



# Complex and coordination sports

## (Aerobics: sports, dance, strength training)

### Working program of the academic discipline (Syllabus)

Details of the discipline	
Level of higher education	<i>First (bachelor's)</i>
Field of knowledge	<i>For all fields of knowledge</i>
Specialty	<i>For all specialties</i>
Educational program	<i>For all educational programs</i>
Status of the discipline	<i>Normative</i>
Form of education	<i>Full-time</i>
Year of preparation, semester	<i>2nd year, autumn/spring semester</i>
Volume of the discipline	<b>2 ECTS credits (60 hours)</b> of auditorium; lectures - 0 hours, practical - 36 hours, independent work - 24 hours
Semester control / control measures	<i>Test, module control work, calendar control</i>
Schedule	<i>2 hours a week</i>
Language of teaching	<i>English</i>
Information about the course leader/ teachers	<a href="http://ktos-fbmi.kpi.ua/article/spivrobotnyky">http://ktos-fbmi.kpi.ua/article/spivrobotnyky</a>
Course placement	Educational division of <b>aerobics</b> <a href="https://do.ipk.kpi.ua/course/view.php?id=2386">https://do.ipk.kpi.ua/course/view.php?id=2386</a>

### Curriculum of subject

#### 1 Description of the educational discipline, its purpose, subject of study and results of study

The main goal of the training discipline “Complex and coordination sports (**Aerobics: sports, dance, strength training**)” is formation of the ability of higher education applicants to maintain at sufficient level the state of physical health, physical and mental working capacity; to develop the basic life-necessary professional-applied skills of movement; to form motivation to exercise movement activity and sport as a component of healthy lifestyle.

The discipline “Complex and coordination sports (**Aerobics: sports, dance, strength training**)” has an interdisciplinary character. It integrates, according to its subject, knowledge in medical-biological, psychological-pedagogical and other sciences, which contribute to the improvement of the level of physical development, functional improvement of the organism systems, development of basic life-critical movement skills and ability for further professional activity.

As a result of studying the education discipline “Complex and coordination sports (**Aerobics: sports, dance, strength training**)”, higher education applicants will be able to form general competence for active rest and healthy lifestyle:

- 1) use **aerobics** means: **sports, dance, strength training** to purpose of increasing physical and mental capacity, development of physical qualities, restoration and preservation of health;
- 2) to learn to monitor and self-monitor the functional state of the body;
- 3) to ensure the preservation and strengthening of the state of individual health in order to maintain the proper level of physical condition.

## **2. Discipline (place in the structural-logical scheme of training under the relevant educational program)**

The discipline “Complex and coordination sports (**Aerobics: sports, dance, strength training**)” refers to the cycle of disciplines of general training, it is a selective component of the educational program. For successful mastering of discipline higher education applicants should belong on the state of health to the basic or preparatory medical group.

### **3. Content of the educational discipline**

#### **Subjects of practical lessons.**

The training material consists of 8 topics:

- |          |  |
|----------|--|
| Topic 1. | Informational support of the training on aerobics: Sports, dance, strength training                                |
| Topic 2. | Method of determining individual physical condition. Analysis and assessment of individual physical training level |
| Topic 3. | Improvement of physical training by means of aerobics: Sports, dance, strength training                            |
| Topic 4. | Improvement of the technique of physical exercises from aerobics: Sports, dance, strength training                 |
| Topic 5. | Control and assessment of the level of their physical training   |
| Topic 6. | Improvement of physical qualities by means of aerobics: Sports, dance, strength training                           |
| Topic 7. | Testing of the level of physical preparation.  |

### **4. Educational materials and resources**

#### **Basic educational literature:**

#### **Tutorials and guides:**

1. Stretching Anatomy, third edition by Arnold G. Nelson & Jouko Kokkonen
2. Science of Pilates: understand the anatomy and physiology to perfect your practice, Tracy Ward, DK (Dorling Kindersley), 2022.
3. Step aerobics & aerobic dance by Sara James, Mason Crest Publishers, 2014.
4. Essentials of exercise physiology, fourth edition by Victor L. Katch, William D. McArdle & Frank I. Katch, Wolters Kluwer/Lippincott Williams & Wilkins Health, Philadelphia, ©2011
5. Science of strength training: understand the anatomy and physiology to transform your body, Austin Current, DK (Dorling Kindersley), 2021.

#### **Auxiliary educational literature:**

1. Step Aerobics: Fitness Training for Schools, Clubs and Studios by Iris Pahmeier, Corinna Niederbaumer, Meyer & Meyer Sport, 2001.
2. Pilates Anatomy, your illustrated guide to mat work for core stability and balance by Rael Isacowitz, Karen Clippinger
3. Science of HIIT: understand the anatomy and physiology to transform your body, Ingrid S Clay, DK (Dorling Kindersley), 2021.
4. The sports book: the sports, the rules, the tactics, the techniques. Published by DK

(Dorling Kindersley), 2024.

5. The complete practical encyclopedia of fitness training by Andrew Wadsworth, Anness publishing, 2017.

6. The National Strength and Conditioning Association's (NSCA) Basics of strength and conditioning manual by Dr. William A. Sands | Jacob J. Wurth | Dr. Jennifer K. Hewit, 2012.

7. Stability ball training: a guide for fitness professionals from the American council on exercise by Sabra Bonelli, Christine Cunningham, Mike Morris. Publisher: Healthy Learning, 2002.

8. Physical education [Electronic resource]: methodical recommendations for independent physical education classes for students of the educational department of aerobics NTUU "KPI". Methodical recommendations for students engaged in aerobics / NTUU "KPI"; structure. N. V. Ivanyuta, S. E. Tolmachova, N.V. Kuzmenko, N.V. Gradusova [etc.]. - Electronic text data (1 file: 32.4 KB). - Kyiv: NTUU "KPI", 2015. - 137 p. - Name from the screen.

URI (Unified Resource ID): <https://ela.kpi.ua/handle/123456789/15480>

9. Physical education. Athletics - fitness [Electronic resource]: training. Manuals for students. all specialties/KPI them. Igor Sikorsky; way.: Novitsky Yu. V., Gavrilova N. M., Prus N. M., Rudenko G. A., Skibitsky I. G., Uskova S. M. - Electronic text data (1 file: 2.79 MB). - Kyiv: Igor Sikorsky Kyiv Polytechnic Institute, 2021. - 152 p. - Name from the screen

URI (Uniform Resource Identifier): <https://ela.kpi.ua/handle/123456789/44515>

10. Physical education. Gymnastics [Electronic resource]: a textbook for applicants for a bachelor's degree/KPI them. Igor Sikorsky; way.: And. V. Zenina, V. E. Dobrovolsky, V. I. Shishatskaya. - Electronic text data (1 file: 1.01 MB). - Kyiv: Igor Sikorsky Kyiv Polytechnic Institute, 2021. - 84 p. - Name from the screen.

URI (Uniform Resource Identifier): <https://ela.kpi.ua/handle/123456789/41115>

## Educational content

### 5. Method of teaching of educational discipline (educational component)

**Practice session № 1.** Tasks: 1. To provide theoretical knowledge on organization of the system of physical education in "Igor Sikorsky Kyiv Polytechnic Institute"

2. To familiarize with safety techniques and basic rules of implementation of practical tasks.

Means: interactive materials. Safety technique and rules of behavior at practical aerobics sessions: Sports, dance, strength training. Starting position during exercise. Position of the trunk, arms and legs.

Conducting an express-inquiry.

**Practice session № 2.** Tasks: 1. To familiarize with the technique of performing basic aerobic steps, exercises on the spot, in movement, with a list of prohibited elements in sports and health aerobics.

Means: interactive materials. General development exercises: on the spot, in movement, walking, jogging, breathing exercises. Basic steps: step-touch, grape wine, V-step, cross, chasse, jumping Jack, mambo, cha-cha. Prohibited elements.

Conducting an express-inquiry.

**Practice session № 3.** Tasks: 1. To teach the technique of performing basic steps of aerobic complexes with a change of pace.

2. To familiarize with the technique of work the arms.

Means: interactive materials. Basic steps: step-touch, grape wine, V-step, cross, chasse, jumping Jack, mambo, cha-cha. The work of the hands in the frontal and sagittal planes.

Conducting an express-inquiry.

**Practice session № 4.** Tasks: 1. To improve the workhand technique in line with the basic steps, exercises on the spot, in movement.

2. Promote the development of coordination abilities

Means: interactive materials. Basic aerobics steps in coordinated with the work of the hands with a change in the tempo of the musical accompaniment and a change in the direction of performance.

Conducting an express-inquiry.

**Practice session № 5.** Tasks: 1. To improve technique for doing aerobics complex exercises.  
2. Promote the development of physical quality endurance.

Means: interactive materials. Aerobics complex exercises is performed with change of complex parts. Jogging.

Conducting an express-inquiry.

**Practice session № 6.** Tasks: 1. To familiarize with the terminology and technique of performing basic steps on the step platform.

2. Promote the balance.

Means: interactive materials. Exercises at the step platforms. Exercises for balance.

Conducting an express-inquiry.

**Practice session № 7.** Tasks: 1. To teach the technique of performing basic steps at the step platform.

2. Promote the development of physical quality speed.

Means: interactive materials. Aerobics complex exercises at the step platforms. Relay race «Strenflex».

Conducting an express-inquiry.

**Practice session № 8.** Tasks: 1. To familiarize with the technique of performing a set of exercises for the main part of the session.

2. Promote the development of speed-power qualities.

Means: interactive materials. Aerobics complex exercises, exercises of the main part of the session: jumps, basic steps complicated by hand work, lunges, kicks in different directions. Relay race «Strenflex». Jumping rope. "Shuttle-run" test.

Conducting an express-inquiry.

**Practice session № 9.** Tasks: 1. To familiarize with the methods, principles and techniques of performing a set of exercises according to the Pilates system.

2. Promote the development of flexibility of the spine.

Means: interactive materials. The technique of performing of exercises, breathing technique, principles Pilates. Basic exercises of Pilates: roll-up—roll-down, hundred, swan, rolling like a ball. A set of exercises for flexibility of the spine using "Pilates" means.

Conducting an express-inquiry.

**Practice session № 10.** Tasks: 1. To teach the technique of performing gymnastic exercises according to the Pilates system.

2. Promote the development of the physical quality of flexibility.

Means: interactive materials. Pilates.

Conducting an express-inquiry.

**Practice session № 11.** Tasks: 1. To teach the technique of performing a set of exercises for the main part of the session.

2. To familiarize with the technique of performing a set of exercises with jumping rope.

3. Promote the development of speed-power qualities.

Means: interactive materials. Aerobics complex exercises, exercises of the main part of the session. Basic exercises with jumping rope: technique of performing, breathing technique.

Conducting an express-inquiry.

**Practice session № 12.** Tasks: 1. To teach the technique of performing a set of exercises with the jumping rope.

2. Promote the development of the physical quality speed.

Means: interactive materials. Aerobics complex exercises, a set of exercises with jumping rope: jumps with a change rotation of the rope, with a double rotation, jumping on one leg, with a change in the direction and tempo of the musical accompaniment.

Conducting an express-inquiry.

**Practice session № 13.** Tasks: 1. To familiarize with the technique of performing a set of exercises of the final part of the session.

2. Promote the development of the physical quality of flexibility using stretching means.

Means: interactive materials. A set of exercises of the final part of the session, final stretching,

isolated work for different muscle groups, exercises to recovery the cardiovascular and respiratory systems.

Conducting an express-inquiry.

**Practice session № 14.** Tasks: 1. To familiarize with the technique of performing exercises with a gymnastic stick.

2. Promote the development of joint flexibility.

Means: interactive materials. Corrective gymnastics with gymnastic sticks.

Conducting an express-inquiry.

**Practice session № 15.** Tasks: 1. To familiarize with the technique of performing exercises with weights from different starting positions.

2. Promote the development of the physical quality of strength.

Means: interactive materials. Starting positions when performing exercises, the work of fixing muscles. The position of the body, arms, legs. Exercises with a body bar, dumbbells, isotonic rings, bosu

Conducting an express-inquiry.

**Practice session № 16.** Tasks: 1. Promote the development of the main physical qualities.

Means: control standards - jump from a place up, "shuttle run" test 4x9 m, tilt of the body from a sitting position, push-ups.

Conducting an express-inquiry.

**Practice session № 17.** Execution of modular control work.

**Practice session № 18.** Test.

## 6. Independent work of the student

Preparation for practical sessions, express request and preparation for passing physical fitness tests, execution of modular control work (17th week).

## Policy and control

### 7. Discipline policy (educational component)

#### 1. In the case of full-time:

*Rules for attending sessions: higher education applicants who are late for sessions are not allowed; higher education applicants are allowed to study if they have sportswear, replaceable sports shoes and a certificate of health.*

*Rules of conduct at the training: turning off the phones, compliance with safety requirements.*

*Rules for protection individual tasks: respect for the principles of academic integrity.*

*Rules for awarding reward points: reward points are awarded for participation in competitions, sports and recreational activities according to the plan of the department, Faculty, University (5...+7points); participation in city, republican or international competitions (5...+7 points), for compiling and performing a set of physical exercises aimed at the development of certain physical qualities or muscle groups (10 points).*

**Reward points cannot exceed 10 points.**

*Policy of deadlines and retakes: higher education applicants have the opportunity of two retakes in the presence of the commission.*

*Other requirements: when passing the test, higher education applicants should respect the safety rules.*

*Policy on academic integrity: policy, principles of academic integrity and norms of ethical behavior of higher education applicants and University employees are defined in the Code of Honor of Igor Sikorsky Kyiv Polytechnic Institute (<https://kpi.ua/code>).*

#### 2. In the case of distance learning:

*Rules for protection individual tasks: respect for the principles of academic integrity.*

*Rules for awarding reward points: reward points are awarded for participation in competitions, sports and recreational activities according to the plan of the department, Faculty, University (5...+7points); participation in city, republican or international competitions (5...+7 points), for compiling and performing a set of physical exercises aimed at the development of certain physical qualities or*

muscle groups (10 points).

Accrual of penalty points within the academic discipline is not provided.

**Reward points cannot exceed 10 points.**

*Policy of deadlines and retakes:* higher education applicants have the opportunity of two retakes in the presence of the commission.

*Policy on academic integrity:* policy, principles of academic integrity and norms of ethical behavior of higher education applicants and University employees are defined in the Code of Honor of Igor Sikorsky Kyiv Polytechnic Institute (<https://kpi.ua/code>).

## 8. Types of control and rating system for assessing learning outcomes

### Monitoring:

#### 1. In the case of full-time:

The rating of the higher education applicant in the chosen discipline consists of points received for:

1. performance of tasks provided by practice sessions - practical and theoretical components;
2. execution of modular control work;
3. passing tests to assess the level of physical fitness of higher education applicants.

Rating (weight) points system and evaluation criteria:

#### 1. Work at the practice sessions 1—16:

1.1. Practical component - in the case of completing practical session tasks - 1 point.

Maximum score - 1 point x 16 practice sessions = 16 points.

1.2. Performing test tasks to assess residual knowledge of the theory and methodology of the chosen sport or motor activity (5 test tasks for each practice session) – 1 point.

Maximum score - 1 point x 16 test tasks = 16 points

The maximum number of points for completing tasks at the practice sessions 1—16 (practical and theoretical components) - 32 points (16 points for each component)

#### 2. Execution of modular control work.

Modular control work is carried out at the 17th practice session in the form of testing. In total, higher education applicants must answer 28 questions.

The weight score for each correct answer is 1.

The maximum number of points for performing modular control work is 28.

#### 3. Tests aimed at checking the level of physical fitness of higher education applicants.

Weight score - 10. Maximum score 10 points x 4 control standards for physical fitness = 40 points  
jump from a place up (cm)

Men	55	52	49	46	43	40	≤39
Women	45	42	39	36	33	30	≤29
Points	10	9	8	7	6	5	0

"Shuttle run" test 4 x 9 m (sek)

Men	9,0	9,4	9,8	10,3	10,8	11,0	>11,0
Women	10,4	10,7	11,2	11,6	12,0	12,3	>12,3
Points	10	9	8	7	6	5	0

Strenght exercise: men, women – push-ups (reps)

Men	38	32	28	24	22	20	<5
Women	20	15	12	10	8	7	<7
Points	10	9	8	7	6	5	0

### Flexibility exercise (cm)

Men	13	11	9	7	5	3	<3
Women	16	14	12	10	8	6	<6
Points	<b>10</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>0</b>

### Calculation of rating scale (R)

The rating scale of the discipline (RD) is 100 points and is formed as the sum of all rating points received by the higher education applicant according to the results of activities for the semester:

$$R_c = 32_{(\text{practical} + \text{theoretical component})} + 28_{(\text{MCW})} + 40_{(\text{control standards})} = 100 \text{ points}$$

#### 2. In the case of distance learning:

The rating of the higher education applicant in the chosen discipline consists of points received for:

1. performance of tasks provided by practice sessions - practical and theoretical components;
2. execution of modular control work.

#### Rating (weight) points system and evaluation criteria:

##### 1. Performance of tasks at the practice sessions 1—16:

1.1. The practical component - in the case of providing the correct answers during the express-inquiry - 2 points.

Maximum score - 2 point x 16 practice sessions = 32 points.

1.2. theoretical component - performing test tasks to assess residual knowledge of the theory and methodology of the chosen sport or motor activity (8 test tasks) – 2 point.

Maximum score - 2 point x 16 practice sessions = 32 points.

The maximum number of points for completing tasks at the practice sessions 1—16 (practical and theoretical components) - 64 points (32 points for each component)

##### 2. Execution of modular control work.

Modular control work is carried out at the 17th practice session in the form of testing. In total, higher education applicants must answer 36 test questions.

The weight score for each correct answer is 1.

The maximum number of points for performing modular control work is 36.

### Calculation of rating scale (R)

The rating scale of the discipline (RD) is 100 points and is formed as the sum of all rating points received by the higher education applicant according to the results of activities for the semester:

$$R_c = 64_{(\text{practical} + \text{theoretical component})} + 36_{(\text{MCW})} = 100 \text{ points}$$

#### **Calendar control:**

Calendar control is carried out during the semester at the 8th week (the 1st CC) and the 14th (the 2nd CC) as a monitoring of the current state of fulfillment of the requirements of the Syllabus. The higher education applicant receives a positive result for the CC (calendar control) when his current rating score is at least 50% of the maximum possible at the time of the CC.

#### **Semester control:**

Semester control – **test.**

The acquisition of the educational component by the higher education applicant is assessed according to the results of his work for the semester with the translation of his rating points, in accordance with the university assessment scale (Table 1).

The final rating of the higher education applicant cannot exceed 100 points!

**Conditions of admission to semester control:** the index of semester rating should be more than 30



points.

Higher education applicants who have a rating of 60 or more points receive an actual rating, in accordance with the number of points scored, without conducting additional tests.

Higher education applicants who scored less than 60 points during the semester, as well as those who want to increase the overall rating, perform the test work (integral test) at the last scheduled session (18th week). At the same time, all points that they received during the semester are canceled. Test tasks of the test work contain questions that relate to various sections and topics of the curriculum in the chosen discipline.

**The credit control work (integral test)** is carried out in the form of testing. The higher education applicant is offered an integral test containing 50 questions, each correct answer is estimated at 2 points.

*The maximum number of points for an integral test is 100 points.*

Table 1. Compliance of rating points with grades on the university scale

<b>Rating points of the higher education applicant</b>	<b>Grade on the university scale</b>
95 – 100	Excellent
85 – 94	Very good
75 – 84	Good
65 – 74	Satisfactory
60 – 64	Sufficient
< 60	Failed
Failure to fulfil the requirements to be admitted to semester control (< 30)	Not admitted

## **9. Additional information on discipline (educational component)**

During the passage of educational material on the academic discipline, the use of modern technologies in the educational process is provided. During the educational period, higher education applicants are supposed to use means and methods of self-control for health reasons, compliance with requirements for preventing injuries and diseases.

Practical tasks are given to higher education applicants depending on the current state of functional readiness of their body and the degree of their mastery of the technique of performing sports and physical exercises.

The methodology for the implementation of tasks is regulated by safety rules and the implementation by higher education applicants of independent control over the state of the main functional systems.

At the practice sessions, tasks are solved to increase the level of development of physical and mental qualities, analytical approaches are used to select methods for developing the strength of individual muscles and their groups, as well as methods and means of active rest and recovery of the body.

During sessions, in accordance with the requirements and forms of organizing training sessions in **aerobics: sports, dance, strength training**, sports equipment and sports and technical base are used.

The program material for initial physical training groups includes:

- physical training, the main purpose of which is to create a base for increasing the level of skill with the help of general physical training facilities
- technical training, the main purpose of which is to improve individual technic, expand the range of motor skills.

### **Working program of the academic discipline (Syllabus):**

#### **Compiled by:**

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**Approved by** the Department health and sports technologies (protocol No. 7 of 24.01.2024)

**Agreed by** the Methodical Council of the University (protocol No. 5 of 29.02.2024)