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MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
National Aviation University
Educational and Research Humanities Institute
Foreign Languages and Applied Linguistics Department

APPROVED
Acting Rector

_____
"___" _____ 2017

Quality Management System

SYLLABUS

on

"Foreign Language for Specific Purpose"

Field of study: 19 "Architecture and Construction"
Speciality: 192 "Building and Civil Engineering"
Specialization: "Industrial and Civil Engineering"

Year of Study – 2nd, 3rd

Semester – 3rd, 4th, 5th, 6th

Classroom Sessions – 153
Self-study – 147
Total (hours/ ECTS credits) – 300/10

Graded Test – 3rd, 4th, 5th, 6th semester

Index CB-5-192/16-3.1

QMS NAU S 12.01.04–01-2017

The Syllabus on "Foreign Language for Specific Purpose" is based on the educational and professional program and Bachelor Curriculum № СВ-5-192/16 for Speciality 192 "Building and Civil Engineering", Specialization "Industrial and Civil Engineering" and correspondent normative documents.

Developed by
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of the Department of Foreign Languages
and Applied Linguistics _____ L. Konoplianyk

Discussed and approved by the Department of Foreign Languages and Applied Linguistics, Minutes № ____ of "____" _____ 2017.

Head of the Department _____ O. Shostak

Discussed and approved by the Graduate Department for the Speciality 192 "Building and Civil Engineering" and Specialization "Industrial and Civil Engineering" – Department for Computer Technologies of Construction, Minutes № ___ of "___"_____2017.

Head of the Department _____ O. Lapenko

Discussed and approved by the Scientific-Methodological-Editorial Board of the Educational and Research Humanities Institute, Minutes № ___ of "___"_____2017.

Head of SMEB _____ S. Yahodzinskyi

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_____ A. Gudmanian
"____" _____ 2017.

Director of the Center
of Advanced Technologies

_____ V. Kazak
"_____" _____ 2017.

Document level – 3b
The planned term between the revisions – 1 year
Master copy

1. EXPLANATORY NOTES

The Syllabus on the subject "Foreign Language for Specific Purpose" is developed on the basis of "Methodical instructions for development and preparation of a syllabus and a course training program of subjects" adopted on 16.06.2015 by №37/order.

Teaching English is of great importance in the higher educational system of Ukraine. Being directed on communication and linked with social and special subjects the subject "Foreign Language for Specific Purpose" makes significant contribution into the education of young people.

Learning profession-oriented foreign language is an integral part of students' preparing for the transition from learning a foreign language as a subject to its practical use for the professional purpose.

The objective of teaching "Foreign Language for Specific Purpose" for students of the speciality 192 "Building and Civil Engineering" is step-by-step formation of the main components of students' professional foreign language competence, namely:

• *linguistic competence*: development and improvement of basic knowledge of the phonetic, lexical, grammatical and spelling system of a foreign language and the ability to apply them skillfully in the production of their own utterances;

• *communicative competence*: improvement of speaking skills (monologue and dialogue speech), listening, reading and writing (writing of different types of written assignments to the topics of modules); the ability to use the linguistic material to achieve communicative, informative, cognitive and other goals;

• *sociolinguistic competence*: the ability to understand, choose and use language forms that are in line with the context of foreign communication, and transform them according to the needs;

• *sociocultural competence*: knowledge of the peculiarities of foreign-language professional communication in the field of construction, development of the ability to build the speech behaviour in accordance with the sociocultural specific character of the country the language of which students study;

• *strategic competence*: the ability to participate in foreign language communication, choosing the proper strategy of discourse, as well as an adequate strategy for improving the effectiveness of this communication;

• *professional competence*: the ability to set and solve applied professional tasks by means of a foreign language according to up-to-date professional requirements; the ability to continuous self-education and self-development.

The tasks of mastering the subject are the following:

– to learn professional terminology and everyday English words;

– to be able to comprehend the content of the original scientific texts and profession-oriented technical texts, obtain the necessary information from them, interpret and translate in the process of learning;

– to understand recorded and live foreign speech;

– to be able to communicate within the learnt topic in the form of monologue, dialogue and polylogue speech.

After studying the subject "Foreign Language for Specific Purpose" the student has to:

Know:

– basic professional terminology;
– main grammar and lexical features of translation of technical literature;
– main rules of handling scientific and technical literature;
– word-building morphemes and models, particularly in the area of terminology building;
– main grammar structures, correlation of their forms and meanings;
– linguistic clichés typical for scientific and technical literature.

Be able:

– to read and comprehend the authentic literature, including literature on the specialty, to obtain the necessary information;
– to participate in discussion;
– to understand oral speech on the basis of the learnt material;
– to make reports on professional and social and political topics and the topics defined by this syllabus;
– to render information obtained while reading both in foreign and native languages (in oral and written forms);
– to analyze grammar structures and correlate their forms and their meanings while reading and translating texts.

The teaching material of the subject is structured in a modular manner and consists of four training modules, including:

– training **module №1 "Types of Buildings and Engineering Structures",**
– training **module №2 "Airports: Buildings and Structures, Airfields",**
– training **module №3 "Stages of a Construction Process. Construction Machinery",**
– training **module №4 "Building Code. World-famous Buildings and Engineering Structures"**, which are logically complete, relatively independent, integral part of the curriculum, learning of which provides for the module test and the analysis of its implementation.

The subject "Foreign Language for Specific Purpose" is based on the knowledge of the following subjects: "Foreign Language", "Physics", "Theoretical Mechanics", "Introduction of Civil Engineering", "Structural Mechanics", "Civil Engineering Materials", "Engineering Geodesy (General Course)", "Architecture of Buildings and Structures", "Building Technical Equipment", "Production Base of Civil Engineering".

2. SUBJECT CONTENT

2.1. Module №1 "Types of Buildings and Engineering Structures".

Topic 2.1.1. Types of Buildings.

Classification of buildings according to their function; purpose (residential, non-residential, industrial, commercial and public buildings) and construction technology.

Topic 2.1.2. Residential Buildings.

The concept of residential buildings. Types of residential buildings (single-family home, detached houses, high rises, terraced houses etc.)

Topic 2.1.3. Types of Public Buildings.

The concept of public buildings. The buildings for educational institutions, sports and health buildings and installations, buildings for health care and rest, religious buildings; transport buildings and structures.

Topic 2.1.4. Types of Industrial Buildings.

The concept of industrial buildings. Types of industrial buildings: plants, factories, mines, hangars, exhibition halls, warehouses.

Topic 2.1.5. Commercial Buildings.

The concept of industrial buildings. Types of commercial buildings: skyscrapers, shopping malls, hotels, supermarkets, stock exchanges and others.

Topic 2.1.6. Skyscrapers.

The concept of a skyscraper. Construction of a skyscraper. Structural elements of skyscrapers. World-famous skyscrapers. Skyscrapers located in Kyiv, Ukraine.

Topic 2.1.7. Types of Building by the Building Material for Walls.

Stone buildings, metal-stud buildings, timber-framed buildings and combined buildings (made of brick, concrete and reinforced concrete, steel and timber), concrete block buildings, prefabricated (manufactured) buildings.

Topic 2.1.8. Construction of Bridges.

The concept of bridges and their purpose. The main elements of bridges: spans, abutments, piers, deck.

Topic 2.1.9. Types of Bridges.

Classification of bridges by the purpose (highway bridges, railway bridges and pedestrian bridges), construction of the superstructure (beam bridges, arch bridges, cable-stayed bridges, suspension bridges, cantilever bridges, movable bridges), material (wooden, stone, concrete, reinforced concrete bridges).

Topic 2.1.10. World-famous Bridges. Bridges in Ukraine.

Brooklyn bridge, Tower Bridge, Golden Gate Bridge in San Francisco, Akashi-Kaikyo Bridge. Bridges of Ukraine (Southern bridge, Paton bridge, Moscow bridge, Metro bridge, Park pedestrian bridge and others).

Topic 2.1.11. Road Design.

Types of roads. The main elements of roads (roadbed and paving). Requirements to building materials for paveming and base. History of road construction. Modern roads and stages of their construction.

Topic 2.1.12. Design of Highways, City roads and Streets.

Modern highways. Pecularities of designing highways. The role of highways in the transport network.

Topic 2.1.13. Technology of Highway Construction.

General information about the roadbed and the influence of various factors on it. Preparatory works for the construction of the roadbed. Planning of the roadbed, construction of road bases.

Topic 2.1.14. Tunnels.

General information and classification of tunnels. Tunnel designing. Methods of tunneling. Types of tunnels: railway tunnels, vehicular (road) tunnels, subways, navigable tunnels, hydroengineering tunnels.

Topic 2.1.15. World-famous Tunnels. Tunnels in Ukraine.

Channel Tunnel (construction history and present condition of the tunnel). the Seikan Tunnel, the Laerdal Tunnel. Tunnels in Ukraine.

2.2. Module № 2 "Airports: Buildings and Structures, Airfields".

Topic 2.2.1. The Design of a Modern Airport: Main Buildings and Structures.

The structure of modern airports. Main buildings and structures of airports: passenger terminal, control tower, hangar,and cargo terminal. Functions of the main buildings and structures of airports.

Topic 2.2.2. Passenger Terminal.

Passenger terminal, its purpose and functions. Basic configurations (concepts) of passenger terminals: pier finger terminals, linear terminal, remote satellite terminals, transporter terminal, mobile lounge terminal. Terminal D of Boryspil airport.

Topic 2.2.3. Main Elements of the Passenger Terminal.

Check-in desk, passport control, customs control, departure lounges, gates. The principles of technological design of the check-in area and luggage processing area.

Topic 2.2.4. London Heathrow Terminal 5.

History of the construction of London Heathrow Airport Terminal 5, its technical specifications and structure; terminals 5A, 5B and 5C.

Topic 2.2.5. Hangar.

Design and construction of aviation hangars. Special features of the design of amodern hangar. Appointment of hangars. Technical requirements to hangars. Types of hangars.

Тема 2.2.6. Cargo Terminal.

Design and construction of cargo terminals. The purpose of cargo terminals. Technical requirements to cargo terminals.

Тема 2.2.7. The Building of the Control Tower.

Design and construction of control towers. Purpose and technical requirements to control towers. The room for air traffic controllers.

Topic 2.2.8. Airfields.

The main elements of an airfield (runways, taxiways, apron, holding apron) and their definition. The layout of airfield elements.

Topic 2.2.9. Runways (RW).

The main elements of the runway (structural pavement, side-safety line (shoulder), blast pad, runway end safety area, stopway, threshold).

Topic 2.2.10. Runway Requirements.

Principles of runway configuration. The purpose of runways. Runway quantity and orientation. Runway capacity. Standard and calculation conditions for determining runway length.

Topic 2.2.11. Types of Runways.

Runway classification according to their layout (single RW, parallel RWs, intersecting RWs, open-V RWs) and type of pavement (paved RW and ground RW).

Topic 2.2.12. Taxiways (TWs).

Taxiways and their purpose. Types of TWs and their purpose: main RW, exit TW, connecting TW, rapid exit TW, auxiliary TW.

Topic 2.2.13. Apron. Holding Apron.

The concept of an apron and a holding apron. The purpose of an apron. Passenger and cargo aprons. The purpose of a holding apron. The design and construction of aprons and a holding aprons.

Topic 2.2.14. World-famous Airports and Airports of Ukraine.

Heathrow Airport and Gatwick Airport in the UK, Charles de Gaulle Airport in France, John F. Kennedy (JFK) Airport in the USA. Boryspil International Airport, Kyiv International Airport (Zhuliany), Lviv Airport.

Topic 2.2.15. Boryspil International Airport.

The airfield of Boryspil International Airport. Terminal D. The history of design and construction of runways and taxiways of Boryspil International Airport.

2.3. Module № 3 "Stages of a Construction Process. Construction Machinery".

Topic 2.3.1. Civil Engineering.

The main tasks of civil engineering. The function of a civil engineer before the construction process, during construction and after construction.

Topic 2.3.2. Survey.

Feasibility study., mapping with soil characteristics, analysis of the possibility of communications installing.

Topic 2.3.3. Types of Soils in Construction.

Types of soils and their properties and characteristics. Classification of soils by groups in construction. Selection of the foundation structure, depending on the type of soil.

Topic 2.3.4. Designing a Project.

Architectural designing and its stages. Creating of a working drawing. Types of projections (vertical, horizontal projections). Drawings, sketches; visualization (rendering). Obtaining a building consent.

Topic 2.3.5. Computer Technologies in Construction.

History of the creation and development of computer-aided design system called AutoCAD. AutoCAD application in construction and architecture. Gredo systems, Autodesk AutoCAD Civil 3D etc.

Topic 2.3.6. Stages of Building Erection and Construction.

Earthworks, laying foundation, building a building envelope, bricklaying, roofing, facing, glazing, plastering works, floor covering, carpentry works, landscaping, commissioning.

Topic 2.3.7. Main Stages of the Residential Building Construction.

The beginning of the construction of a residential building (the choice of a plot, surveying and geological examination, design, construction, improvements and landscaping).

Topic 2.3.8. Stages of Highway Construction.

Having preparatory works (feasibility study) and earthworks done, creating a roadway, drainage, landscaping of the surrounding area.

Topic 2.3.9. Technology of Pavement Construction.

Construction of roadbed. The special features of the design of the base layers. The construction of monolithic cement-concrete pavement. The construction of roadbed layers of highways.

Topic 2.3.10. Improvement of the Surrounding Area. Road Maintenance.

Marking, placement of road signs, curbs, drains, etc. Types of curbs. Paving sidewalks. Road repair works, road maintenance.

Topic 2.3.11. On the Construction Site.

Safety on the construction site. Creating safe working conditions during construction works. The means for protection: protective hard hats, goggles or safety glasses, respirators and others.

Topic 2.3.12. Construction Machinery.

Types of construction machinery (excavators, bulldozers, loaders, scrapers, graders, cranes, pile drivers, concrete-delivery truck, concrete mixers) and their purpose.

Topic 2.3.13. Transportation and Loading Machines. Lifting Equipment and Machinery.

Transportation machines, loading machines. Lifting equipment, construction hoists. Classification of construction cranes (tower cranes, self-propelled cranes).

Topic 2.3.14. Earth-moving Machines and Piling Machines. Earth-moving Machines.

Machines for preparatory works. Bulldozers, scrapers, motor graders; hydraulic scrapers; graders, motor graders, their purpose; bucket backhoe excavators with a mechanical and hydraulic drive; continuous-action excavators; trench excavators.

Topic 2.3.15. Machines for Soil Compaction, Preparation, Transportation and Compaction of concrete mixtures and mortars.

Classification of machines for soil compaction. Machines for crushing stone materials; concrete mixers of cyclic and continuous action; pumps, conveyors, pneumatic transport; equipment for compaction of concrete.

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2.4. Module № 4 "Building Code. World-famous Buildings and Engineering Structures".

Topic 2.4.1. Documentation in Construction.

Organization of business activities. Contracts (contracts) in construction. Operational executive documents. Documents for changes during the construction process.

Topic 2.4.2. Building Standards, Norms and Rules.

Building code for ensuring life safety, fire safety and property protection. Regulations.

Topic 2.4.3. Application of a Building Code.

The parts of a building code. Regulations on building fencing, building materials, and communications.

Topic 2.4.4. Classification of Buildings According to the Building Code.

Classification of building objects and requirements to them. Classification of buildings by the degree of reliability and durability depending on the material of the main constructions, classification of buildings by the degree of fire resistance.

Topic 2.4.5. Basic Requirements toBuildings and Structures. Mechanical Resistance and Stability.

Requirements to the operational properties of building products. Requirements to mechanical resistance and stability of building objects. Ensuring reliability and constructive safety of buildings, structures, constructions and bases.

Topic 2.4.6. Loads and Effects on a Building.

Dead loads (the weight of building elements, weight and pressure of soil on the walls of the basements). Live loads (loads from people's weight, equipment, furniture, etc., wind loads, snow loads, temperature-climatic effects).

Topic 2.4.7. Basic Provisions for Designing Bases and Foundations of Structures.

General provisions for designing bases and foundations. Load and effects. Characteristics of soils. Groundwater. Foundation laying depth. Choice of foundations.

Topic 2.4.8. Transport Structures. Bridges and pipes. Loads and Effects.

Dead loads and effects. Live loads from vehicles of railway, highway and city bridges. Soil pressure on bridges and pipes.

Topic 2.4.9. Influence of Engineering Structures on the Environment.

Factors of the impact of engineering structures on the environment. Measures on environmental protection during feasibility study and surveying, construction and maintenance of engineering structures.

Topic 2.4.10. Alternative Energy Sources in Construction.

Wind energy, solar energy, geothermal and hydrothermal systems, wave energy, hydroenergy. Energy efficient buildings and structures.

Topic 2.4.11. Energy Efficient Bildings. Eco-Houses.

The features of energy efficient structures and buildings. Bioarchitecture, eco-materials, eco-design. Examples of energy efficient eco-buildings. Passive houses, as a modern energy saving trend.

Topic 2.4.12. World-famous Buildings and Structures. Notre-Dame Cathedral.

Notre-Dame Cathedral as one of the most magnificent samples of Gothic architecture. Construction history and present time. Western façade; portals (the portals of St. Anne, the Judgement, Virgin Mary); statues of chimeras and gargoyles.

Topic 2.4.13. Temple of the Holy Family (Sagrada Familia).

Antoni Gaudi and his contribution into architectural art. The Sagrada Familia Cathedral ─ the main temple of Barcelona, history of its construction, architecture and temple features.

Topic 2.4.14. Taj Mahal.

The Taj Mahal as a symbol of Indian architecture. The history of construction. Construction of a five-dome mausoleum building; white marble dome of the main building. Architectural features of the mausoleum.

Topic 2.4.15. Modern Architecture. Modern World Wonders.

Dynamic architecture. The skill of erecting modern skyscrapers. Contemporary construction techniques. Prominent modern buildings in Europe, Asia and the world.

Topic 2.4.16. Famous skyscrapers.

Petronas Towers in Malaysia, design, construction and features of the skyscraper. Burj Khalifa skyscraper, design, special features and construction history.

Topic 2.4.17. Super Bridges.

Millau Viaduct. Suspension bridge "Skywalk" ver the Grand Canyon. The longest bridge of Akashi Kaiko (Japan). Hoover Bridge. Millennium Bridge in London.

Topic 2.4.18. Oresund Bridge.

Construction of the Oresund Bridge from Copenhagen (Denmark) to Malmo (Sweden) and its technical specifications. Purpose, main elements and specific features of the bridge.

Topic 2.4.19. Kansai International Airport (Osaka, Japan).

Kansai Airport as an example of a large complex of structures constructed on an artificial island in the middle of the Osaka Strait. The complexity of construction and specific features.

Topic 2.4.20. Prominent Architectural Buildings in Ukraine.

St. Andrew's Church, House with Chimaeras, St. Sophia Cathedral, Kyiv-Pechersk Lavra, Oleskyi castle, Palanok castle, Kamenets-Podilskyi fortress.

Topic 2.4.21. A Presentation as a Kind of Professional Communication.

Presentation and requirements to its preparation. Requirements to the presentation structure, language and speech, speaker's body language.

Topic 2.4.22. Presentation Structure.

Beginning and finishing the presentation. The beginning, the introduction, the main part, conclusions. Creating presentations using MS Power Point. The purpose and performance capabilities of the MS Power Point package. Presentation design.

Topic 2.4.23. Presentation of the Report at the Student Conference.

The importance of scientific conferences during studying at university. Choosing an urgent topic in civil engineering and creating a presentation using MS Power Point. Preparing slides. Presentation design.

Topic 2.4.24. Presentation of a Building or an Engineering Structure.

Presenting a modern, remarkable building or engineering structure in English, taking into account requirements to presentations. Analysis of typical mistakes when presenting a material.

3. LIST OF REFERENCES

3.1. Basic Literature

3.1.1. Шостак О.Г. Professional English of the Construction Industry : навч. посіб. / О.Г. Шостак, Л.М. Конопляник. – К. : Вид-во "НАУ–друк", 2017. – 308 с.

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3.2. Additional Literature

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3.2.3. Fredo Evan. English for Construction. Vocational English. Level 2 : Course book. – New York : Pearson, 2012. – 80 p.

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(Ф 03.02 – 01)

АРКУШ ПОШИРЕННЯ ДОКУМЕНТА

№ прим.	Куди передано (підрозділ)	Дата видачі	П.І.Б. отримувача	Підпис отримувача	Примітки

(Ф 03.02 – 02)

АРКУШ ОЗНАЙОМЛЕННЯ З ДОКУМЕНТОМ

№ пор.	Прізвище ім'я по-батькові	Підпис ознайомленої особи	Дата ознайом-лення	Примітки

(Ф 03.02 – 04)

АРКУШ РЕЄСТРАЦІЇ РЕВІЗІЇ

№ пор.	Прізвище ім'я по-батькові	Дата ревізії	Підпис	Висновок щодо адекватності

(Ф 03.02 – 03)

АРКУШ ОБЛІКУ ЗМІН

№ змі-ни	№ листа (сторінки)				Підпис особи, яка внесла	Дата внесен-ня зміни	Дата введен-ня зміни
	Зміненого	Заміненого	Нового	Анульо-ваного			

(Ф 03.02 – 32)

УЗГОДЖЕННЯ ЗМІН

	Підпис	Ініціали, прізвище	Посада	Дата
Розробник				
Узгоджено				
Узгоджено				
Узгоджено				