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\_\_\_\_\_\_\_\_\_\_\_Е.В. Забелина

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Цикловая комиссия общеобразовательных и естественнонаучных дисциплин

**УЧЕБНО – ПРАКТИЧЕСКОЕ ПОСОБИЕ**

**Сборник текстов для чтения и упражнения по авиационной тематике**

|  |  |
| --- | --- |
| по дисциплине | «Иностранный язык»  |
|  |
| для студентов | 3 | курса |
|  |
| специальностей | 24.02.01 Производство летательных аппаратов |
| 25.02.06 Производство и обслуживание авиационной техники |

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**2022**

Учебное пособие по английскому языку предназначено для студентов 3 курса специальностей 24.02.01 Производство летательных аппаратов и 25.02.06 Производство и обслуживание авиационной техники.

Данное пособие составлено в соответствии с Федеральным государственным образовательным стандартом и программой по иностранному языку по техническим специальностям для учреждений среднего специального образования.

Целью пособия является подготовка студентов к использованию иностранного языка в их будущей профессиональной деятельности, т.е. обучение как письменной, так и устной формам. Кроме того, полученные навыки и умения могут служить базой для дальнейшего самообразования.

Совокупность текстов, составляющих каждый раздел, предусматривает развитие навыков по основным видам чтения. Тексты сопровождаются системой упражнений, направленных на усвоение специальной лексики и терминологии, развитие умения анализировать и обобщать информацию.

В каждом разделе предусматривается повторение наиболее значимых грамматических явлений. С этой целью раздел содержит обширную систему практических упражнений.

Предлагаемый ряд разнообразных дискуссионных видов деятельности, творческих заданий предоставляет студентам возможность совершенствовать навыки устной и письменной речи, повысить уровень речевой компетентности.

Материал пособия охватывает тематику безопасности полетов, указываются причины летных происшествий и их устранение.

Учебное пособие может использоваться для аудиторной и самостоятельной работы студентов.

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**Unit 1 AIR SAFETY**

**VOCABULARY**

|  |  |
| --- | --- |
| regulation- предписание, правило; *pl* устав, инструкция | redundancy [rɪˈdʌndənsɪ] - избыток, чрезмерность, излишек |
| occur- случаться, происходить | legislation [leʤɪsˈleɪʃn] - законодательство |
| prevent- предотвращать | comprise- включать; содержать |
| incident- происшествие, инцидент | encompassing [ɪnˈkʌmpəsɪŋ] - охватывающий, окружающий |
| significant- важный, существенный, значительный | beyond control [bɪˈjɒnd kɒnˈtrəʊl- выйти из-под контроля |
| involve- вовлекать, включать в себя | investigation- исследование |
| hazar [ˈhæzəd] d- рисковать, осмеливаться | be applied to- применить к |
| be traced to- отследить до | order- приказ |
| Ground Proximity Warning System (GPWS)- Система предупреждения о приближении к земле (GPWS) | standard operating procedures - стандартные операционные процедуры |
| training syllabi- учебные программы | syllabus- программа syllabi- программы |
| airworthy - пригодный для полета | human demands [ˈhjuːmən dɪˈmɑːndz]- человеческие потребности |
| circadian dysrhythmia- циркадная дисритмия, суточная аритмия | hostile environment [ˈhɒstaɪl ɪnˈvaɪərənmənt]- неблагоприятные условия |
| ultra long-haul- сверхдальние расстояния, сверхдальние рейсы | jet-lag - смена часовых поясов  |
| economically feasible[ˈfiːzəbl]- экономически целесообразный | obstacle - устранение |

**Air** **Safety**

Air safety is a term encompassing the theory, investigation and categorization of flight failures, and the prevention of such failures It can also be applied to some campaigns that inform the public about the safety of air travel.

Safety improvements have resulted from improved aircraft design, engineering and maintenance, the evolution of navigation aids, and safety protocols and procedures.

Aviation is based on a foundation of laws and regulations, most of which are aimed at maintaining or improving safety. Safety means freedom from risk. Scheduled airline operations have achieved high level of safety, but most of the accidents that occurred could have been prevented.

 The pilot is not the only Man in the system, the concept should include all people directly involved with the operation of aircraft – flight crew, ground crew, ATC, meteorologists, and all human involvement in aviation, such as design, construction, maintenance, operation and management.

Many aviation hazards are caused by problems at the interface between Man, Machine and Environment. Human factor is about people: it is about people in their working and living environments, their relationship with other people, with machines, equipment and procedures.

Although aviation technology has made great progress, there are still occasions when hazards are found in the design, manufacture or maintenance of aircraft. Modern aircraft design therefore attempts to minimize the effect of any hazard. Good design should not only prevent system failure, but also ensure that a single failure will not result in an accident. This is usually achieved by so-called fail-safe features and redundancy in critical components or systems. Modern design includes systems which make man’s task easier and which aim to prevent mistakes and errors. The Ground Proximity Warning System (GPWS) is an example of such a system.

The environment in which aircraft operations take place, equipment is used and personnel work directly affects aviation safety. The environment comprises two parts: **the natural environment** and the **man-made environment**. Weather, topography and other natural phenomena are elements of the natural environment. Their manifestations, such as temperature, wind, rain, ice, lightning, mountains and volcanic eruptions are all beyond the control of man and must be avoided. **The man-made environment can be further divided into physical and non-physical parts. T**he physical portion includes those man-made objects that form part of the aviation environment: air traffic control, airports, navigation aids, landing aids and airfield lighting. The man-made non-physical environment includes national and international legislation, orders and regulations, standard operating procedures, training syllabi, etc.

In spite of the use of Man, Machine and Environment as main categories of hazards, most accidents or incidents can be traced to a human failure somewhere. For example, a machine is designed, built and operated by man. Thus a failure of the machine is in fact a failure of man. Only 10 to 15 % is caused by Machine and Environment, whereas 60 to 70 % are due to Man. Safe aviation therefore involves the integration of the three basic elements of Man, Machine and Environment. Each element can influence the others and they are often interdependent. A hazard in one can initiate a chain reaction leading to an accident in which all are involved.

**Exercise** **1.** **Match** **the** **antonyms** **in** **columns** **A** **and** **B.**

|  |  |
| --- | --- |
| **А** | **В** |
| 1. natural
 | 1. artificial
 |
| 1. physical
 | 1. adequacy
 |
| 1. inadequacy
 | 1. unfortunately
 |
| 1. fortunately
 | 1. non-physical
 |

**Exercise** 2**.** **Cross** **out** **the** **odd** **word.**

1. Incident, crash, redundancy, accident.

2. Law, refinement, regulation, bill.

3. Error, cause, mistake, blunder

4. Obstruction, hazard, threat, danger.

5. Temperature, lighting, lightning, wind.

6. Legislation, disasters, ATC, navigation aids.

**Exercise 3.** **Find** **in** **the** **text** **synonyms** **to** **the** **following** **words.**

Danger, mistake, malfunction, to minimize, to include, to influence, to try, really, despite, to happen, because of.

**Exercise** **4.** **Find a word which has a similar meaning to each of the following.**

|  |  |
| --- | --- |
| 1. An official rule or order. | 1. **redundancy**
 |
| 2. To make or become smaller in size, number, extent, degree, intensity, etc.  | 1. **obstruction**
 |
| 3. Something that blocks a way, prevents progress. | 1. **airworthy**
 |
| 4. An outline or summary of a course of studies. | 1. **to** **maintain**
 |
| 5. To keep from happening, especially by taking precautionary action. | 1. **regulation**
 |
| 6. Related to one another in such a close way that each one needs the others in order to exist. | 1. **interdependent**
 |
| 7. Something that could be dangerous or cause damage or accidents.  | 1. **to** **reduce**
 |
| 8. To keep in proper or good condition. | 1. **hazard**
 |
| 9. A situation in which something is not needed, especially because the same thing or a similar thing already exists. | 1. **syllabus**
 |
| 10. In good condition and safe to fly. | 1. **to** **prevent**
 |

**Exercise** **5.** **Fill** **in** **the** **gaps** **using** **the** **following** **prepositions.**

**in(3)**  **by of (2) at on** **from (2) with**

1. Safety improvements have resulted **1\_\_\_\_\_\_\_\_\_**improved aircraft design, engineering and maintenance, the evolution **2\_\_\_\_\_\_\_**navigation aids.
2. Aviation is based 3\_**\_\_\_\_** a foundation of laws and regulations, most of which are aimed 4\_\_\_maintaining or improving safety.
3. Safety means freedom 5\_\_\_\_\_risk.
4. The concept should include all people directly involved 6 \_\_\_\_\_the operation of aircraft flight crew, ground crew, ATC, meteorologists, and all human involvement 7\_\_\_\_\_aviation.
5. Many aviation hazards are caused 8\_\_\_ problems at the interface between Man, Machine and Environment.
6. Hazards are found 9 \_\_\_the design, manufacture or maintenance of aircraft.
7. A single failure will not result 10 \_\_\_an accident.
8. The physical portion includes those man-made objects that form part 11**\_\_\_** the aviation environment.

**Exercise 6.** **Work** **in** **pairs** **to** **categorize** **the** **following** **cause** **factors** **into** **three** **groups:**

– man;

– machine;

– environment.

Volcanic eruption, engine failure, bird strike, thunderstorm, landing gear failure, colliding with the mountain while under the control of the pilot, marginal weather, malfunctioning navigation aid, violation of standard operation procedures, aircraft overloading, loss of situation awareness, poor knowledge of aviation English.

**Exercise** **7.** **Categorize** **the** **Environment** **cause** **factors** **into:**

– natural / man-made;

– physical / non-physical.

Airports, temperature, wind, landing aids, airfield lighting, rain, ice, aeronautical charts, air traffic control, lightning, international legislation, regulations, mountains, navigational aids, volcanic eruptions, airport equipment, fog, standard operating procedures, high obstructions, training syllabi, national legislation, snow, hail.

**Exercise** **8.** **Fill** **in** **the** **gaps** **using** **the** **words** **given** **below.**

**performance** **circadian** **disrythmia ultra** **long-haul human** **demands** **equipment** **hostile** **environment** **jet-lag** **extreme** **understanding** **economically** **feasible** **obstacle**

Aviation is the safest means of transport today. The safety of civil aviation is especially important when we consider the extraordinarily 1)… … in which flight operations take place. On the one hand, the physical environment, with 2)… temperatures and pressures, makes unsupported human life impossible.

In addition, speeds allowing 3)… … trans-meridian operations in short period of time, require careful consideration of basic human 4)… characteristics such as 5) … and 6)… … . On the other hand, the socio-economic environment, with market 7)… that require aviation organizations to attempt to produce “more with less” to remain 8)…, generates some problems to those who operate, maintain and control the system. One major 9)… remains to compensate 10)… error. Not just in the cockpit, but in every process surrounding flight operations, from designing and manufacturing aircraft and navigation 11) ..., to radio communications, to the commercial decisions that affect daily operations. The full 12)… of human error is the key to continue providing humans everywhere on the planet with the safest means of transportation ever created.

**Exercise 9. Arrange the letters in the correct order to get the word**

1. **eglonislati**- consists of a law or laws passed by a government
2. **tevpren** something means to ensure that it does not happen
3. **iorrthawy** means that an aircraft is safe to fly.
4. **esongainvtiti** -a careful search or examination in order to discover facts
5. **asstedir -** a very bad accident such as an earthquake or a plane crash, especially one in which a lot of people are killed

#  Unit 2 ICE AND SNOW

**Vocabulary**

|  |  |
| --- | --- |
| contributory factor- сопутствующий фактор | ice buildup- образование льда |
| steering- управление (носовым колесом) | hoar frost [hɔː frɒst] - иней |
| antiicing system- противообледенительная система | de-icing -противообледенительные процедуры |
| inflatable rubber “boots”- противообледенительные профили  | inlet -входное устройство, воздухозаборник |
| expand- расширять(ся) |  |

**C.** **Read** **the** **text** **and** **translate it.**

**Ice** **and** **Snow**

Snowy and icy conditions are frequent contributory factors to airline accidents. Just as on a road, ice and snow buildup can make braking and steering difficult or impossible.

The icing of wings is another problem and measures have been developed to combat it. Even a small amount of ice or hoar frost can greatly decrease the ability of a wing to develop lift. This could prevent an aircraft from taking off. If ice builds up during flight the result can be catastrophic.

Airlines and airports ensure that aircraft are properly de-iced before takeoff whenever the weather threatens to create icing conditions. Modern airliners are designed to prevent ice buildup on wings, engines, and tails (empennage) by either routing heated air from jet engines through the leading edges of the wing, tail, and inlets, or on slower aircraft, by use of inflatable rubber “boots” that expand and break off any accumulated ice.

Finally, airline dispatch offices keep watch on weather along the routes of their flights, helping the pilots avoid the worst of inflight icing conditions. Pilots can also be equipped with an ice detector in order to leave icy areas.

***Exercise 1.* Give English equivalents of the following words and word-combinations.**

 Авиационные происшествия, образование льда и снега, торможение и рулевое управление, обледенение крыльев, были разработаны меры, развивать подъемную силу, помешать взлету самолета, во время полета образуется лед, обеспечивать очистку воздушных судов от льда перед взлетом, погода угрожает создать условия обледенения, предотвращать образования льда, конструкция современных самолетов предусматривает, на крыльях, двигателях и хвостовом оперении, противообледенительная система, хвостовое оперение, или…..или, направление нагретого воздуха от реактивных двигателей, передние кромки крыла, впускные отверстия, противообледенительные профили, разрушать накопленный лед, следить за погодой, избегать наихудших условий обледенения в полете, сигнализатор обледенения.

**Exercise 3. Give Russian equivalents of the following words and word-combinations.**

Snowy and icy conditions, airline accidents, ice and snow buildup, make braking and steering difficult or impossible, to develop measures, greatly decrease, to develop lift, prevent an aircraft from taking off, ice builds up during flight, aircraft are deiced before takeoff, icing conditions, to prevent ice buildup on wings, engines, and empennage, routing heated air from jet engines, through the leading edges of the wing, by use of inflatable rubber “boots”, to avoid the worst of inflight icing conditions, to be equipped with an ice detector

***Exercise 2.Write a general and special question for these sentences.***

1. Ice can decrease the ability of a wing to develop lift.
2. Ice builds up during flight.
3. Modern airliners are designed to prevent ice buildup.
4. Pilots can be equipped with an ice detector.

***Exercise 3*. Arrange the letters in the correct order to get the word.**

1. y s o n w
2. e d c i c a t n
3. l u d u b i p
4. s u e m a e r
5. l o e p r m b
6. a s e d e r c e
7. v e l o d e p
8. t e t r h e n a
9. t e c d o r t e

***Exercise 4. Correlate A and B.***

|  |  |
| --- | --- |
| А | В |
| 1. contributory
 | 1. расширяться
 |
| 1. buildup
 | 1. происшествие
 |
| 1. inlet
 | 1. управление
 |
| 1. accident
 | 1. сигнализатор обледенения
 |
| 1. wing
 | 1. предотвращать
 |
| 1. prevent
 | 1. крыло
 |
| 1. steering
 | 1. воздухозаборник
 |
| 1. ice detector
 | 1. сопутствующий
 |
| 1. expand
 | 1. образование
 |

# Unit 3 CONTROLLED FLIGHT INTO TERRAIN

**VOCABULARY**

|  |  |
| --- | --- |
| Controlled Flight Into Terrain (CFIT)- столкновение с землей исправного ВС | aural terrain warning- звуковая сигнализация близости земли |
| Inertial Navigation System (INS) -инерциальная навигационная система (ИНС) | gain altitude- набирать высоту |
| Crew Resource Management (CRM) - оптимизация работы экипажа | Aviation Safety Reporting System (ASRS) -система информации о состоянии безопасности полетов |
| deploy speedbrakes- выпускать тормозные щитки | maintain situational awareness- сохранять ситуационную осведомленность |
| convince-убеждать | over-reliance on - резмерная зависимость от |
| Instrument Flight Rules (IFR)- Правила полета по приборам | Crew Resource Management (CRM)-управление возможностями экипажа |
| International Civil Aviation Organization (ICAO)- Международная организация гражданской авиации |  Instrument Meteorological Conditions (IMC) приборные метеорологические условия  |
| Non-directional beacon (NDB)- ненаправленный радиомаяк |  |

**Controlled Flight Into Terrain**

Controlled flight into terrain is a class of accident in which an undamaged aircraft is flown, under control, into terrain or man-made structures. CFIT accidents typically are a result of pilot error or of navigational system error. Some pilots, convinced that advanced electronic navigation systems such as GPS and inertial guidance systems (inertial navigation system or INS) coupled with flight management system computers, or over-reliance on them, are partially responsible for these accidents, have called CFIT accidents “computerized flight into terrain”. Failures of Instrument Landing System can also cause controlled flight into terrain. One of the most notable CFIT accidents was in December 1995 in which American Airlines flight 965 tracked off course while approaching Cali, Colombia and hit a mountainside after the speedbrakes were left deployed despite an aural terrain warning in the cockpit and an attempt to gain altitude in the nighttime conditions. Crew awareness and monitoring of navigational systems can prevent or eliminate CFIT accidents. Crew Resource Management is a modern method now widely used to improve the human factors of air safety. The Aviation Safety Reporting System, or ASRS is another.

Other technical aids can be used to help pilots maintain situational awareness. A ground proximity warning system is an on-board system that will alert a pilot if the aircraft is about to fly into the ground. Also, air traffic controllers constantly monitor flights from the ground and at airports.

**Exercise 1. Study the information about the Australian accident. Fill in the gaps using the words given below.**

**approach height post-crash accident destroyed injuries cloud terrain crashed local**

The fatal 1) … is a controlled flight into 2) … (CFIT) occurrence, a critical flight safety problem that ICAO and others are attempting to solve. On Friday 11 June 1993, at about 19.18 hours 3) … time, a commuter airliner Piper PA-31-350 Navajo Chieftain aircraft VH-NDU, during landing 4)… to RW 01 in conditions of low 5) … and darkness, struck trees at a 6)… of 275 feet above an uncontrolled airport at Young, New South Wales, and 7)… . The aircraft, which was being operated as Monarch Airlines Flight OB301, was 8)… by impact forces and 9)… fire. All seven occupants, including the two pilots suffered fatal.

**Exercise 2.** **The history of the flight is mixed up. Put it in the correct order.**

1. At about 15 local time on 11 June 1993 a flight plan was activated indicating that a Piper PA-31 was to conduct a flight from Sydney to the regional town of Cootamundra via the town of Young.

2. At 18.01 the pilot advised Flight Information Service (FIS) that he was now proceeding direct to Young and would report at Riley.

3. Shortly after 18.45 witnesses at Young aerodrome saw the lights of an aircraft, which they believed to be the PA-31, pass low overhead after approaching from the east.

4. The flight plan indicated that the flight crewed by two pilots would depart at 17.20 and would be conducted in accordance with instrument flight rules (IFR) procedures.

5. At 18.42 the pilot reported at Young conducting an NDB approach.

6. The flight departed Sydney at 17.38 local time carrying 5 passengers.

7. At 18.14 the pilot reported at Riley, estimating arriving at Young at 18.35.

8. The pilot of the PA-31 reported at 19.03 that he was about to commence another approach at Young and would report again at 19.15.

9. By 18.20 the pilot reported on descent into Young in conditions of cloud and heavy rain.

10. An ambulance reached the wreckage at 19.52 and took the only survivor, a teenage girl.

11. At 19.16 the aircraft reported that he was going to land on RW 01.

12. At 19.20 the navigation lights were lost to sight. Almost immediately a fireball was observed.

13. At 18.48 the same aircraft was seen to pass over the aerodrome from the opposite direction and appeared to climb away towards the east.

14. Local emergency services were activated but had some difficulty gaining access to the accident site, which was located some 2.2 km to the south-east of the aerodrome.

**Exercise 3. Read the information about the crew involved into the Australian accident. Open the brackets and put the verbs into the correct form.**

The pilot-in-command was aged 42 years and (to log) a total of 1,822 hours of which 121 hours to fly in the last 90 days, 187 at night and 377 on type. He (not to fly) during the last 24 hours but (to fly) 47 hours on the actual aircraft in the last 90 days. He (to hold) a multiengine instrument rating, a commercial licence and a Class One medical certificate. He (to be reported) to have a normal sleep period prior to commencing duty and at the time of the accident his duty time (to be) 3 hours.

In the previous 90 days he (to conduct) 3 night landings and 15 daylight landings at Young. During this period he (to make) 3 NDB approaches and 1 ILS approach. Only the ILS approach (to fly) in the accident aircraft. He (to fly) with the second pilot on only one other occasion.

Although the crew (to include) a second pilot, the airline’s normal operating procedures called for only a single pilot. No training (to provide) by the airline for two-pilot operations. The inclusion of a second on this flight (to require) to satisfy a requirement for a second pilot in the event the autopilot (to be) not serviceable.

The second pilot was aged 24 and (to log) a total of 954 hours of which 30 (to fly) in the last 90 days, 65 at night and 43 on type. He (to fly) 2.6 hours in the last 24 hours and 17 on the actual aircraft in the last 90 days. He (to hold) an ATPL (Second Class) licence, a multi-engine instrument rating and a Class 1 medical certificate.

**Exercise 4. Match the abbreviations in column A and their definitions in column B.**

|  |  |
| --- | --- |
| **A** | **B** |
| CFIT | Instrument Landing System |
| ICAO | Crew Resource Management |
| NDB | Instrument Flight Rules |
| CRM | Controlled flight into terrain |
| IMC | International Civil Aviation Organization |
| IFR | Instrument Meteorological Conditions |
| ATPL | Non-directional beacon |
| ILS | Private Pilot Licence |
| VMC | Flight Information service |
| FIS | Visual Flight Rules |
| VFR | Visual Meteorological Conditions |
| PPL | Air Transport Pilot Licence |

**Exercise 5**. **Match the English abbreviations and their Russian equivalents**.

|  |  |
| --- | --- |
| ILS | 1. Служба полетной информации. |
| NDB | 2. Управление воздушным движением |
| ATPL | 3. Свидетельство пилота транспортной авиации.  |
| CRM | 4. Правила полетов по приборам. |
| CFIT | 5. Система посадки по приборам.  |
| ICAO | 6. Правила визуальных полетов. |
| PPL | 7. Приборные метеорологические условия.  |
| MEIR | 8. Ненаправленный радиомаяк. |
| FIS | 9. Визуальные метеорологические условия.  |
| IMC | 10. Свидетельство пилота-любителя. |
| VMC | 11. Минимальная (безопасная) высота пролета препятствий.  |
| IFR | 12. Столкновение с землей исправного ВС. |
| VFR  | 13. Международная организация гражданской авиации.  |
| ATC | 14. Оптимизация работы экипажа в кабине. |
| OCA | 15. Категория, дающая право полета по приборам на многодвигательном ВС. |

Unit 4 **BIRD STRIKE**

**Vocabulary**

|  |  |
| --- | --- |
| predator [ˈpredətə]- predator [ˈpredətə] | bird ingestion- попадание птицы в двигатель |
| the vicinity of the airport- в районе аэродрома | bird strike- столкновение с птицами |
| to ingest a bird into an engine / to suck a bird into an engine- засасывать птицу в двигатель | to ditch into the sea- производить посадку в море |
| flocks of birds- стаи птиц | to ditch onto the river- производить посадку в реку |
| to emit high frequency sounds- издавать звуки высокой частоты  | dump- свалка (мусора) |
| to carry out a runway inspection- выполнять проверку ВПП | to frighten birds away- отпугивать птиц |
| a pigeon [ˈpɪʤɪn]- голубь | falcon - сокол |

**Read and translate the text**

Bird strike is an aviation term for a collision between a bird and an aircraft. It is a common threat to aircraft safety and has caused a number of fatal accidents. In 1988 an Ethiopian Airlines Boeing 737 sucked pigeons into both engines during take-off and then crashed in an attempt to return to the Bahir Dar airport; of the 104 people aboard, 35 died and 21 were injured. Canada Geese were ingested into the engines of US Airways 1549 causing the engines to fail on the Airbus A320 that ditched onto the Hudson River. The highest risk of the bird strike is during the takeoff and landing, in low altitudes, which is in the vicinity of the airports. Some airports use active countermeasures from recorded sounds of predators to employing falconers. Poisonous grass can be planted that is not tasty to birds, nor to insects that attract birds. Passive countermeasures involve avoiding conditions attracting flocks of birds to the area (e.g. dumps). Another tactic found effective is to let the grass at the airfield grow taller (approximately 30 centimetres) as some species of birds won’t land if they cannot see one another.

**Exercise 1. Match words on the left with their equivalents on the right**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | to carry out an inspection | a | производить посадку в море |
| 2 | runway | b | столкновение с птицей |
| 3 | a collision | c | во время взлета |
| 4 | to emit sounds | d | столкновение |
| 5 | to ditch into the sea | e | разбиваться |
| 6 | bird strike | f | малая высота |
| 7 | during take-off | g | при попытке |
| 8 | low altitude | h | взлетно-посадочная полоса |
| 9 | in an attempt | i | издавать звуки |
| 10 | to crash | j | проводить проверку |

**Exercise 2. Translate the following sentences from Russian into English**

1. Столкновение с птицами представляет собой общую угрозу безопасности полетов воздушных судов.
2. Самолет засосал голубей в оба двигателя во время взлета, а затем разбился при попытке вернуться в аэропорт.
3. Самый высокий риск столкновения с птицами приходится на время взлета и посадки.
4. Некоторые аэропорты используют активные меры противодействия от записанных звуков хищников до использования соколов.

**Exercise 3. Give Russian equivalents of the following words and word-combinations.**

A collision between a bird and an aircraft, to cause problems, attempt to make the environment less attractive to animals and birds, to keep birds away from airports, flight safety, bird strike at high altitudes, what species of birds, to be a serious hazard, to ingest a bird into an engine, the rules governing the transportation of animals in the hold, to frighten birds away, to ditch into the sea, on cargo aircraft.

**Exercise 4. Put 5 questions to this sentence.**

1. Bird strike has caused a lot of fatal accidents.

2. Some airports use active countermeasures.

# Unit 5 AVIATION SECURITY

**Vocabulary**

|  |  |
| --- | --- |
| security - безопасность | counter-terrorism - борьба с терроризмом |
| to prevent-предотвратить | refer to –относиться к |
| ham-причинение вреда | due to-из-за |
| hijacked [ˈhaɪʤækt]- захваченный | lethal weapon [ˈliːθəl ˈwepən] – смертоносное оружие |
| attractive- привлекательный | would-be attackers- потенциальные злоумышленники |
| reassure [riːəˈʃʊə]-заверить | serve- служить |

The goal of aviation security is to prevent harm to aircraft, passengers and crew, as well as support national security and counter-terrorism policy.

Airport security refers to the techniques and methods used in protecting airports and aircraft from crime.

Large numbers of people pass through airports. This presents potential targets for terrorism and other forms of crime due to the number of people located in a small area. Similarly, the high concentration of people on large airliners, the potential high death rate with attacks on aircraft and the ability to use a hijacked airplane as a lethal weapon may provide an attractive target for terrorism.

Some incidents have been the result of travelers carrying either weapons or items that could be used as weapons on board aircraft so that they can hijack the plane. Travelers are screened by metal detectors and/or millimeter wave scanners. Explosive detection machines can also be used for both carry-on and checked baggage. Generally people are screened through airport security into areas where the exit gates to the aircraft are located.

Airport security attempts to prevent would-be attackers from bringing weapons or bombs into the airport. If they can succeed in this, then the chances of these devices getting on to aircraft are greatly reduced. As such, airport security serves several purposes: to protect the airport from attacks and crime and to protect the aircraft from attack, and to reassure the travelling public that they are safe.

**Exercise3. Give English equivalents of the following words and word-combinations.**

Поддержка, национальная безопасность, борьба с терроризмом, защита от преступлений, проходить через аэропорты, потенциальные мишени, преступность, из-за большого количества людей, аналогичным образом, высокая концентрация, возможность использования захваченного самолета, в качестве оружия, захватить самолет, проверять с помощью металлодетекторов и/или сканеров миллиметровых волн, ручная кладь, зарегистрированный багаж, выходы на посадку в самолет, помешать потенциальным злоумышленникам, преуспевать, служить нескольким целям, защита воздушного судна от нападений заверять, в безопасности.

**Exercise3. Give Russian equivalents of the following words and word-combinations.**

The goal, to prevent harm to aircraft, as well as, national security and counter-terrorism policy, used in protecting airports and aircraft, large number of people, pass through airports, other forms of crime, due to, similarly, the high concentration of people, to use a hijacked airplane, travelers are screened by metal detectors, explosive detection machines, for both carry-on and checked baggage, people are screened, exit gates, airport security attempts to prevent, the chances are greatly reduced, airport security serves several purposes, to protect the airport from attacks, to protect the aircraft from attack, to reassure, safe.

**Exercise 3. Arrange the letters in the correct order to get the word.**

1. rentpve
2. rortismer
3. racatttive
4. apowen
5. vprideo
6. surreaes
7. ursyecit

**Exercise 4. Answer the guestons.**

1. What is the goal of aviation security?
2. What may provide an attractive target for terrorism?
3. What are travelers screened by?
4. What purposes does airport security serve?
5. Who is screened by metal detectors?

**Unit 6 SAFETY**

**Vocabulary:**

**SARPS** **(International Standards and Recommended Practices)** – САРП, Международные стандарты и рекомендации по их применениюachievement- достижение

|  |
| --- |
| airline safety practices - правила безопасности авиакомпании |
| constantly taking steps- постоянно предпринимать шаги |
| crash- авария, авиакатастрофа |
| disciplines- преподаваемые дисциплины |
| engineering- радиотехника |
| ensure- обеспечивать |
| failure- неисправность  |
| hazardous weather conditions – опасные погодные условия |
| malfunctioning of airborne and ground aids – неисправность бортовых и наземных средств |
| meteorology- метеорология |
| prevention of collisions- предотвращение столкновений |
| proficiency- умение, мастерство |
| revise the provisions- пересмотреть положения |
| rigid (strict) procedures- жесткие (строгие) процедуры |
| safety – безопасность  |
| sufficient - достаточный |

***PHRASES:***

**to cover all of the potential situations**- чтобы охватить все возможные ситуации

1. Safety is the most important problem in aviation. The **prevention of collisions** between aircraft in the air and on the ground is the main task of aviation specialists.
2. The **achievement** of aviation safety is the result of progress in many sciences and **disciplines** including **engineering,** aerodynamics, **meteorology,** psychology, medicine and economics.
3. Safety is **ensured** by thousands of ICAO and governmental regulations, by high standards in the design and manufacture of an aircraft and by **rigid (strict)** **procedures** of **airline safety practices.**
4. The aviation industry is **constantly** **taking steps** to prevent accidents but the **crashes** do occur time after time. They result from different causes: **failure** in the aircraft structure, human errors, navigational failures, **malfunctioning** of **airborne** and **ground aids**, **hazardous weather conditions** and so on.
5. Poor knowledge of English can also contribute to or result in an accident or incident. Therefore ICAO **revised the provisions** related to the use of the language for radiotelephony communications and demands good discipline to follow more closely to standard phraseology in all air-ground exchanges.
6. Experience has shown that phraseology alone is not sufficient to cover all of the potential situations, particularly in critical or emergency situations. That’s why proficiency in common or plain language is also of great importance.
7. One of ICAO’s chief activities is standardization in all spheres of aviation operations. The main ICAO document is SARPS (International Standards and Recommended Practices). Its main task is to provide the necessary level of standardization for safe and regular air operations.

**EXERCISES**

**1. Ответьте на вопросы:**

1. What is the most important problem in aviation?
2. What is the main task of aviation specialists?
3. By what means is safety ensured?
4. What factors may cause accidents?
5. What can you say about the role of language in the problem of safety?
6. Can radiotelephony alone cover all of the potential situations?
7. What is the main document ICAO?
8. What is the main task of SARPS?

**2. Переведите слова, обращая внимание на словообразующие элементы:**

achieve – achievement

care – careful – careless – carelessness

close – closely

collide – collision

communicate – communication – communicative – community

critical – critically – criticize – criticism – uncritical

danger – dangerous – dangerously

differ – different – differently –difference

ensure – insurance

fail – failure

govern – governor – government – governmental

hazard – hazardous

know – knowledge – unknown

navigate – navigator – navigation – navigational

necessary – necessarily – necessity – unnecessary

prevent – preventive – prevention

proficient – proficiently – proficiency

provide – provision – provider

regular – regularly –regulation – regularity – irregular

relate – relation – relative – relatively – relativity

safe – safety – unsafe

special – specially – specialist – speciality – specialize – specialization

sufficient – sufficiently – sufficiency – insufficient

terror – terrible – terribly – terrific

 **3. Переведите на английский язык:**

1. Самая важная проблема в авиации – безопасность.
2. Для обеспечения безопасности полетов ИКАО установила специальные правила и процедуры.
3. Все государства – члены ИКАО должны строго соблюдать все правила и процедуры, принятые ИКАО.
4. Одна из самых задач авиационных специалистов – предотвращать столкновение самолетов в воздухе и на земле.
5. Достижения в технике, аэродинамике и других науках повышают авиационную безопасность.
6. Еще одним условием, обеспечивающим авиационную безопасность, является стандартизация во всех авиационных операциях.
7. Всем авиационным специалистам очень важно знать английский язык.
8. Хорошее знание английского языка необходимо для обеспечения безопасности полетов.
9. Причина катастрофы - человеческая ошибка.
10. Самолет не смог вылететь из-за опасных погодных условий.
11. Отказ двигателя привел к катастрофе.
12. В районе аэропорта аварийная ситуация.
13. Одна из главных задач ИКАО – обеспечивать необходимый уровень безопасности.

**4**. **Образуйте прилагательные с помощью суффиксa –*ous*. Переведите их на русский язык:**

fame, nerve, danger, adventure, poison, marvel, courage, luxury, vary, ridicule, humour, industry

**5. Сделайте правильный выбор. Переведите предложение.**

1. What is the (long, length) of the corridor?

2. How (long, length) is the street?

3. He is not (strong, strength) enough to fight with John?

4. My brother can lift the box because of his (strong, strength).

5. Nelly’s skirt is too (wide, width).

6. We can’t get the piano through the door because of its (wide, width).

7. Is spring a (warmth, warm) season?

8. We felt the (warm, warmth) of the sun on out faces and hands.

9. We were surprised at your formal (polite, politeness).

10. We were not struck by the (white, whiteness) of the snow.

**GRAMMAR REFERENCE**

**1. ASPECTS and TENSES (ACTIVE)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Simple****неопределенное** | **PRESENT** | **PAST** | **FUTURE** |
| **do (does)** | **did** | **will** |
| usually, often, every, always, seldom, sometimes | Yesterday, Ago, Last year, In 1999, When I was, Once, What time …?, Recently (недавно) | Tomorrow, Soon, Next, In a moment, In 5 minutes, Probably, I hope |
| I usually go to London.He goes to London sometimes. | We walked yesterday.They ran in the park 2 days ago. | You will buy a car in 2 years. |
| **вместо Future Indefinite****(с глаголами движения)** | В придаточных предложениях условия и времени, которые вводятся союзами if, unless,when, till, until, as soon as, before употребляется Present Indefinite вместо Future |
| **The train leaves at 8 p.m.** | If the weather is good we will go on a picnic. |
| **Continuous/****продолженное** | **am****is****are** | **P I**doing | **was****were** | **P I**doing | **will be**  | **P I** doing |
| NowAt the momentLook! Listen!It is 8 o’clock. still | At 8 yesterday From 2 till 3When smb. cameWhileThe wholeIt was 8 o’clock | At 8 tomorrow From 2 till 3When smb. comesWhileThe wholeIt will be 8 o’clock |
| Shh! Baby is sleeping.Is baby sleeping?It isn’t sleeping. | It was raining when I left the house.What was he doing when I called him? | He will still be working at 6 p.m.Will he be going?He won’t be going. |
| **вместо Future Indefinite****(запланированное действие)** | оборот **to be going to do smth****(собираюсь, намереваюсь)** |
| **We are playing tennis tomorrow.** | I **am going to learn** French next year.They **are going to spend** summer in the Crimea. |
| **Perfect/****совершенное** | **have****has** | **P II**done | **had** | **P II**done | **will have** | **P II**done |
| Already, Ever, Never, JustYet, Recently (последнее время), Lately , Of lateSo far, Up to now, TodayThis week, month, yearFor, Since, Since last yearFor agesThis (it) is the first time  | Before, Before she leftAfter, Hardly, Scarcely **By** the end of last week **By** last MondayWhen we came...No sooner … than…This (it) was the first time… | before - доby - кby then - к тому моментуby the time - к тому времениtill/until - до тех пор/до тех пор пока |
| He has gone.Has he gone?He hasn’t gone.We have gone.Have we gone? | He had gone.Had he gone?He hadn’t gone. | He will have gone. |
| **Perfect Continuous/** **совершенное продолженное** | **have****has**  | **been** | **P I**doing | **had**  | **been** | **P I**doing | **will have** | **been** | **P I**doing |
| Since morning Since he cameFor 3 hours….for a long timeHow long…? since when | for a long timefor three hours | for a long timefor three hoursby |
| He has been going.Has he been going? He hasn’t been going. | We **had been eating** soup **for ten minutes** when you came.It **hadn’t been raining** **for half a day** before we met in a cafe. | I will **have been writing** the letter **for an hour** when you come. |

**2. ASPECTS and TENSES (PASSIVE)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Аспект** | **Simple**  | **Continuous**  | **Perfect**  |
| **Время** |
| **Настоящее(Present)** | *am, are, is**+**V-ed, V3* | *am, are, is**+**being V-ed, V3* | *to have/has been**+**V-ed, V3* |
| I **am** often **asked** by the people about ... Меня часто (обычно, всегда) спрашивают. | I **am being asked** by my chief... Меня спрашивают прямо сейчас. | I **have been asked** at that moment. Меня уже спросили к этому моменту. |
| **Прошедшее(Past)** | *was/were**+**V-ed, V3* | *was/were being**+**V-ed, V3* | *had been**+**V-ed, V3* |
| I was asked by the policeman ... (Меня спросили)They were asked by the policeman... (Их спросили) | I was being asked.Меня спрашивали в тот момент. | I had been asked. Меня уже спросили к тому моменту. |
| **Будущее(Future)** | will be+V-ed, V3 | **Эта форма отсутствует,** используется Future Simple:will be +V-ed, V3 | will have been+V-ed, V3 |
| I will be asked by the students ... Меня спросят (завтра). | I will have been asked. Меня уже спросят к тому моменту. |

**3. Types of Questions. Типы вопросов**

**1. Общий вопрос**

Общий вопрос – это вопрос, который предполагает в качестве ответа либо ДА, либо НЕТ. Т.е. вопрос для получения общей информации.

В данном типе вопросов не используются вопросительные слова, и начинается он со вспомогательного глагола. Для каждого времени существуют свои вспомогательные глаголы.

Present Simple – DO/DOES

Present Continuous – AM/IS/ARE

Future Simple – WILL (SHALL)

Past Simple – DID

Present Perfect – HAVE/HAS

**Порядок слов в вопросе следующий:**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| Вспомогательный глагол | Подлежащее (кто/что) | Смысловой глагол (в нужной форме) | Дополнение и определение |

Примеры:

– Do you play tennis every week? – Yes, I do/No, I don’t.

– Is he a good driver?  – Yes, he is/No, he isn’t.

– Will we go to the restaurant tonight? – Yes, we will/No, we won’t.

– Did she go to the disco yesterday? – Yes, she did/No, she didn’t.

– Have you ever visited Poland? – Yes, I have/No, I haven’t.

**2. Специальный вопрос**

Это вопрос для получения дополнительной информации. Поэтому он всегда начинается с вопросительного слова. Перечислим самые популярные вопросительные слова английского языка

when – когда

where – где, откуда

why – почему

how – как

which – какой, который

и т.п.

ВОПРОИТЕЛЬНОЕ СЛОВО+ОБЩИЙ ВОПРОС

Порядок слов:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Вопросительное слово | Вспомогательный глагол | Подлежащее | Смысловой глагол | Дополнение |

Примеры:

– When did you go to Moscow last time?

– What is your name?

– How do you get to work?

**3. Вопрос к подлежащему** начинается с вопросительного слова

Who - кто , What – что

Вспомогательные глаголы do, does, did не требуются.

Порядок слов:

1. Who/What – 2. Смысловой глагол в 3 лице ед. числа– 3. Дополнение

Примеры

–  Who is this man?

– What was near the park?

-  Who bought a car?

- Who knows about it?

**5. Разделительный вопрос**

Разделительный, потому что этот вопрос состоит из 2-х частей, разделенный запятой.

I часть – повествовательное предложение, в вопросительной или отрицательной форме.

II часть – краткий общий вопрос.

– You play tennis every day, don’t you?

Если в 1 части утверждение, то 2 части краткий общий вопрос стоит в отрицательной форме.

Отрицание может быть выражено с помощью not, never, neither...nor.

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