

Chem 05a Consistency between The Aims of the Bachelor's Degree according to Study Guide VS Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria

Table 1: Goals of Chemistry Program

1	Knowledge : Department majors will demonstrate an understanding of fundamental chemical concepts.
2-	Professional Skills : Department majors will be able to work effectively in a professional or laboratory setting.
3-	Communication : Department majors will be proficient in the communication of chemical information

Table 2: Objectives of Chemistry Program

1	Achieving Academic excellence in accordance with quality standards.
2	Prepare national competences in the field of chemistry who contribute to the making of society, development programs insofar as education, health, industry and scientific research are concerned.
3	To participate in the advancement of knowledge through seminars, workshops and publications.
4	Serving state and private sectors by increasing people's awareness of chemistry and exchange programs.
5	Integrating IT in curriculum design in relation to Chemistry.

Table 3: Program Learning Outcomes of Chemistry Program

Domain		** Student learning Outcomes	
		On successful completion of this program, students would be able to:	
		Code	Learning Outcome
A	Knowledge	a1	Recognize the knowledge of fundamental concepts in Chemistry
		a2	Covering the major principles and theories in the field of chemistry
		a3	Introducing students to the prominent teaching methods and approaches in relation to chemistry.
		b1	Explain to general audience the Chemistry principles that underlie our understanding of nature

B	Cognitive Skills	b2	Develop the skill for analyzing/solving the Chemistry based problems.
		b3	Think creatively about scientific problems and their solutions
		b4	Applying the acquired academic skills to professional and academic contexts.
C	Interpersonal Skills and Responsibility	c1	An ability to work effectively in diverse teams in both classroom and laboratory.
		c2	Taking the initiative to identify urgent problems and solve them.
		c3	Assuming responsibility for self-learning and professional development.
		c4	Showing high commitment to work ethics in accordance with Islamic values
D	Communication IT and Numerical Skills	d1	Think creatively about scientific problems and their solution, both orally and in written
		d2	Locate and retrieve scientific information, using modern computer tools
		d3	Learn how to collect and classify the required topics using internet communication tools.
E	Psychomotor Skills		N.A

**** All students in the Bachelor's Degree Program in Chemistry have the same major subject ,Chemistry.**

ASIIN General Criteria for the Accreditation of Degree Programs

Educational Objectives – Competences

Chemistry has been called ‘the central science’ because of its role and influence on all of the sciences. Chemistry plays a role in every aspect of our lives. It has allowed other sciences to blossom and has expanded our collective knowledge.

The educational objectives are outlined by the description of the learning outcomes, i.e. knowledge, skills and competences required by the graduates for practicing their profession or for post-graduate studies. These outcomes vary in extent and intensity in accordance with the differing objectives of Bachelor’s and Master’s programs.

The following learning outcomes (knowledge, skills or competences)¹ are typical of a Bachelor's degree in Chemistry

Specialist learning outcomes Graduates

- a) They have gained chemistry-relevant fundamental knowledge of mathematics and the natural sciences;
- b) they have sound knowledge of the core subjects of chemistry including inorganic, organic and physical chemistry, as well as of analytical chemistry;
- c) they have gained knowledge in one or several other special areas in the natural sciences or humanities;
- d) are able to carry out practical chemistry work and have learnt how to handle chemicals independently and safely in lab practicals;
- e) they have knowledge of safety and environmental issues and the legal fundamentals;
- g) they have interdisciplinary knowledge and skills, such as in economics, ethics or philosophy

Such graduates are able to

obtain, interpret and evaluate data of scientific and technical relevance, and to draw sound conclusions, which take into account scientific, technological and ethical findings;

h) solve problems of a scientific/application-oriented nature independently, and to present the results, as well as pursue lifelong learning.

- f) have gained methodological competence in chemistry, are able to apply this in other contexts and

Social Competences

Graduates

i) are able to communicate with colleagues working in the field as well as with the broader public, about chemistry-related contents and problems, also in a foreign language and on an intercultural basis;

j) are aware of social and ethical responsibility in their actions and are familiar with the professional ethical principles and standards of chemistry;

k) are able to work both alone and as a member of international, mixed-gender groups;

l) are familiar with the basic principles for conduction of projects and able to develop appropriate leadership responsibility

m) are prepared for entry to professional life in an industrial or academic environment, through adequate practical relevance of the degree program.

Student Learning Outcomes Mapping with ASIIN General Criteria

ASIIN SSC	Intended Learning Outcomes ¹ of the Degree Programme	Corresponding Modules
Specialist Competences		
Graduates		
a) They have gained chemistry-relevant fundamental knowledge of mathematics and the natural sciences; a1 a2	a1)Recognize the knowledge of fundamental concepts in Chemistry a2)Covering the major principles and theories in the field of chemistry	
b) they have sound knowledge of the core subjects of chemistry including inorganic, organic and physical chemistry, as well as of analytical chemistry; a2	a2)Covering the major principles and theories in the field of chemistry	
c) they have gained knowledge in one or several other special areas in the natural sciences or humanities; a3	a3)Introducing students to the prominent teaching methods and approaches in relation to chemistry.	
d)are able to carry out practical chemistry work and have learnt how to handle chemicals independently and safely in lab practicals; b2	b2)Develop the skill for analyzing/solving the Chemistry based problems.	

¹ See Section 2.1 „Programme Objectives and Learning Outcomes“ of the *General Criteria for the Accreditation of Degree Programmes* of ASIIN, as of 28.03.2014

e) they have knowledge of safety and environmental issues and the legal fundamentals;		
f) have gained methodological competence in chemistry, are able to apply this in other contexts and d3	d3)Learn how to collect and classify the required topics using internet communication tools.	
g) they have interdisciplinary knowledge and skills, such as in economics, ethics or philosophy a3.	a3)Introducing students to the prominent teaching methods and approaches in relation to chemistry.	
Such graduates are able to		
obtain, interpret and evaluate data of scientific and technical relevance, and to draw sound conclusions, which take into account scientific, technological and ethical findings;		
h) solve problems of a scientific/application-oriented nature independently, and to present the results, as well as pursue lifelong learning. B2	b2)Develop the skill for analyzing/solving the Chemistry based problems.	
Social Competences		

Graduates		
i) are able to communicate with colleagues working in the field as well as with the broader public, about chemistry-related contents and problems, also in a foreign language and on an intercultural basis;		
j) are aware of social and ethical responsibility in their actions and are familiar with the professional ethical principles and standards of chemistry; C4	Showing high commitment to work ethics in accordance with Islamic values	
k) are able to work both alone and as a member of international, mixed-gender groups; C1	c1)An ability to work effectively in diverse teams in both classroom and laboratory.	
l) are familiar with the basic principles for conduction of projects and able to develop appropriate leadership responsibility C1	c1)An ability to work effectively in diverse teams in both classroom and laboratory.	
m) are prepared for entry to professional life in an industrial or academic environment, through adequate practical relevance of the degree program		

Consistency between The Chemistry Bachelor's Degree Learning Outcomes according to ASIIN's Subject-Specific Criteria

Chemistry program(learning out comes)		Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria \checkmark													
			a	b	c	d	e	f	g	h	i	j	k	l	m
A	Knowledge	a1	\checkmark												
		a2	\checkmark	\checkmark											
		a3			\checkmark					\checkmark					
B	Cognitive Skills	b1													
		b2				\checkmark				\checkmark					
		b3													
		b4													
C	Interpersonal Skills and Responsibility	c1											\checkmark	\checkmark	
		c2													
		c3													
		c4										\checkmark			
D	Communication IT and Numerical Skills	d1													
		d2													
		d3							\checkmark						

Consistency between The Aims of the Chemistry Bachelor's Degree according to Study Guide VS Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria

Chemistry program		Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria													
		a	b	c	d	e	f	g	h	i	j	k	l	m	
G(1)	Obj.(1)	a1	√												
		a2		√											
		a3			√				√						
		b1													
		b2								√					
		b3													
		b4													
		d1													
		d2													
								√							
G(2)	Obj(2)	a1	√												
		a2	√												
		a3			√										
		b1													
		b2				√				√					
		b3													
		b4													
		c1											√	√	
		c2													
		d1													
		d2													
										√					

Chemistry program		Learning Outcomes of the Bachelor's Degree according to ASIIN's Subject-Specific Criteria												
		a	b	c	d	e	f	g	h	i	j	k	l	m
G(3)	Obj(3)	a1	√											
		a2	√											
		b1												
		b2				√				√				
		b3												
		b4												
		c3												
		d1												
G(4)	Obj(4)	a3			√				√					
		b4												
		c2												
		c4							√		√			
		d1												
		d2												
G(5)	Obj (5)	a3			√				√					
		d2												

