

T.C.
USKUDAR UNIVERSITY
HEALTH SCIENCE FACULTY
OCCUPATIONAL HEALTH & SAFETY DEPARTMENT

FIRST YEAR

I. TERM (FALL)

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

Physical quantities, Standards, Units, Movement, Work and power, Energy conversion, Electricity, Magnetic fields, Static fields, Radiation and etc.

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

Basic concepts, Structure and properties of materials, Introduction to atomic theory, Stoichiometry, Chemical bonding, Gases, liquids and solids, Resolutions, Solutions, Chemical kinetics, Chemical equilibrium, Chemical thermodynamics, Electrochemistry, Organic chemistry.

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

Introduction to Cytology, 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**

Basic concepts, Physical, mechanical, chemical, biological and ergonomic factors which effect Occupational health and safety. Also, trips to the surrounding factories are organized and observations are made about the Occupational health and safety on its place besides the theoretical studies in the classrooms.

RPSI109 Positive Psychology & Communication Skills **(3+0) 3 ECTS:5**

Description of positive psychology and basic concepts, Theoretical principles of positive psychology, Introduction to social cognitive neuroscience, Cerebral infrastructure of social behavior, Science of happiness, Practice of positive psychology, Emotional intelligence, Self awareness, Communication skills, Motivation and planning skills, Problem solving skills, Anger management, Relationship management, Resilience, Healthy decision making.

ISG109 Ergonomics **(2+0) 3 ECTS:3**

Definition and importance of ergonomics, The relationship between labor productivity and ergonomics, Human body, The physical conditions in the work environment, Regulating and control devices, Loading and strain, Work and rest periods, Work stress, Fatigue and weariness, Working energy and energy requirements of work, The relationship between ergonomics and

occupational health and safety, The relationship between ergonomics and occupational diseases, The relationship between ergonomics and work study, The relationship between ergonomics and quality control, Ergonomic design of workplaces, Ergonomic reviews of workplaces.

TURK101 Turkish Language I

(2+0) 2 ECTS:3

The definition of Language and Culture, The relationship between Language and Culture, The place and historical development of Turkish Language among world languages, What is dialect and accent? Spelling rules, Sounds and syllables, Vocabulary, Sentence formation, Sentence elements, Some diction features of Turkish.

ATA101 Ataturk's Reforms and the Turkish Revolution History

I (2+0) 2 ECTS:3

It includes knowing the features of Turkish Revolution and the similar concepts, the reforms realized by The Ottoman Empire before the Turkish Revolution, Turkish Independence War, the announcement of the republic, the importance of Ataturk's revolutions and the factors threatening them, the events, ideas and the principles in the process of the birth of modern Turkey.

ING101 English I

(3+0) 3 ECTS:3

This course is designed for beginners of English Learns and aims to develop basic language skills. With the help of different teaching techniques and exercises it helps the learns acquire the skills of listening, speaking, reading and writing. Learners, using the dialogues and texts used in real life situations learn the basic grammar, phrases and words. At the end of this course, learners are prepared to move from the beginner level to the pre-intermediate level of English.

RKUL101 University Culture

(0+2) 1 ECTS:1

This course of university students, social, cultural and political events related intellectual knowledge to have the general curriculum outside the multidisciplinary knowledge in the process of being open, critical and critical thinking and analytical acting ability that aims to give. Students also discussed in public outside their areas of science, technical, social, political and cultural issues in the field of people who are experts attending the seminar will have the ability to comment. Students to college life and joined the program during the seminar will be about 48-50. With this course students, recognizing the hardware unit is intended to gain qualifications needed on the use of information technology in every branch of office programs.

FIRST YEAR

II. TERM (SPRING)

SBF112 Introduction to Law

(2+0) 2 ECTS: 3

Basic information and definitions about law, Labor contracts, Cancellation of labor contracts, Working times, Permissions, Occupational health and safety, Case studies, Judicial decisions.

ISG124 Hazard Identification and Risk Management

(2+0) 3 AKTS:4

Definitions of Hazard and Risk, giving the differences. Finding the hazards and determine the risk, at home , at work. Obtaining awareness about the social life of the dangers and risks are transferred. Obtaining the most basic level of risk scores with the matrix method

ISG122 Machine and Equipment

(3+0) 3 ECTS:4

Definition of machine, Classification of machine elements, Connecting elements, Bearings and pulleys, Clutch shafts and axles, Gear wheels, Welding / solder / rivet / screw connections, Pins, Ovens, Steam boilers and their operations, Separating and sorting equipment, Crushers, Mixers, Drilling machines, Pumps, Compressors, Chimney filters, Transporting / lifting / pulling / pushing / digging / drilling / cutting / grinding machines and the introduction of all these tools, Hazards that may occur using all these tools and measures to be taken.

ISG116 Accident Analysis

(2+0) 2 AKTS:3

Learning to prevent to prevent occupational accidents likely to be encountered , take the necessary measures to avoid a further analyze the causes of accidents in workplaces and to have the necessary information for record-keeping. Related statistics, factors that play a role in the occurrence of accidents at work and methods for prevention, recording and notification of occupational accidents, inspection and regulation of the report, to be informed about the relevant legislation .

ISG118 Mathematics

(3+0) 3 ECTS:3

Numbers, Variables and functions, Number sequences and limits in functions, Continuity in functions, Derivatives and differential, Trigonometry and trigonometric functions, Exponential functions, Logarithms, Logarithmic functions, Hyperbolic functions, Applications of derivatives, Integration and its applications (area, volume, center of gravity, moment of inertia), Multivariable functions, Partial derivatives.

ISG120 Occupational Accidents and Professional Diseases

(2+0) 2 ECTS:2

Explaining occupational health and professional health dimensions, Examination of occupational accidents, Risk factors which lead to professional diseases, Measures to be taken against disease risks and applications.

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

Punctuation, Incoherency, Written composition, Oral composition, Oratory.

ATA102 Atatürk's Reforms and the Turkish Revolution History II (2+0) 2 ECTS:3

It includes knowing the features of Turkish Revolution and the similar concepts, the reforms realized by The Ottoman Empire before the Turkish Revolution, Turkish Independence War, the announcement of the republic, the importance of Ataturk's revolutions and the factors threatening them, the events, ideas and the principles in the process of the birth of modern Turkey.

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

This course is designed for beginners of English Learns and aims to develop basic language skills. With the help of different teaching techniques and exercises it helps the learns acquire the skills of listening, speaking, reading and writing. Learners, using the dialogues and texts used in real life situations learn the basic grammar, phrases and words. At the end of this course, learners are prepared to move from the beginner level to the pre-intermediate level of English.

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

This course of university students, social, cultural and political events related intellectual knowledge to have the general curriculum outside the multidisciplinary knowledge in the process of being open, critical and critical thinking and analytical acting ability that aims to give. Students also discussed in public outside their areas of science, technical, social, political and cultural issues in the field of people who are experts attending the seminar will have the ability to comment. Students to college life and joined the program during the seminar will be about 48-50.

SECOND YEAR**I. TERM (FALL)****SBF115 Biostatistics Application****(2+0) 2 ECTS:3**

Definition of statistics and basic concepts, Data types and methods of data collection, Arrangement and presentation of data, Measures of central tendency, Measures of dispersion, Probability theory and random variables, Estimation theory.

SBF122 Basic Anatomy and Physiology**(3+0) 3 ECTS:4**

This course contains the anatomy of the muscular, skeletal, cardiovascular, respiratory, digestive, excretory, urogenital, endocrine and the neurologic systems.

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

Machines used in underground mining and their features, Safety measures in underground mining (measures to be taken in the fortification; measures to be taken against transportation, air conditioning, dust and furnace dust; methane gas and dust explosions; mine fires; safety measures to be taken in power plants; drilling; blasting; dents in the underground mines; explosives; mining sector; personal protective equipment), machines used in over ground mining and their properties, safety measures to be taken in over ground mining (road, transportation and traffic measures in over ground mining; explosives; drilling; blasting; dents in the over ground mining; landslides; occupational health and safety measures in the marble quarries).

ISG217 The Hazards of Fire and Fire Safety (3+0) 4 ECTS:5

Fire definition and causes, Regulations about building protection from fire, Duties authority and responsibilities, Building usage classification, Building hazard classification, General fire safety for buildings, Building structural system stability, Partitions, roofs and facades, Fire partitions, Fire walls, Building materials, Escape routes, Escape ladders and special circumstances, Building department and facilities, Boilers, fuel tanks and stoves, Shelters, Parking areas, kitchens and roofs, Elevator, Lightning conductors, Transformers, Generators, Electrical equipment, Emergency lighting, Fire detection, Warning systems, Periodic testing, Maintenance and inspection, Smoke control, Air conditioning and ventilation systems, Pressurization systems, Fire extinguishing systems, Foam, gas and dry powder fire extinguisher systems, Storage and use of hazardous materials, Fire safety responsibility, Allowances and instruction.

ISG213 Safety Engineering (3+0) 3 AKTS:5

Traditional safety engineering techniques, discussion of responsibility assignment, Why we need something different, presentation of accident reports, Safety during operations, occupational safety. Basic concepts and definitions of safety engineering, Safety and maintenance activities, Basic safety calculations, Fundamentals of reliability, Safety tests and planning, Failure mode and effects analysis.

ISG251 Occupational Safety in Human-Machine Systems (Elective Course) (2+0) 2 ECTS:5

The definition and characteristics of ergonomic concept, Human-machine systems and their characteristics, Environmental factors, Lighting, noise, ambient temperature, vibration, hazardous substances, Fatigue concept and fatigue prevention techniques, Calculation of break

times, Business education concept, Monotony concept, Learning concept, Anthropometry concept.

ISG255 Occupational Safety Management And Organisation (2+0) 2 ECTS: 3

Learning forms of work organization and occupational safety services, audit and safety at work tasks that staff who work in OH&S units. OH&S Units and Joint OH&S and services offered here, and Workplace Health & Safety Specialist Physician duties, powers and responsibilities of the Occupational Health and Safety Committees, Worker Health and Safety Representative.

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

All within Occupational Health and Safety Services is aiming at addressing the paperwork and documentation works. Experts within the framework of responsibilities of serving legal process for their employers have different documentation & control systems. Giving the information about those documents and controls.

SECOND YEAR

II.TERM (SPRING)

ISG212 Training Skills (2+0) 2 ECTS:3

Creating positive educational atmosphere, Applying adult learning principles, Using communication techniques and audio-visual teaching tools, Implementing interactive training techniques, Using anatomical models in education, Gaining the presentation skills, Using evaluation tools etc.

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

International conventions on occupational health and safety, The European Union joint decisions, Constitutional provisions related to occupational health and safety, Laws, statutes and regulations related to the employee's social rights at working life, Responsibilities of employees and employers, The legal rights of employees suffered from working conditions, calculation of their disability values and compensations.

ISG216 Ventilation and Climatization (3+0) 3 ECTS:3

Ventilation types, moisture, temperature, relative humidity, air saturation, dry air, wet air, psychometry, Mollier diagram and its usage, Ventilation and climatization systems, The introduction of the materials used in climatization and ventilation and their capacity and power calculations, determination of comfort conditions with determining their clean air demand, Finding out the air change amount and rate, Calculating the heat gain and loss accounts in order

to determine the climatization plant's power and capacity, Industrial climatization systems and calculating capacity and power for the systems' materials, The channel cross-section calculations, Channels and fittings construction.

ISG226 Emergency Management

(2+2) 3 ECTS:4

Disaster and emergency concepts, Events generating disaster and emergency, Stages of the disaster management system, Emergency (crisis) and risk management concepts, Works to be done before, during and soon after the emergency, Creation of the emergency management system, Emergency policy and creation of the planning team, Examining the current legislations, Determination of the sources and the budget, Preparation of emergency plans, Emergency response procedures, Training, exercises and other activities, Sample emergency plans.

ISG222 Engineering Economics

(3+0) 3 AKTS:3

Basic concepts, Balance of cash flow, Time value of interest and money, Present value method, The annual equivalent method, Future value method, Internal rate of return method, External rate of return method, Evaluation of alternatives, Depreciation, Cash flow analysis after tax, The effects of inflation on cash flow, Breakeven analysis, Benefit-cost analysis, Renewal analysis.

ISG252 Exercises in Workers (Elective Course)

(3+0) 3 ECTS:5

Proactive precautions to protect the workers' health and safety, The relationship between exercises and nutrition, The relationship between exercises and psychological health, The relationship between exercises and physical health, Development of the pro-active protection policies.

THIRD CLASS

I.TERM (FALL)

ISG301 Worker's Safety in Maintenance-Repair

(3+0) 3 ECTS:5

Maintenance and occupational safety concept, Maintenance and safety management, Planned maintenance, Predictive maintenance, Preventive maintenance, Total productive maintenance, Maintenance planning principles, Maintenance scheduling principles, Computer aided maintenance management.

ISG303 Electrical Hazards and Occupational Safety

(3+0) 3 ECTS:5

The structure and functioning of the electricity, The usage of electricity, Electrical hazards, Possible work accidents, Occupational safety measures in electrical works, Electrical issues in occupational safety legislation.

ISG313 Chemical Factors in Working Environment

(3+0) 3 ECTS:4

Concepts and definitions that determine the hazards of chemicals, Important inorganic materials and their dangers, Important organic substances and their hazards, Radioactive substances and their hazards, Protection ways from chemicals, Risk assessment in chemicals.

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

Physical factors affecting the health of employees, Diseases caused by factors such as noise, vibration, heat and cold, pressure, radiation, measurement and evaluation of physical factors in the workplace, Protection ways from physical factors.

ISG309 Occupational health and safety laboratory (0+4) 2 AKTS:3

Occupational health and safety, especially the physical, chemical and biological risk factors identified in the used equipment and Personal Protective Equipment and materials, in order to recognize exactly by students, aimed to use as occupational health and safety practices in the laboratory.

RPRG104 Entrepreneurship and Project Culture (2+0) 2 ECTS:3

What is project?, What is project culture?, Why a project is prepared?, LDV project, Erasmus project, Grundtvig project, Tubitak projects, Writing a project proposal, Finding a project partners and its distribution, Preparation of project budget, Writing up the project mid-reports, Writing a project sample.

ISG351 Hazardous Substances, ADR (Elective Course) (2+0) 2 ECTS:3

The definition and classification of hazardous substances, Explosives, Gases, dusts, Flammable liquids, Flammable solids, Oxidizing substances, Toxic and disgusting agents, Radioactive materials, Etchant substances, Other hazardous materials, Dangerousness properties of the substances, Measures to be taken, Control methods, First aid, Selection usage and preparation of tools, equipment, materials and protective equipment.

ISG355 OHS in Welding (Selective Course) (2+0) 2 AKTS:3

Determination of Occupational Health and Safety criteria in Welding Works, resource types, revealing the dangers and risks of different operations, necessary for running awareness and safety culture, transferring the required use of training and personal protective.

THIRD CLASS

II.TERM (SPRING)

ISG330 OHS Management Systems (2+0) 2 ECTS:4

OHS management, Creation of OHS policy, Planning studies in the field of OHS, Investigating and re-measuring work accidents and incidents, Accident analysis methods, Field inspections.

ISG328 Risk Assessment Methodologies (3+0) 3 AKTS:5

Hazard and risk concepts, Risk management, Risk analysis process, The theoretical basis of risk analysis, Uncertainty and variability in risk analysis, Hazard identification and Risk analysis methods (qualitative and quantitative methods), Risk assessment, Risk perception and communication, Control and monitoring, The investigation and recording process of the accidents in the workplace, The development of safety management plans.

ISG332 OHS Practices (3+3) 5 AKTS:6

Including the different sectors of services, the study of requirements in different fields and engineering services aimed at meeting students from different work areas, the period of performance of sectoral technical visit in great shape by groups and service details are executed as making presentations in class at learned in the field.

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

Introduction to Computer aided technical drawing, General introduction and advantages of computer aided drawing (CAD), Introduction to the current computer aided drawing programs, Drawing basic geometric elements with basic drawing commands by using CAD program, File operations, Editing operations, Drawing operations, Dimensioning operations, writing operations, Creating layers process, Making the editing screen operations, Two-dimensional practices, Receiving the drawing outputs, Introduction to three dimensions and making practices.

ISG324 Environmental Health and Safety (2+0) 2 AKTS:3

A brief history of environmental protection, Environmental pollution factors, The definition and classification of solid and liquid waste, Industrial waste, purifying and recycling facilities, Atmospheric pollution, Environmental pollution and its control, Environmental health and its efficient factors, Workplace environmental factors (chemical, physical, biological), Physical environmental factors (water pollution, air pollution, waste, radiation), Social environment.

ISG352 Occupational Hygiene (Selective Course) (2+0) 2 AKTS:3

Hygiene definition, Product hygiene, Occupational hygiene and its purposes, Industrial hygiene issues, Responsibilities of OHS specialists and workplace physicians, Occupational hygiene in the legislation, Occupational hygiene program steps, Environment hygiene, Chemical, biological, physical and ergonomic hazards and their assessments, measurement and control methods, Hygiene measures, hygiene measures for the physical factors, Hygiene measures for

biological factors, Measures to be taken in the laboratory, Occupational diseases due to physical factors, Occupational diseases due to biological factors, Legislation related to occupational hygiene.

ISG354 OHS for Aerospace & Maritime Workers (Selective Course) (2+0) 2 AKTS:3

As a special era, aerospace & maritime workers have their own OHS Conditions both in working places & in legislation condition including extremes in terms of taking measures under the proactive approach and be subjected to a risk assessment

FOURTH YEAR

I.TERM (FALL)

ISG413 Graduation Project I (2+3) 3 AKTS:5

Examination of the thesis or paper samples, Determining different research issues with students, Planning research about specific topics, Discussion of related research applications, Reporting research.

ISG415 Explosive Atmospheres and Their Hazards (3+0) 3 AKTS:4

Definition and chemistry of explosion, Classification of the danger zone, Flammable substances, Lower/Upper explosion limit, Explosion regions, Evaluation of explosion risk, Measures to be taken against explosion, Explosion prevention document, Preventing the spread of the explosion, Proper equipment selection.

ISG417 Biological Factors in Working Environment (2+0) 3 ECTS:4

Biological factors affecting the health of employees, Microorganisms, microbes, viruses, ricketzias and fungi, diseases created by them, Measurement and evaluation of biological factors in the work environment, Protection methods from biological factors.

ISG419 Personal Protective Equipment (2+0) 3 ECTS:4

The importance of safe working, General protection measures and protective equipments, Equipment using for protecting sense organs such as eyes, ears and physical integrity, Legal basis.

ISG421 Psychosocial Risk Factors (2+0) 3 ECTS:3

Psychosocial risk factors affecting adversely health in the workplace, Working environment, Working time and costs, Factors related to managerial and workers, Unionization, Pregnant and nursing workers, Young workers, Mobbing, Stress, Discrimination, Oppression, Business units that has high exposure to psychosocial risk factors, Importance of teamwork and business psychologist in the protection of workers' mental and physical health, The relevant legislation.

ISG453 Industrial Hygiene and Toxicology (Elective Course) (2+0) 2 ECTS:5

Unhealthy risk factors encountered in the work environment, Hygiene problems in the work environment, Protection methods, Legislation related to occupational hygiene, Occupational diseases linked with physical factors, Occupational diseases linked with environmental factors, Occupational diseases linked with chemical factors, Occupational diseases linked with biological factors, Ventilation principles.

FOURTH YEAR

II.TERM (SPRING)

ISG420 Graduation Project II (2+3) 3 ECTS:5

Examination of the thesis or paper samples, Determining different research issues with students, Planning research about specific topics, Discussion of related research applications, Reporting research.

ISG422 Crisis Management (2+0) 3 AKTS:3

Time concept, Time types, Time traps, Time management methods, Meeting concept, Meeting types, Meeting management strategies, Applications about Occupational Health and Safety meetings.

ISG424 Security Audit and Control Systems (3+0) 3 ECTS:3

Workshop environment, Tool bags, control and screw tightening tools, Measuring instruments, Basic cutting equipment, Equipment related to occupational safety, Other useful hand and power tools, Security alarm circuit elements, Fire alarm circuit elements, Signal cables, Fire cables and Fire detection systems.

ISG426 Occupational Health and Safety in Constructional Work (3+0) 3 ECTS:4

Safety measures to be taken in the constructional works, Safety measures to be taken in the excavation, Safety measures to be taken in the scaffolding and ladders, Safety measures to be taken in making and dismantling reinforced concrete mold, Safety measures to be taken on the stairs, Safety measures to be taken in the demolition, Safety measures to be taken in the machinery and equipment used in construction work, OHS rules in opened and closed areas, Occupational diseases in construction, The difference in overall OHS and OHS about construction works, Storing responsibility of the records in construction sites, Determining costs of occupational accidents in construction sites.

ISG428 Prevention of Great Industrial Accidents (2+0) 3 AKTS:3

Seveso directive within the context of Major Industrial Accidents Prevention Plan in line with European Union harmonization framework is intended to do. Process safety in the industry constitutes an important place in our country. Even that may be too small accidents will create a huge impact on many of our major industrial facility and are intended to be at the maximum level of their security. Ensuring process safety in this context, increasing and computers may crash to take proactive measures, including methods of reliability modeling and supported programs are expected to eliminate the vulnerability.

ISG430 OHS in Logistics

(2+0) 2 AKTS:3

According to globalization, growing importance of logistics in the industry, loading, unloading, product storage and provision of information relating to road safety. Determination of safety criteria within the framework of safety legislation with the transport conditions requiring special legislation in this regard, the provision of staff training and the necessary protective equipment.

**ISG412 Occupational Safety at The Design of Work Equipment (Selective Course)
(2+0) 2 ECTS:5**

Minimum requirements in terms of health and safety about using work equipment, Their applications, The design stage of work equipment, Significant criteria about manufacturing work equipment, Final inspection, Setup stage.

ISG454 Industrial Machines and Occupational Safety (Selective Course) (2+2) 2 ECTS:5

The definition of industrial machine, Industrial machine types (Press, CNC machines, Electrical hand tools, Welding machines, etc.), Safety measures to be taken during the design of industrial machines, Safety measures to be taken in using industrial machines, Selection of appropriate equipment.