
Diplomiran inženir kemijskega inženirstva (un)/diplomirana inženirka kemijskega inženirstva (un)

Selected qualifications

Name of qualification	Diplomiran inženir kemijskega inženirstva (un)/diplomirana inženirka kemijskega inženirstva (un)
Translated title (no legal status)	Bachelor of Science in chemical engineering
Type of qualification	Diploma prve stopnje (UN)
Category of qualification	Izobrazba
Type of education	Academic bachelor's education
Duration	3 years
Credits	180 credits

Admission requirements

- Matura or
- vocational matura under any four-year secondary school programme; or
- school-leaving examination (prior to 1 June 1995) under any four-year secondary school programme.

ISCED field

Field
Tehnika, proizvodne tehnologije in gradbeništvo

ISCED subfield

subfield kemijsko inženirstvo in procesi

Qualification level

SQF 7
EQF 6
First level

Learning outcomes

The qualification holder will be able to:

General competences:

- carry out scientifically supported analyzes and syntheses in the field of chemistry and chemical engineering and understand the impact of technical solutions on environmental and social relations,
- holistic treatment of the problem on the basis of fundamental analytical techniques and methodologies,
- use the acquired knowledge in solving qualitative and quantitative tasks in the field of chemistry and chemical engineering,
- identify and solve problems using scientific methods and procedures in a given specialist field,
- identify and supplement good laboratory practice, have the skills to perform standard laboratory procedures, including the use of instruments in synthesis and analytical procedures, and have the ability to present and explain laboratory results,
- safe handling of chemicals in terms of their physical and chemical properties and be able to assess the risks in terms of the chemicals and processes used,
- observe and measure chemical properties and changes, and systematically and reliably control, record and process data in chemistry and chemical engineering,
- acquire knowledge from relevant literature and data sources, including computer databases,
- communicate effectively, including in English, and use modern presentation tools,
- work as a team in multidisciplinary groups,
- understand the principles of management and understand business practice,
- understand their professional and ethical responsibilities,
- independent, in-depth learning and the need for lifelong learning.

Subject-specific competences:

- knowledge of relevant basic sciences and their genesis (especially mathematics, chemistry, biochemistry, physics) for understanding, describing and solving phenomena in chemistry and chemical engineering:
- understanding the basics of chemical terminology, nomenclature and the use of units,

- knowledge of basic types of chemical reactions and their basic characteristics,
- knowledge of the basics and procedures of chemical analysis and characterization of compounds,
- knowledge of basic methods of structural investigations, including spectroscopy and structural characteristics of elements and their compounds, including stereochemistry,
- knowledge of the characteristics of different aggregate states and the theories they describe,
- knowledge of the basics of thermodynamics and their use in chemistry,
- knowledge of the kinetics of chemical changes, including catalysis,
- knowledge of the systematics of elements and their compounds, including the periodic table,
- knowledge of the properties of aliphatic, aromatic, heterocyclic and organometallic compounds and knowledge of the nature and properties of functional groups in organic molecules,
- knowledge of the main synthetic pathways in organic and inorganic chemistry,
- knowledge of the relationship between the properties of materials and their atomic or molecular structure,
- knowledge of the chemistry of biological molecules and processes,
- understanding the general structure of chemical engineering and the connection between subdisciplines,
- understanding of basic principles in chemical engineering:
 - material and energy balances, momentum balances, cost balances,
 - balance,
 - flow processes (chemical reaction, transfer of matter, energy and momentum) and be able to use them to (analytically, numerically and graphically) solve various chemical-technical problems,
 - basic operations,
 - understanding of basic concepts of process management,
 - understanding the principles of modern methods of process-product measurements,
 - plan, perform, explain and report on simple experiments,
 - acquire knowledge from relevant literature and data sources,
 - basic understanding of safety, health and environmental issues,
 - understanding the concept of sustainability (sustainability, sustainability),
 - understanding the basic concept of chemical product technology,
 - have knowledge of some practical applications of process and product technology (with projects),
 - analyze complex phenomena in the selected specialist field,
 - have some experience in using relevant software and other advanced tools,
 - perform appropriate planning, optimization and dynamics of processes using scientific methods and procedures in a given specialist field,
 - economically evaluate processes and projects.

Assessment and completion

Students' knowledge is assessed by means of practical exercises and seminar papers, and also via products, projects, performances, services, etc. and by examinations. Examination performance is scored as follows: 10 (excellent); 9 (very good: above-average knowledge but with some mistakes); 8 (very good: solid results); 7 (good); 6 (adequate: knowledge satisfies minimum criteria); 5–1 (inadequate). In order to pass an examination, a candidate must achieve a grade between adequate (6) and excellent (10).

Progression

Conditions for progression to the second year are completed all study obligations of the first year (60

ECTS).

Conditions for progression to the third year are completed all study obligations of the 2nd year (60 ECTS).

Transitions

Second-cycle master's study programmes (SQF level 8)

Condition for obtaining certificate

To complete the studies, students must complete all the obligations prescribed by the study programme.

Awarding body

University of Maribor, Faculty of Chemistry and Chemical Engineering

URL

<https://www.fkkt.um.si/en>
