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KVALIFIKACIJ

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Diplomiran inženir kemijske tehnologije (un)/diplomirana inženirka kemijske tehnologije (un)

Selected qualifications

Magister sanitarnega inženirstva/magistrica sanitarnega inženirstva

Name of qualification	Diplomiran inženir kemijske tehnologije (un)/diplomirana inženirka kemijske tehnologije (un)
Translated title (no legal status)	Academic bachelor's degree in chemical technology
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 in any secondary school programme,
• 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 analysis and synthesis in the field of chemistry and chemical engineering and demonstrate understanding of the influence of technical solutions on environmental and social relations,
- deal holistically with a problem on the basis of fundamental analytical techniques and methodologies,
- use acquired knowledge to address qualitative and quantitative tasks in the field of chemistry and chemical engineering,
- identify and resolve problems through the application of scientific methods and procedures in a given specialised field,
- recognise and complement good laboratory practice, carry out standard laboratory procedures including the use of instruments in synthesis and analytical procedures, and communicate and interpret laboratory results,
- handle chemicals safely with regard to their physical and chemical properties and carry out a risk assessment regarding the chemicals and procedures 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 part of a team in multidisciplinary groups,
- demonstrate understanding of the principles of leadership and understanding of business practice,
- demonstrate understanding of their own professional and ethical responsibility,
- pursue autonomous learning, including in-depth learning, and recognise the need for lifelong learning.

(subject-specific competences)

- demonstrate knowledge of relevant basic disciplines and their genesis (particularly mathematics,

chemistry, biochemistry, physics) in order to understand, describe and address phenomena in chemistry and chemical engineering:

- demonstrate understanding of the basis of chemical terminology, nomenclature and the use of units,
- demonstrate familiarity with the basic types of chemical reactions and their basic characteristics,
- demonstrate familiarity with the bases and procedures of chemical analysis and the characterisation of compounds,
- demonstrate familiarity with the basic methods of structural tests, including spectroscopy, and the structural characteristics of elements and their compounds, including stereochemistry,
- demonstrate familiarity with the characteristics of various aggregate states and the theories that describe them,
- demonstrate familiarity with the basics of thermodynamics and their application in chemistry,
- demonstrate knowledge of the kinetics of chemical change, including catalysis,
- demonstrate knowledge of the classification of elements and their compounds, including the periodic system,
- demonstrate knowledge of the properties of aliphatic, aromatic, heterocyclic and organometallic compounds and the nature and properties of functional groups in organic molecules,
- demonstrate familiarity with the main synthesis pathways in organic and inorganic chemistry,
- demonstrate familiarity with the connection between the properties of materials and their atomic or molecular structure,
- demonstrate familiarity with the chemistry of biological molecules and processes,
- demonstrate understanding of the general structure of chemical engineering and the connections between its sub-disciplines,
- demonstrate understanding of basic principles in chemical engineering:
- matter and energy balances, motion quantity balances, cost balances,
- equilibrium,
- flow processes (chemical reaction, matter transfer, energies and motion quantities) – and use them to resolve various chemical engineering problems (analytically, numerically and graphically),
- basic operations,
- demonstrate understanding of the basic concepts of process management,
- demonstrate understanding of the principles of modern methods of process and product measurements,
- plan, implement, interpret and report on simple experiments,
- acquire knowledge from relevant literature and data sources,
- demonstrate basic understanding of the issues of safety, health and environment,
- demonstrate understanding of the concept of sustainability,
- demonstrate understanding of the basic concept of chemical product engineering,
- demonstrate knowledge of some practical applications of process and product engineering (through projects),
- analyse complex phenomena in a selected specialist field,
- show some experience in the use of relevant software and other advanced tools,
- carry out adequate planning and optimisation of processes and analyse process dynamics by applying scientific methods and procedures in a given specialised field,
- carry out economic evaluation of 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 progress to the 2nd year are the completion of all first-year course units (60 ECTS credits). Conditions for progress to the 3rd year are the completion of all second-year course units (60 ECTS credits).

Transitions

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

Condition for obtaining certificate

To complete their studies, students must complete all course units prescribed by the study programme.

Awarding body

Faculty of Chemistry and Chemical Technology, University of Maribor

URL

http://www.fkkt.um.si/en