MINISTRY OF SCIENCE & EDUCATION REPUBLIC OF AZERBAIJAN

Azerbaijan Architecture and Construction University
Master's Center

"Safe workplaces - OSH in virtual teams"
Discipline
Education program
(syllabus)

Specialty*(code and name)*	**02_WORK4CE**
1. Information about discipline	
Name of discipline	**"Safe workplaces - OSH in virtual teams"**
Academic language	*English*
Academic year	*2024*
Semestr	*Sping*
Type of education	*Full time*
Educational stage	*Master*
Group	
Educational load	*30 hours*
Subject's teaching days	*Wednesday*
Number of training weeks	*15*
Lecture-hall	*№401, I branch*
2. Information about lecturer	
Lecturer	***Senior Lecturer Famil Mammadov***
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Baku – 2024

I. Course Prescription

Digitalisation offers the potential for innovative and exciting developments in the workplace, but also presents new challenges. By anticipating the potential challenges for occupational safety and health (OSH), we can maximize the benefits of such new technologies, while ensuring that working environments are safe. Digitalisation, if properly managed, has the potential to minimize occupational dangers while also providing new chances to improve working conditions. Artificial intelligence (AI), sophisticated robots, broad connectivity, the internet of things and big data, wearables, mobile devices, and online platforms are all transforming the nature and location of work, as well as who works when and how work is organized and managed. All areas of our business and society increasingly rely on digital technologies for crucial services. OSH and its management may face new challenges as a result of these changes. These changes are occurring at a faster rate than they have ever been previously.

Robots are getting more mobile, intelligent, and cooperative. Intelligent machines are taking over a wide range of duties that were formerly performed by people, including both manual and cognitive tasks.

Surveillance technology and algorithms are rapidly being used to monitor workers, to the point where they may be governed by intelligent computers in the future. The 24/7 worldwide interconnected economy requires ever more flexible work organization, which has resulted in the emergence of new forms of employment, such as online platform work. Psychosocial and organizational risk factors demand special attention in this context, as they may contribute to higher levels of work-related stress and poor mental health. New safety and ergonomic concerns are also emerging, such as functional safety risks linked to cybersecurity. Last but not least, the application of OSH regulations is challenged by digital technology and new types of labor.

Beyond the transition to I4.0 is the fact that there are growing, fragmented, distributed but interconnected networks of collaboration. And this distributed network is increasing the possibilities of accidents and occupational risks by increasing jobs, decreasing corporate monitoring of OHS and/or policy-based regulations. According to this, it is necessary to take care of the OHS in this new and changing environment if we want to avoid playing the game of failure, for which it is necessary then to think of alternatives of organization, of technological integration, of worker's scope and/or to approach systemically and considering its complexity the integrated system of an organization that wants to take care of its OHS.

The digitization offers the potential for innovative and exciting developments in the workplace, but this is accompanied by new challenges. A clear benefit is that, by anticipating potential challenges to occupational safety and health (OSH), we can maximize the benefits of these new technologies, while ensuring safe working environments. If managed well, digitization can reduce occupational risks and create new opportunities to improve working conditions.

The European Agency for Safety and Health at Work (EU-OSHA) offers some specific technologies that is related to digital era and moder OHS:

- The development of collaborative intelligent robots
- Research and development of exoskeletons for the protection of workers

- Research and development of Big Data, Artificial Intelligence and Algorithms
- The development of intelligent protective equipment
- Applications with augmented and virtual reality
- Additive manufacturing (related to 3D printing)
- The development of online platforms

There are some important difficulties related to the selection of high-risk inspection objects using Big Data and Machine Learning, however, the usefulness of these techniques within a risk-based approach is not in any way diminished. These difficulties may be related to the emergence of new risks that "green" tools may bring when incorporated into the Labour Risk Prevention (LRP) ecosystem.

In addition, according to the digitization of companies dedicated to occupation risk prevention must consider the following key aspects:

Wearables and connected worker technologies.
Data science and analysis platforms.
Augmented or virtual reality and simulations for digital training.
Stress control and reduction technologies and employee well-being.
The management of occupational risk prevention is affected by a wide range of factors. The following are some of the approaches that may be relevant to understanding how prevention implementation, planning, follow-up and monitoring have been managed so far.

Participants of this module will consider traditional & modern occupational health and safety philosophies for effective control and health protection purposes, and evaluate risk management systems for specific workplace environments in the digital era.

II. Overall Learning Outcome:

2.1. Upon completion of the course the student will know and learn:

- traditional OSH rules & standards
- human factor in occupational health and safety
- digital and sociotechnical transformation of work
- ethical issues of digitalization in work places
- productivity and well-being in digitalized work
- managing organizations in digital transformation
- co-developing sustainable organizational practices
- co-creating a human centered working culture
- enhancing competencies in digital work
- improving cognitive ergonomics at work

2.2 Knowledge:

- Understanding the fundamental concepts of digital business ecosystems.
- Familiarity with the key technologies and trends shaping digital business environments.
- Knowledge of the role of data analytics, artificial intelligence, and digital marketing in business ecosystems.
- Awareness of legal and ethical considerations in digital business.

2.3 Skills:

1. **Technical Knowledge:**
   - Understanding of occupational health and safety principles, regulations, and best practices.
   - Knowledge of industrial hygiene, ergonomics, safety engineering, and risk management.
2. **Risk Assessment and Management:**
   - Ability to identify workplace hazards and assess associated risks.
   - Competence in developing and implementing risk management strategies.
3. **Emergency Preparedness and Response:**
   - Skill in developing emergency response plans and procedures.
   - Ability to coordinate and manage emergency drills and responses effectively.
4. **Auditing and Inspection:**
   - Experience in conducting health and safety audits and inspections.
   - Competency in identifying compliance issues and recommending corrective actions.
5. **Accident Investigation and Analysis:**
   - Proficiency in conducting thorough investigations into workplace incidents.
   - Analytical skills to determine root causes and recommend preventive measures.
6. **Training and Education:**
   - Capability to design and deliver OSH training programs.
   - Communication skills to effectively educate employees at all levels on safety procedures.
7. **Data Analysis and Reporting:**
   - Ability to collect, analyze, and interpret health and safety data.
   - Skills in preparing reports and presenting findings to management and regulatory agencies.
8. **Communication and Interpersonal Skills:**
   - Strong verbal and written communication skills.
   - Ability to collaborate effectively with colleagues, management, and external stakeholders.
9. **Problem-Solving and Decision-Making:**
   - Critical thinking skills to assess situations and make informed decisions.
   - Problem-solving ability to address complex OSH challenges and implement solutions.
10. **Leadership and Teamwork:**
    - Leadership qualities to inspire a culture of safety and compliance.
    - Experience in working collaboratively within teams and across departments.
11. **Adaptability and Continuous Learning:**
    - Flexibility to adapt to changing regulations, technologies, and workplace environments.
    - Commitment to ongoing professional development and staying updated with industry trends.

2.4 General competencies:

- **Health and safety policy development.** The OSH professional will be able to develop an OSH policy that is consistent with the business strategy, drivers and culture and that supports productivity and success.
- **Principles of health and safety and other legislative frameworks.** OSH professional's will be able to interpret and comply with laws and regulations that govern their organisations' operations.
- **Health and safety auditing.** The professional will decide what kind of audit is required, its effective implementation and its use as part of a monitoring strategy
- **Performance management**. Individuals will be able to interpret data to evaluate OSH performance, monitor the integrity and effectiveness of controls and evaluate the factors affecting performance and identify areas for improvement.
- **OSH management systems.** Graduates will be able to work collaboratively with stakeholders to build an organisational structure, plan activities, assign responsibilities, develop safe working practices and implement management procedures
- **Managing digital changes.** The OSH professional will be able to handle modern & digital changes. They will be able to collaborate in virtual teams. Can focus on automated industry and robotics related to OSH

III. Plan of lectures, subject matter and training schedule

№	Date	The topic of lecture and code of literature	Auditorium Hours
1	2	3	4
1	21.02.2024 28.02.2024	**Introduction to Occupational Health and Safety (OHS)** - Definition of OHS and its importance in modern workplaces. - Historical context and evolution of OHS regulations and practices. - Overview of key stakeholders and their roles in promoting workplace safety.	4
2	06.03.2024	Topic 2: **Ergonomics in Home Workspaces** - Proper desk setup - Ergonomic chairs and accessories - Preventing repetitive strain injuries	2
3	13.03.2024 20.03.2024	Topic 3: **Mental Health and Well-being** - Stress management techniques - Maintaining work-life balance - Resources for mental health support	4

		• Case examples of effective risk management strategies and their impact on workplace safety.	
4	27.03.2024 03.04.2024	Topic 4: **Communication and Collaboration Tools** • Safe usage of communication platforms • Ensuring data privacy and security • Best practices for effective virtual meetings	4
5	10.04.2024	Topic 5: **Risk Assessment and Management** • Identifying hazards in a virtual environment • Conducting virtual risk assessments • Implementing risk control measures	2
6	17.04.2024 24.04.2024	Topic 6: **Workplace Policies and Procedures** • Developing OSH policies for remote work • Emergency procedures for virtual teams • Ensuring compliance with legal requirements	4
7	01.05.2024	Topic 7: **Training and Education** • Providing OSH training for virtual employees • Regular updates and refresher courses • Utilizing online training resources	2
8	8.05.2024 15.05.2024	Topic 8: **Monitoring and Reporting** • Tracking health and safety metrics • Incident reporting procedures • Tools for remote monitoring of OSH compliance	4
9	22.05.2024 29.05.2024	Topic 9: **Future Trends in OSH for Virtual Teams** • Emerging technologies and their impact • Adapting to new OSH challenges • Continuous improvement and innovation in virtual OSH	4
		Total	**30**

IV. Coursework and their features

There is no coursework in the subject program.

V. Free work

Topics for free work of students.

In the learning process, students' knowledge of the subject is assessed by oral or written answers to theoretical questions posed by the subject teacher during lectures and lessons, as well as an oral examination on the ability to apply the knowledge in practical issues. Tests and discussions are organized by the teacher of the subject in order to check the quality of assimilation. The topics of free work performed by students are given by the teacher who teaches the subject, and may include the following topics:

□ **Introduction to Free Work**

- Definition of free work, including freelance work, entrepreneurship, and self-employment.
- Historical background and evolution of the gig economy and freelance market.
- Overview of the benefits and challenges of free work compared to traditional employment.

□ **Legal and Financial Considerations**

- Legal frameworks and regulations relevant to freelancers and entrepreneurs.
- Tax obligations and financial planning for self-employed individuals.
- Contracts, intellectual property rights, and liability issues in free work.

□ **Building a Personal Brand**

- Importance of personal branding in free work.
- Developing a unique value proposition and defining target markets.
- Strategies for promoting and marketing services or products effectively.

□ **Business Planning and Management**

- Fundamentals of business planning: mission, vision, and goals.
- Creating a business plan tailored to freelance or entrepreneurial ventures.
- Basics of financial management, budgeting, and cash flow forecasting.

□ **Client and Customer Relations**

- Techniques for acquiring and retaining clients or customers.
- Negotiation skills and setting competitive pricing.
- Providing excellent customer service and managing client expectations.

□ **Digital Tools and Technology**

- Overview of essential tools and platforms for freelancers and entrepreneurs.
- Utilizing social media and digital marketing strategies to enhance visibility.
- Project management and collaboration tools for remote work environments.

Networking and Collaboration

- Importance of networking in free work: building connections and relationships.
- Collaborative opportunities within freelance communities and professional networks.
- Strategies for establishing partnerships and collaborations to expand business opportunities.

 Work-Life Balance and Well-being

- Challenges of work-life balance in free work and strategies for managing them.
- Stress management techniques and maintaining mental well-being.
- Creating effective routines and boundaries to optimize productivity and health.

 Future Trends and Adaptability

- Emerging trends in free work and the gig economy.
- Skills development and lifelong learning in a rapidly evolving work landscape.
- Adapting to technological advancements and market changes in free work.

VI. assessment

Student's final score is calculated by the maximum 100 points.
Of these, the student earns 50 points during the semester and 50 points in the exam.

50 points scored during the semester include:
• for the duration of the course - 10 points;
• free works - 10 points;
• According to the results of classes - 30 points.
50 points scored before the exam in the semester include:
• for the attendance of the course - 10 points;
• according to the results of seminars - 30 points;
• for free works (1 point for one free work) - 10 points;

The number of points scored by the student in the exam must be at least 17.
Student knowledge is evaluated in accordance with the European credit transfer system (ECTS) in accordance with the following table:

91 –100 points	A	Excellent
81 – 90 points	B	Very good
71 – 80 points	C	Good
61 – 70 points	D	Enough
51 – 60 points	E	Satisfactory
Less then 51	F	Insufficient

Violation of the rules of conduct. The student must be attentive and active in the educational process, must observe hygiene and should be engaged only in the training of the course. It is necessary to observe ethical standards accepted in society and legal norms existing in our country. If a student violates the rules of disciplinary action, he / she will be punished in the manner prescribed by the University Regulation.

VII. Teaching materials
7.1. Recommended literature

1. "Occupational Health and Safety" by Stellman JM and Daum KM
2. "Occupational Health and Safety Management: A Practical Approach" by Charles D. Reese
3. "Principles of Occupational Health and Hygiene" by Kerry Gardiner
4. "Fundamentals of Occupational Safety and Health" by Mark Friend and James Kohn
5. "The Safety Management Handbook" by Bernard C. Robertson
6. "Occupational Health and Safety Law Handbook" by Melissa A. Bailey and Matthew C. Cooper
7. "ISO 45001: Occupational Health and Safety Management Systems: A Complete Implementation Guide" by Jeanne Moldenhauer
8. "Risk Management in Occupational Health and Safety" by Sebastiano Bagnara and Riccardo Tartaglia
9. "Hazard Identification Methods in Occupational Safety and Health" by Faisal Manzoor Arain
10. "Digital Transformation in Occupational Safety and Health: A Critical Review" by Arun K. Bansiwal and Muhammad Bilal
11. "Digital Transformation in Occupational Health and Safety" by Andrew Sharman
12. "Virtual Work and Human Interaction Research" by Alexander Richter and C. Shawn Burke
13. "Occupational Health Psychology: Work, Stress, and Health" by Irvin S. Schonfeld and Renzo Bianchi

VIII. It is planned to conduct written exam on the subject
Note: 1. Exams correspond to the curriculum of the subject (syllabus);
2. The number and content of exams can be changed by the subject teacher before the exam in accordance with the curriculum of the subject.

IX. Training plan of discipline
In the academic calendar, the course schedule is organized in accordance with the academic schedule of the university.

X. Studying students' views on the subject (comments and suggestions)
This employee training plan (syllabus) is in accordance with the State Standard for the Master's level Education Program of Azerbaijan Republic.

This employee training plan (syllabus) for the subject was discussed and approved at the meeting of the "Master's Center" on February 2024, protocol №_____.

Date of meeting "16" February 2024

Senior Lecturer / MSc, Famil Mammadov_____