



ÜSKÜDAR UNIVERSITY

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF OCCUPATIONAL HEALTH AND SAFETY

COURSE CONTENTS

1ST YEAR

FALL SEMESTER

ISG103 Basic Physics (2+0) 2 ECTS:3

Covers physical quantities, standards, units, motion, work and power, energy conversion, electricity, magnetic field, static field, radiation, and more.

ISG105 Basic Chemistry (2+0) 2 ECTS:3

Topics include basic concepts, the structure and properties of matter, introduction to atomic theory, stoichiometry, chemical bonds, gases, liquids, solids, solubility, solutions, chemical kinetics, chemical equilibrium, chemical thermodynamics, electrochemistry, and organic chemistry.

ISG107 Basic Biology (2+0) 2 ECTS:3

Introduction to cytology, the chemical structure of the cell, inorganic compounds, organic compounds, proteins, lipids, carbohydrates, nucleic acids, enzymes, vitamins.

ISG111 Introduction to Occupational Health and Safety (2+0) 2 ECTS:3

This course covers basic concepts related to occupational health and safety, factors affecting worker safety (physical, mechanical, chemical, biological, ergonomic), along with field trips to local factories to observe worker health practices.

RPSII09 Positive Psychology and Communication Skills (3+0) 3 ECTS:5

The course focuses on discovering and utilizing personal resources and values to achieve happiness and success. Topics such as meaningful living, gratitude, satisfaction, happiness, hope, optimism, personal development after trauma, and resilience are explored.

SBF141 Basic Anatomy and Physiology (3+0) 3 ECTS:4

Covers the logic and scientific processes, scientific attitude, the ability to conduct research, methods, and techniques used in anatomy and physiology, with a focus on understanding human health.

TURK101 Turkish Language-I (2+0) 2 ECTS:3

The course covers language and culture, the relationship between them, the place of Turkish in world languages, dialects, accents, writing rules, phonetics, and grammar.

ATA101 Atatürk's Principles and History of Revolution-I (2+0) 2 ECTS:3

Covers the characteristics of the Turkish Revolution, Ottoman reforms, the Turkish War of Independence, the proclamation of the Republic, Atatürk's reforms, and threats to these reforms.

ING101 English-I (3+0) 3 ECTS:3

Designed for beginners, this course helps develop basic language skills in English, with a focus on real-life dialogues and texts.

RKUL101 University Culture (0+2) 1 ECTS:1

Aims to enhance students' intellectual understanding through seminars and programs related to social, cultural, and political topics outside their primary curriculum.

1ST YEAR

SPRING SEMESTER

SBF112 Introduction to Law (2+0) 2 ECTS:3

Covers basic legal concepts, employment contracts, termination of employment, working hours, leaves, occupational health and safety, case studies, and judicial decisions.

ISG124 Hazard Identification and Risk Management (2+0) 3 ECTS:4

Introduces the concepts of hazard and risk, their differences, how to identify hazards, and risk management using basic matrix methods.

ISG122 Machinery and Equipment (3+0) 3 ECTS:4

This course provides an introduction to machinery, classifications of machine elements, gears, boilers, crushers, pumps, compressors, and safety measures.

ISG116 Accident Analysis (2+0) 2 ECTS:3

Focuses on preventing workplace accidents through analysis and record-keeping, accident prevention methods, and relevant legislation.

ISG142 Occupational Hygiene (3+0) 3 ECTS:5

Topics include industrial hygiene, chemical, biological, physical, and ergonomic hazards, hygiene measures, and related legislation.

TURK102 Turkish Language-II (2+0) 2 ECTS:3

Covers punctuation, composition writing, and effective oral communication.

ATA102 Atatürk's Principles and History of Revolution-II (2+0) 2 ECTS:3

Continuation of Turkish history, focusing on Atatürk's reforms and the establishment of modern Turkey.

ING102 English-II (3+0) 3 ECTS:3

Continuation of English-I, further developing language skills through practical applications.

RKUL102 University Culture (0+2) 1 ECTS:1

A continuation of the University Culture course, with additional seminars and intellectual discussions.

SBF150 Mathematics (3+0) 3 ECTS:4

Topics include numbers, functions, limits, derivatives, trigonometry, logarithms, integrals, and their applications.

2ND YEAR
FALL SEMESTER

SBF125 Biostatistics (2+0) 2 ECTS:3

Covers statistical methods used to collect, summarize, and analyze data, probability problems, and hypothesis testing.

ISG215 Occupational Health and Safety in Mining and Underground Structures (3+0) 3 ECTS:5

Introduces safety precautions in mining, gas explosions, fire safety, and personal protective equipment used in the mining sector.

ISG211 Fire Hazards and Fire Safety (3+0) 3 ECTS:5

Covers fire causes, fire safety regulations, building safety, firefighting systems, and hazardous materials.

ISG221 Reliability Engineering (3+0) 3 ECTS:5

Teaches reliability engineering fundamentals, reliability mathematics, and systems reliability analysis.

ISG219 Ergonomics (2+0) 3 ECTS:3

Focuses on ergonomics, its importance for productivity, workplace conditions, and preventing occupational diseases.

RPRE104 Entrepreneurship and Project Culture (2+0) 2 ECTS:3

A comprehensive course on implementing projects, problem-solving, and community service.

ISG257 Documentation and Controls in OHS (Elective) (2+0) 2 ECTS:3

Covers documentation processes related to occupational health and safety services.

2ND YEAR

SPRNG SEMESTER

ISG224 Occupational Health and Safety Legislation (3+0) 3 ECTS:4

This course covers international agreements, EU decisions, Turkish constitutional provisions related to occupational health and safety, as well as legal rights and responsibilities of employers and employees.

ISG216 Ventilation and Air Conditioning (3+0) 3 ECTS:3

Introduces various types of ventilation systems, humidity, temperature, and industrial air conditioning systems. It focuses on calculating air flow, clean air needs, and designing HVAC systems for industrial applications.

ISG232 Emergency Management (2+2) 3 ECTS:4

Covers the concept of disasters and emergencies, phases of disaster management, emergency planning, response procedures, training, and exercises.

ISG222 Engineering Economics (3+0) 3 ECTS:3

This course teaches students to analyze economic problems in engineering, compare alternatives based on profitability, and make decisions using economic methods.

ISG260 Physical Activity for Workers' Health (Elective) (3+0) 3 ECTS:5

Focuses on proactive measures to protect workers' health, including the relationship between physical activity, nutrition, and psychological well-being.

ISG256 Occupational Safety in Healthcare Institutions (Elective) (3+0) 3 ECTS:5

Aims to identify hazards and risks in healthcare institutions and ensure a safe working environment by following international and national OHS regulations.

ISG266 Computer-Aided Modeling of Major Accidents (Elective) (3+0) 3 ECTS:5

Covers the modeling of major industrial accidents and scenarios, focusing on sectors where such accidents are likely to occur.

ISG242 Summer Internship I (0+0) 0 ECTS: 5

Fieldwork experience in occupational health and safety practices, focusing on implementing and following OHS regulations and writing reports based on real-world observations.

ISG257 Documentation and Controls in OHS (Elective) (2+0) 2 ECTS:3

Covers all documentation and paperwork related to occupational health and safety services, focusing on legal processes and responsibilities.

3RD YEAR
FALL TERM

ISG357 Safety in Maintenance and Repair Work (3+0) 3 ECTS:5

Introduces the concepts of maintenance and safety management, predictive maintenance, preventive maintenance, planning, and computer-aided maintenance management.

ISG311 Electrical Hazards and Occupational Safety (3+0) 3 ECTS:5

Covers the structure and operation of electricity, electrical hazards, potential accidents, and safety precautions related to working with electricity.

ISG313 Chemical Factors in the Work Environment (3+0) 4 ECTS:4

Examines the hazards of chemicals, key inorganic and organic substances, radioactive materials, and protection methods, along with chemical risk assessment.

ISG307 Physical Factors in the Work Environment (3+0) 3 ECTS:4

Focuses on physical factors affecting workers' health, such as noise, vibration, temperature, and radiation, and the related occupational diseases.

ISG351 Hazardous Materials Transportation and ADR (2+0) 2 ECTS:3

Covers the definition, classification, and transportation of hazardous materials such as explosives, gases, flammable liquids and solids, oxidizing materials, toxic substances, and radioactive materials, along with safety measures and first aid.

ISG317 Psychosocial Risk Factors (2+0) 2 ECTS:3

Examines psychosocial risk factors that negatively impact health in the workplace, such as working conditions, stress, discrimination, and mobbing, and the role of teamwork and occupational psychologists.

ISG365 Sustainability in Environmental and Work Management (3+0) 3 ECTS:5

Focuses on sustainable practices in waste management and the integration of occupational health and safety practices in the workplace.

ISG309 Occupational Health and Safety Laboratory (0+4) 2 ECTS:3

This course allows students to use equipment for identifying physical, chemical, and

biological risk factors, and become familiar with personal protective equipment in a practical lab setting.

3RD YEAR

SPRING SEMESTER

SBF124 Environmental Health (2+0) 2 ECTS:3

Covers the history of environmental protection, pollutants, industrial waste, treatment and recycling facilities, and environmental pollution and control.

ISG326 Computer-Aided Technical Drawing (0+6) 3 ECTS:3

Introduces computer-aided design (CAD) and technical drawing principles, including basic commands, editing, and two-dimensional applications.

ISG332 OHS Applications (3+3) 5 ECTS:6

Students participate in technical visits to different sectors, learning about specific occupational health and safety applications, which they later present in the classroom.

ISG338 Risk Assessment Methods (3+0) 3 ECTS:5

Covers hazard and risk concepts, risk management, risk analysis processes, qualitative and quantitative risk analysis methods, and developing safety management plans.

ISG340 OHS Management Systems (2+0) 2 ECTS:3

Focuses on creating occupational health and safety policies, investigating work accidents, and safety management.

ISG342 Summer Internship II (0+0) 0 ECTS:5

A continuation of the summer fieldwork experience in occupational health and safety, with a focus on implementing and following OHS regulations and writing reports.

ISG362 Occupational Safety in Air and Sea Transport (Elective) (3+0) 3 ECTS:5

Covers the occupational health and safety challenges in the air and sea transport sectors, which are often excluded from typical regulations, and discusses proactive safety measures.

ISG348 Occupational Diseases (2+0) 2 ECTS:3

Focuses on identifying occupational diseases, the risk factors that cause them, preventive measures, and practices.

4TH YEAR

FALL SEMESTER

ISG425 Explosive Atmospheres and Hazards (3+0) 3 ECTS:4

This course covers preventing the formation of explosive atmospheres, using substitution methods, preventing the release of flammable substances, keeping concentration levels outside explosive limits, preventing ignition sources, and selecting equipment compatible with hazardous areas (ATEX-certified equipment). It also focuses on explosion-resistant designs and explosion suppression systems.

ISG431 Biological Agents in the Work Environment (3+0) 3 ECTS:4

Focuses on biological agents that affect workers' health, including microorganisms, viruses, fungi, and the diseases they cause. The course also covers measuring and evaluating these agents in the work environment, as well as prevention methods.

ISG435 Personal Protective Equipment (2+0) 2 ECTS:3

Covers the importance of working safely, general protective measures, and the use of equipment designed to protect sensory organs like eyes and ears, as well as the whole body. The course also reviews relevant legal regulations.

ISG437 Occupational Safety in Working at Heights (Elective) (2+2) 3 ECTS:4

Focuses on the hazards and risks associated with working at heights, particularly in industries like construction. It covers safety measures, worker training, personal protective equipment, and certification processes.

ISG453 Industry 4.0 and OHS 4.0 (Elective) (3+0) 3 ECTS:5

This course explores how Industry 4.0 and digital transformation can be integrated into occupational health and safety, focusing on ensuring proactive worker safety through human-machine cooperation.

ISG463 Occupational Safety in Welding Processes (Elective) (3+0) 3 ECTS:5

Covers the health and safety criteria in welding processes, identifying the hazards and risks of

different welding techniques, and promoting worker safety through training, awareness, and the use of personal protective equipment.

ISG423 Safety Culture (Elective) (3+0) 3 ECTS:5

Focuses on building a safety culture within workplaces, emphasizing management, individual, and collective participation in understanding and improving occupational health and safety practices.

4TH YEAR

SPRING SEMESTER

ISG428 Prevention of Major Industrial Accidents (2+0) 2 ECTS:3

Based on SEVESO directives, this course focuses on developing major industrial accident prevention plans. It covers process safety in industries, increasing reliability, and using computer-aided programs to model potential accidents for proactive safety measures.

ISG430 Occupational Safety in Logistics (2+0) 2 ECTS:3

This course addresses safety concerns in the logistics sector, including loading, unloading, transportation, and storage. It also focuses on specific regulations, employee training, and providing necessary protective equipment.

ISG404 Machine Safety (3+0) 3 ECTS:3

Focuses on the safety of machines and equipment, teaching students how to handle machine tools, measurement devices, safety equipment, and safety alarms. It also covers techniques for inspecting and controlling systems.

ISG436 Occupational Safety in Construction Works (3+0) 3 ECTS:4

Covers safety measures in construction activities, including excavation, scaffolding, the installation and removal of formwork, and the use of construction machinery. It also addresses occupational diseases and construction-related OHS regulations.

SBF462 Applied Field Course (Elective) (2+2) 3 ECTS:5

Aims to provide students with practical knowledge and a perspective on OHS criteria through discussions and case studies related to workplace accidents and sector-specific applications.

ISG466 Industrial Machines and Occupational Safety (Elective) (3+0) 3 ECTS:5

This course teaches students the OHS regulations and standards that must be followed during the design of industrial machines, focusing on designing equipment that complies with these requirements.

ISG438 Computer-Aided OHS Applications (2+2) 3 ECTS:3

Focuses on using computer software to store and archive occupational health and safety documents and records electronically.

ISG462 Scientific Research and Professional Ethics (3+0) 3 ECTS:5

Covers fundamental concepts in scientific research, the research process, measurement types,

validity, reliability, and various research methods. It also includes topics such as chi-square analysis, regression analysis, and hypothesis testing.