i>
<b>10:15 – 11:15</b>	Sastanak članova stručnog povjerenstva s Odborom za unaprjeđenje kvalitete	Meeting of Expert Panel members with the Quality Assurance/Enhancement Board
<b>11:15 – 13:00</b>	<b>Obilazak fakulteta</b> (predavaonice, informatičke učionice, knjižnica, laboratoriji, studentske službe) <b>i prisustvovanje nastavi</b>	<b>Tour of the Faculty</b> (classrooms, computer classrooms, library, labs, student services) <b>and participation in teaching classes</b>

<b>13:00 – 14:30</b>	<i>Radni ručak</i>	<i>Lunch break</i>
<b>14:30 – 16:00</b>	<b>Analiza dokumenata</b>	<b><i>Document analysis</i></b>
<b>16:00</b>	Povratak za Zagreb	<i>Return to Zagreb</i>

## **Zoom sastanak članova stručnog povjerenstva / Zoom meeting of the Expert Panel members**

	<b>Ponedjeljak, 10. svibnja 2021.</b>	<b>Monday, 10<sup>th</sup> May 2021</b>
<b>10:00– 12:00</b>	Virtualni sastanak članova stručnog povjerenstva, diskusija o zapažanjima i impresijama s preliminarnog posjeta, dodatna priprema za online sastanke	Virtual meeting of the Expert Panel members, discussion of observations and impressions from the preliminary visit, additional preparation for our online meetings

## **Prvi dan reakreditacije u virtualnom okruženju / First day of re-accreditation in virtual form**

	<b>Utorak, 11. svibnja 2021.</b>	<b>Tuesday, 11<sup>th</sup> May 2021</b>
<b>10:20 – 10:30</b>	Spajanje na poveznicu (link) ZOOM	Joining ZOOM meeting via link
<b>10:30 – 11:30</b>	Sastanak članova stručnog povjerenstva s prodekanom za poslove iz područja nastavne problematike	Meeting of Expert Panel members with vice dean for Teaching Affairs
<b>11:30 – 11:45</b>	<i>Pauza</i>	<i>Break</i>
<b>11:45 – 12:45</b>	Sastanak članova stručnog povjerenstva s pročelnicima odsjeka i predstojnicima zavoda	Meeting of Expert Panel members with and heads of departments
<b>12:45 – 13:45</b>	<i>Pauza, za ručak</i>	<i>Lunch break</i>
<b>13:45– 14:45</b>	Sastanak s nastavnicima (u stalnom radnom odnosu, osim onih na rukovodećim mjestima)	Meeting with full-time employed teachers, except those in managerial positions
<b>14:45 – 15:00</b>	<i>Pauza</i>	<i>Break</i>
<b>15:00 – 15:45</b>	Organizacija dodatnog sastanka o otvorenim pitanjima – prema potrebi	Organisation of an additional meeting on open questions, if needed

## Drugi dan reakreditacije u virtualnom okruženju / Second day of re-accreditation in virtual form

	Srijeda, 12. svibnja 2021.	Wednesday, 12 <sup>th</sup> May 2021
9:20 – 9:30	Spajanje na poveznicu (link) ZOOM	Joining ZOOM meeting via link
9:30 – 10:30	Sastanak s: <ul style="list-style-type: none"> <li>• ECTS i CEEPUS koordinatorom</li> <li>• Predsjednikom povjerenstva za studentsku praksu, Predsjednikom povjerenstva za završne i diplomske ispite</li> <li>• Predsjednicom etičkog povjerenstva</li> <li>• Povjerenikom za studente s invaliditetom</li> <li>• Voditeljica knjižnice</li> </ul>	Meeting with: <ul style="list-style-type: none"> <li>• ECTS and CEEPUS coordinators</li> <li>• President of the Student Internship Committee</li> <li>• President of the Committee on bachelor and master examinations</li> <li>• Library manager</li> </ul>
10:30 – 10:45	<i>Pauza</i>	<i>Break</i>
10:45 – 11:45	Sastanak sa studentima	Meeting with students
11:45 – 12:45	<i>Pauza za ručak</i>	<i>Lunch break</i>
12:45 – 13:30	Sastanak s alumnijima (bivši studenti koji nisu zaposlenici visokog učilišta)	Meeting with Alumni (former students who are not employed by the HEI)
13:30 – 13:45	<i>Pauza</i>	<i>Break</i>
13:45 – 14:45	Sastanak s vanjskim dionicima (predstavnicima strukovnih i profesionalnih udruženja, poslovna zajednica, poslodavci, stručnjaci iz prakse)	Meeting with external stakeholders
14:45 – 15:30	Organizacija dodatnog sastanka o otvorenim pitanjima – prema potrebi	Organisation of an additional meeting on open questions, if needed

## Treći dan reakreditacije u virtualnom okruženju / Third day of re- accreditation in virtual form

	Četvrtak, 13. svibnja 2021.	Thursday, 13 <sup>th</sup> May 2021
<b>9:50 – 10:00</b>	Spajanje na poveznicu (link) ZOOM	Joining ZOOM meeting via the link
<b>10:00 – 11:00</b>	Sastanak članova stručnog povjerenstava s prodekanom za znanstveni rad i međunarodnu suradnju	Meeting with the Vice-Dean for Scientific Work and International Cooperation
<b>11:00 – 11:15</b>	<i>Pauza</i>	<i>Break</i>
<b>11:15 – 12:00</b>	Sastanak s voditeljima znanstvenih projekata	Meeting with the Heads of research projects
<b>12:00 – 13:30</b>	<i>Pauza za ručak</i>	<i>Lunch break</i>
<b>13:30 – 14:15</b>	Sastanak s asistentima i poslijedoktorandima	Meeting with Teaching Assistants and postdoctoral researchers
<b>14:15 – 15:00</b>	Organizacija dodatnog sastanka o otvorenim pitanjima – prema potrebi	Organisation of an additional meeting on open questions, if needed
<b>15:00 – 15:40</b>	Interni sastanak članova stručnog povjerenstva	Internal meeting of the Expert Panel members
<b>15:40 – 15:55</b>	Završni sastanak s dekanom i prodekanima	Exit meeting with the Dean and Vice-Deans

## SUMMARY

The Faculty of Chemistry and Technology in Split (FCT) was founded over 60 years ago to meet the need of the growing chemical industry within the Dalmatia region for chemical engineers and technologists. Since 1960, over 2500 student have completed study programmes at the Faculty. During its establishment the activity of the Faculty was spread across a number of physical locations. However, since 2016 the Faculty has been located in a single new building, bringing together for the first time all of its activities under one roof. This advancement means that both staff and students have excellent facilities, including modern instrumental equipment and infrastructure, to enable them to progress their intellectual and career aspirations. However, the Faculty does urgently need to develop a strategy to ensure new capital equipment can be maintained. Besides the building and the modern facilities it houses, there are a number of other factors which indicates that the Faculty currently has a strong foundation for continued growth and development. This includes expansion in staff at Assistant Professors level, and the openness and willingness of researchers and equipment owners to facilitate the shared use of equipment. Since the last accreditation period, it is commendable that the Faculty has achieved a significant increase in its number of research outputs. Overall, the Faculty undertakes a detailed and honest reflection regarding the recommendations of previous accreditations, including its implementation plans. However, the current organisational structure of the Faculty is over complex with numerous departments of differing size. This can hinder efficiency and effectiveness in teaching and research activity. The internal quality assurance system of the Faculty is fully developed and accompanied by appropriate documentation. The Faculty does face a challenge to optimise the quality of student intake, while meeting recruitment targets, and improving student progression. This is an area around which the Faculty should continue to develop its strategic plans. It is evidenced that students have good access to teachers for support during their studies. Students and staff do undertake international mobility. However, this is limited, and there is currently a significant opportunity for the Faculty to address barriers to mobility, with the aim of enhancing the international profile of the Faculty, increasing the number of funded research projects, and enhancing the professional development of students and staff. A review of the current programmes is needed, with the aim of ensuring a wider choice of electives, professional practice is extended, simplifying the transfer of credits obtained during international mobility, and improving the programme level learning outcomes. External stakeholders are active in selected aspects of the Faculty. However, it would be to the benefit of the Faculty to ensure that employers, alumni and representatives of professional organizations are strongly involved in monitoring and evaluation of all activities taking place within the Faculty. This would strengthen the strategic teaching and research plans and enhance the opportunities for growth and development of the Faculty into the future.