

Possibilities of Computer Lexicography in Compiling Highly Specialized Terminological Printed and Electronic Dictionaries

(Field of Aviation Engineering)

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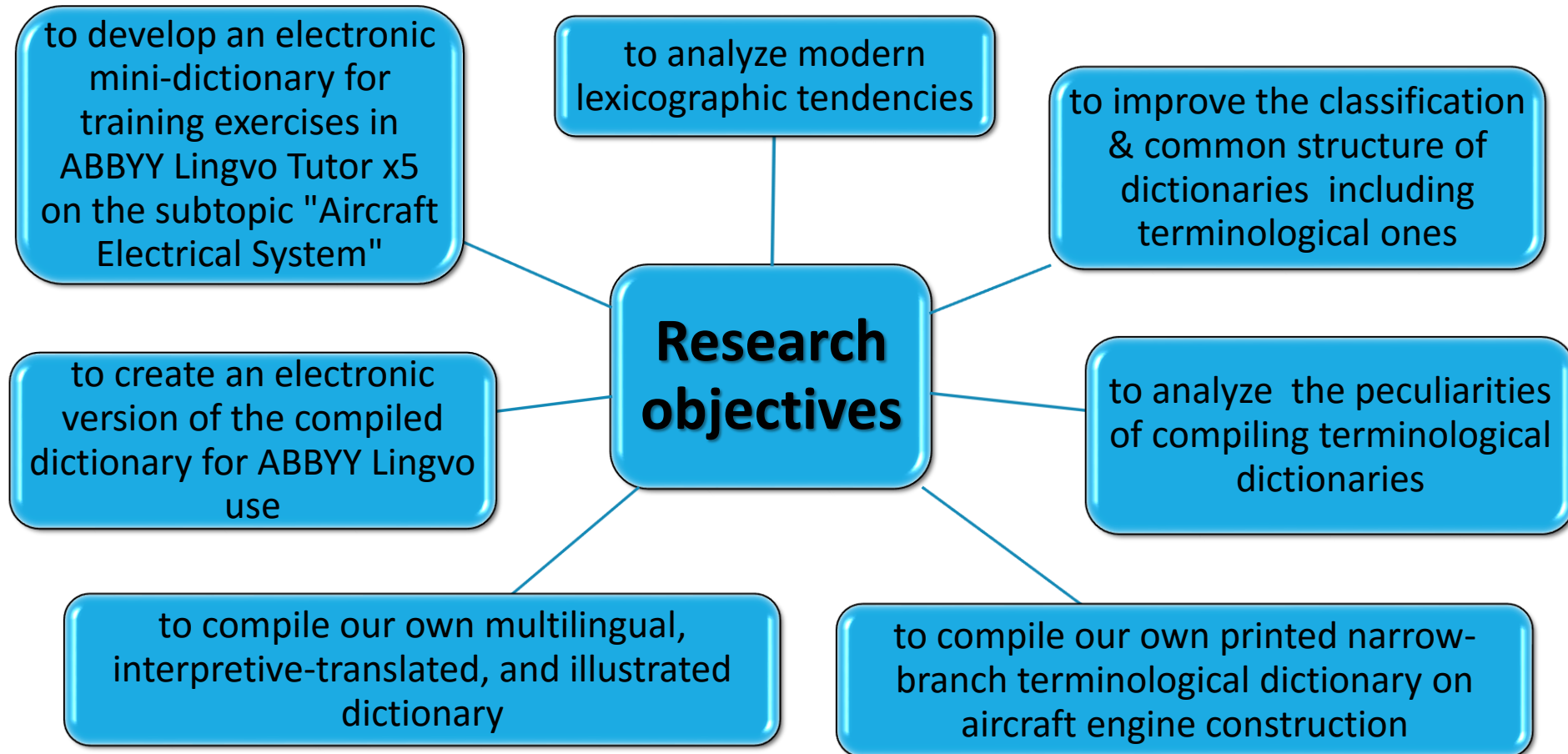
Possibilities of Computer Lexicography in Compiling Highly Specialized Terminological Printed and Electronic Dictionaries

The object of research is the theoretical foundations and practical principles of compiling narrow-branch terminological dictionaries.

The subject of the research is the ways of creating electronic narrow-branch terminological dictionaries on aviation terminology.

The aim of the work is to create a narrow-branch terminological dictionary on aircraft engine construction both in printed and electronic form.

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General classification of dictionaries

by the order of words

by lexicographic form (explanatory, frequency, glossaries, concordances)

by format (printed, electronic, Internet dictionaries)

by the volume of vocabulary

by the size of the dictionary
(large, medium, small)

alphabetical, ideographic, conceptual

dictionaries for general purposes
(academic) & for special purposes

Common macrostructure of dictionaries

introductory part or preface

section on the use of the dictionary

a list of abbreviations used in the dictionary and their explanations

the body of the dictionary
(dictionary register)

additional material

list of lexicographic sources

General Classification of Terminological Dictionaries

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graph TD; A[General Classification of Terminological Dictionaries] --> B[According to the Type]; A --> C[According to the Kind]; C --> D[according to the information component]; C --> E[according to the material component]; C --> F[according to the circumstances of existence in the external environment];
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According
to the Type

According
to the Kind

according to the information component

according to the material component

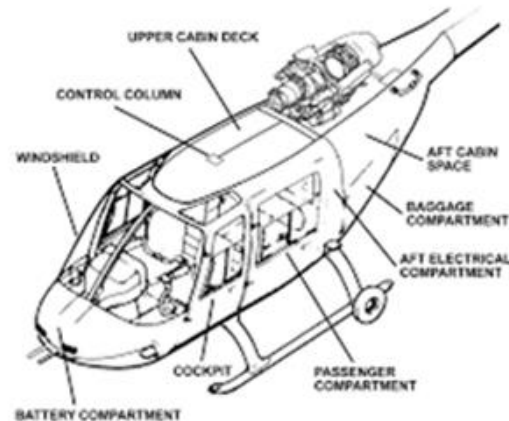
according to the circumstances of
existence in the external environment

Compiling Paper Dictionary

Macrostructure

Introduction or preface;
The section devoted to the rules of the dictionary usage;
The key to the transcription system;
The body of the dictionary.

Compartment [kəm'pɑ:t.mənt]



Microstructure

Title; transcription of the term;
Translation of the term into Ukrainian and Russian;
Illustration to the term;
Definition of the term in English;
Name of the source from which the definition and example were taken; an example of the term use.

Укр. 1. кабіна, відділення, відсік
Рос. 1. кабина, отделение, отсек

Definition: One of the separate areas inside a vehicle
[<https://www.collinsdictionary.com/dictionary/english/compartment>].

Example: She folded her coat and put it in the overhead luggage compartment
[<https://www.collinsdictionary.com/dictionary/english/compartment>].

Overcoming Typical Terminological Difficulties

$$LD_n \leftarrow LD_{n-1} \leftarrow \dots \leftarrow LD_2 \leftarrow LD_1 \leftarrow \text{KW} \rightarrow RD$$

1. Identification of the terminological group and definition of its boundaries, i.e. the extreme left and right definitions.
2. Translation of the keyword, which during the translation changes its position from the extreme right position (in English) to the left or extreme left, typical for the Ukrainian language, and vice versa.
3. Translation the keyword together with the first left definition, then with the second and so on. When translated into Ukrainian, the left English phrase in the Ukrainian language becomes the right one.
4. Translation of the right definition, and its "transfer" (LD2) before the keyword.

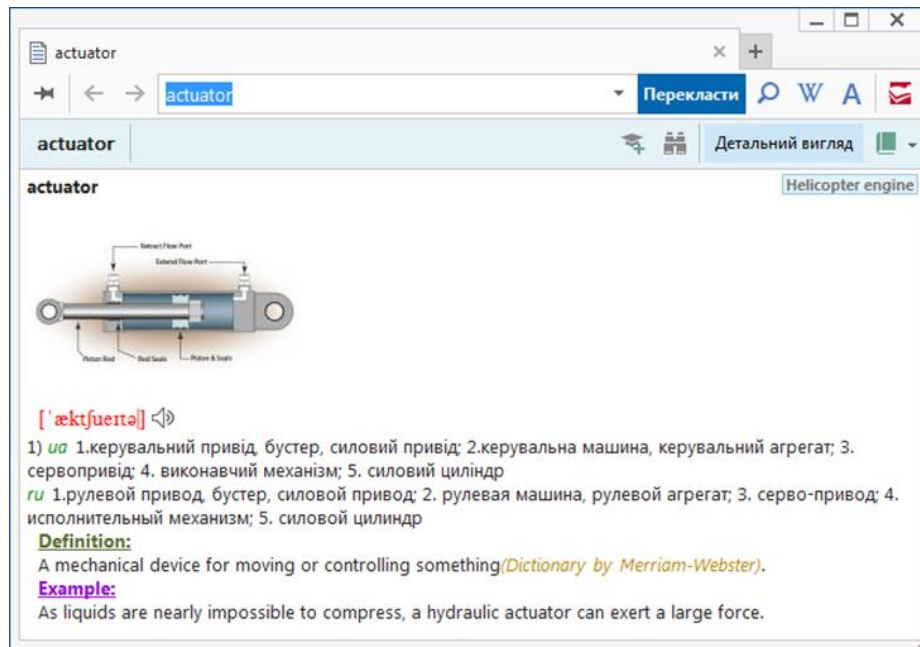
computer-aided design **system**

система автоматизованого проектування

The Concept of Electronic Dictionary and Its Types

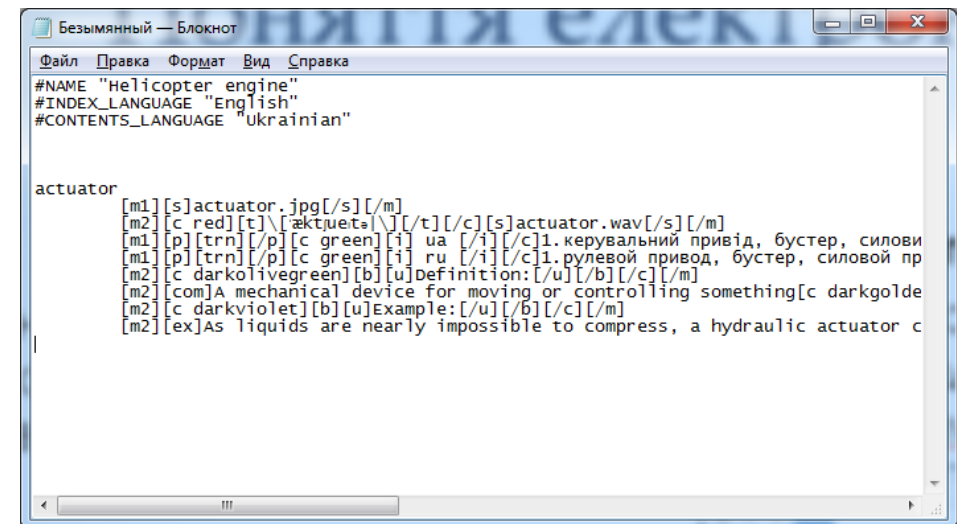
LUD dictionaries

the simplest type of dictionaries that has the form "word-translation"



Dictionaries of LSD (.lsd) type

can contain all types of markup allowed by ABBYY Lingvo (transcription, grammar, examples, comments, sound, different types of fonts and even links)

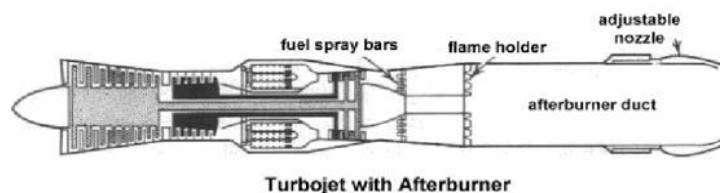


Example of Dictionary Articles of the Created Dictionary

afterburner

[ˈɑːftə bɜːnə]

форсажна камера/форсажная камера



a device incorporated into the tailpipe of a turbojet engine for injecting fuel into the hot exhaust gases and burning it to provide extra thrust.

[<https://www.merriam-webster.com>]

The engine suffers a very slight penalty in thrust during cold operation as a result of the drag caused by the flameholders, fuel spray bars, and the walls of the afterburner.

[Aircraft Engine Design, Jack D. Mattingly]

afterburning

[ˈɑːftə bɜːnɪŋ]

1. форсаж; 2. горіння (палива) у форсажній камері / 1. форсаж; 2. горение (топлива) в форсажной камере



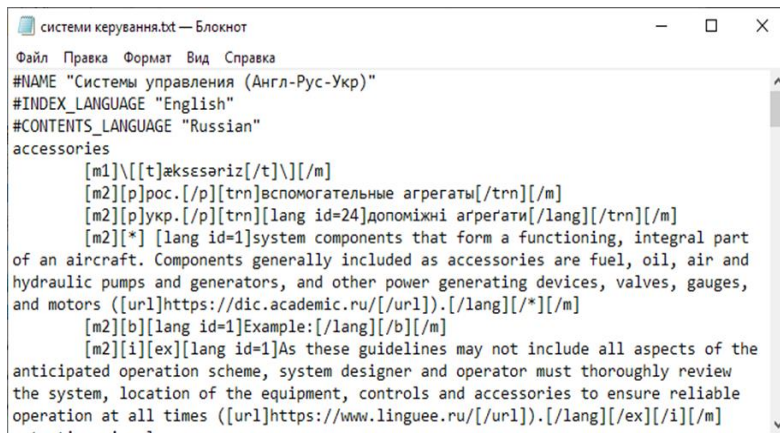
1. a process in which additional fuel is ignited in the exhaust gases of a jet engine to produce additional thrust; 2. persistence of combustion in an internal-combustion engine, either in an incorrect part of the cycle or after the ignition has been switched off.

[<https://www.collinsdictionary.com>]

Afterburning is an injection and combustion of additional fuel in specially designed jetpipe (afterburner) of turbojet to provide augmented thrust.

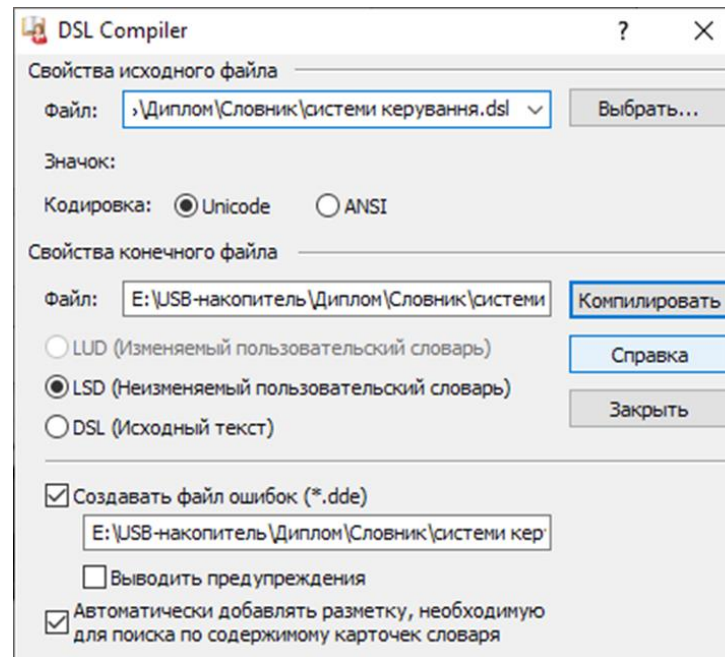
[The Cambridge Aerospace Dictionary, Bill Gunston]

The Process of an Electronic DSL Dictionary Development in ABBYY Lingvo

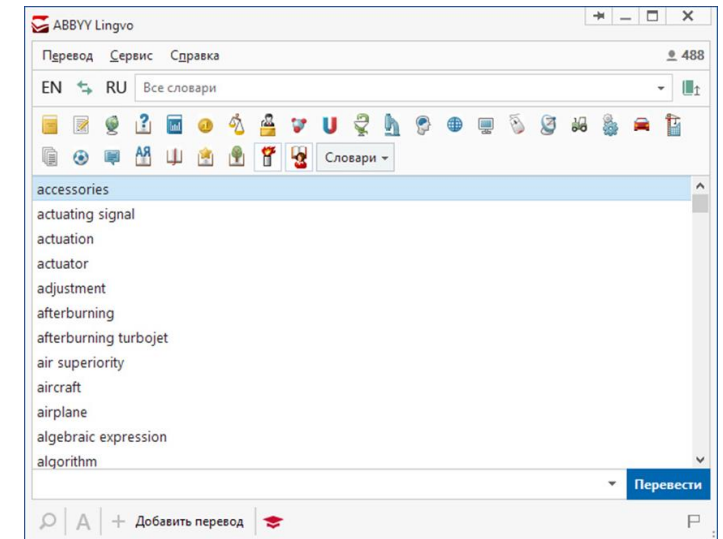


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системы керування.txt — Блокнот
Файл  Правка  Формат  Вид  Справка
#NAME "Системы управления (Англ-Рус-Укр)"
#INDEX_LANGUAGE "English"
#CONTENTS_LANGUAGE "Russian"
accessories
[m1]\[[t]æksesəriz[/t]\[/m]
[m2][p]рос.[/p][trn]вспомогательные агрегаты[/trn[/m]
[m2][p]укр.[/p][trn][lang id=24]допоміжні агрегати[/lang][trn[/m]
[m2][*] [lang id=1]system components that form a functioning, integral part
of an aircraft. Components generally included as accessories are fuel, oil, air and
hydraulic pumps and generators, and other power generating devices, valves, gauges,
and motors ([url]https://dic.academic.ru/[url]).[/lang][*/[/m]
[m2][b][lang id=1]Example:[/lang][b[/m]
[m2][i][ex][lang id=1]As these guidelines may not include all aspects of the
anticipated operation scheme, system designer and operator must thoroughly review
the system, location of the equipment, controls and accessories to ensure reliable
operation at all times ([url]https://www.linguee.ru/[url]).[/lang][ex][i[/m]
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CODING



COMPILATING



DICTIONARY CONNECTION

Example of a Dictionary Card in the ABBYY Lingvo Electronic Dictionary

The screenshot displays the ABBYY Lingvo Electronic Dictionary interface. At the top, a search bar contains the text 'actuating signal'. Below the search bar, the dictionary card for 'actuating signal' is shown. The card includes the phonetic transcription ['æktʃu, eɪt 'sɪgnəl], the Russian translation 'рос. управляющий сигнал', and the Ukrainian translation 'укр. керувальний сигнал'. A definition follows: 'Actuating signal is the signal which is the difference between the reference signal and the feedback signal' with a link to <https://dictionary.cambridge.org>. An example is provided: 'If the output "actuating signal down" is set, the actuating valve is opened' with a link to <https://www.linguee.ru/>. Below the definition, there is a section titled 'Переводы пользователей' (User Translations) with a '+ Добавить перевод' (Add translation) button. This section contains a table with user-submitted translations.

Переводы пользователей		+ Добавить перевод
actuating signal		
Сетевые технологии и телекоммуникации	сигнал возбуждения	↑ ↓
Производство	сигнал возбуждения	
Наука и технологии	сигнал возбуждения	

Highly Specialized Database of Terms

A B C D			
Aircraft Engine-Building			Ukrainian-EnglishUnitedStates
Word	Pronunciation	Translation	Examples
absorbent glass mat (AGM)	əb'sɔ:bəntglɑ:s mæt (ei-dʒi:-em)	поглинаючий скляний мат / поглощающий стеклянный мат	AGM has very low internal resistance, is capable to deliver high currents on dema
ac (alternating current)	ei-si: ('ɔ:ltəneɪtɪŋ 'kærənt)	змінний струм / переменный ток	Alternating current lends itself well to being transformed to lower or higher voltag
ac motor	ə si: 'məʊtə	електродвигун змінного струму / (электро)двигатель переменного тока	On a CRJ-200 the flap power drive unit, hydraulic pump, horizontal stablizer trim a
accumulator	ə'kju:mjələtə	аккумулятор / аккумулятор	Some accumulators accept energy at a high rate over a short time interval and del
acid density	'æsid 'densiti	щільність електроліту / плотность электролита	In other words, keeping a low acid density electrolyte, you should still be able to p
acid level indicator	'æsid 'levl 'ɪndɪkeɪtə	індикатор рівня електроліту / индикатор уровня электролита	Acid level indicator shows the designed operating level of the electrolyte. You can
active iron	'æktiv 'aɪən	активне залізо / активное железо	Usually the amount of active iron is increased or decreased by lengthening or sho
active mass	'æktiv mæs	активна маса / активная масса действующая масса	The influence of the suspension of positive active mass particles in the electrolyte
active material	'æktiv mə'tɪəriəl	активний (електротехнічний) матеріал / активный (электротехнический) материал	Proper preparation of the active material is the basis for high-performance lithiur
actual capacity	'æktʃuəl kə'pæsɪti	дійсна ємність / действительная ёмкость	The actual capacity of the battery declines with age and its end of life is reached w
actuator	'æktʃuətə	виконавчий механізм / силовой привод	When considering force in actuators for applications, two main metrics should be
adapter	ə'dæptə	перехідний рознімач / переходник	Some starter designs may be causing premature adapter wear.
aging	'eɪdʒɪŋ	приробітка / приработка	The aging process of lithium-ion is cell oxidation, a process that occurs naturally
air gap	eə gæp	повітряний зазор / воздушный зазор	This air gap increases the reluctance between the stator and the rotor, which enha
air pressure switch	eə 'preʃə swɪtʃ	пневматичне реле тиску / пневматическое реле давления	Position air pressure switch on mounting bracket and install nuts, washers, space
air temperature switch	eə 'tɛmpərɪʃə swɪtʃ	реле температури повітря / реле температуры воздуха	The cabin air temperature switch must be at AUTO when the pilot's canopy defog k
air-over motor	eə 'əʊvə 'məʊtə	двигун з обдувом повітря / двигатель с обдувом воздуха	A totally enclosed air over motor is not self ventilated and must be cooled by mea
aircraft	'eɪkrɑ:ft	літак / самолет	Early aircraft, including airships, often employed flexible doped aircraft fabric co
airfoil	'eɪfɔɪl	аеродинамічний профіль / аэродинамический профиль	The lift on an airfoil is primarily the result of its angle of attack and shape.
airscrew	'eɪskru:	повітряний гвинт / воздушный винт	An aircraft propeller or airscrew converts rotary motion from an engine or other n
airscrew blade	'eɪskru: bleɪd	лопать гвинта / лопасть винта	What I have done is to formulate an analytical solution of the problem of coupled
airscrew reduction gear	'eɪskru: rɪ'dʌkʃən gɪə	редуктор повітряного гвинта / редуктор воздушного винта	This engine has a 45 airscrew reduction gear.
alloy	'ælɔɪ	сплав / сплав	Alloys are usually classified as substitutional or interstitial alloys, depending on
alternator	'ɔ:ltəneɪtə	генератор змінного струму / генератор переменного тока	The important thing to remember is that a piston-powered aircraft engine does not

Educational Dictionaries

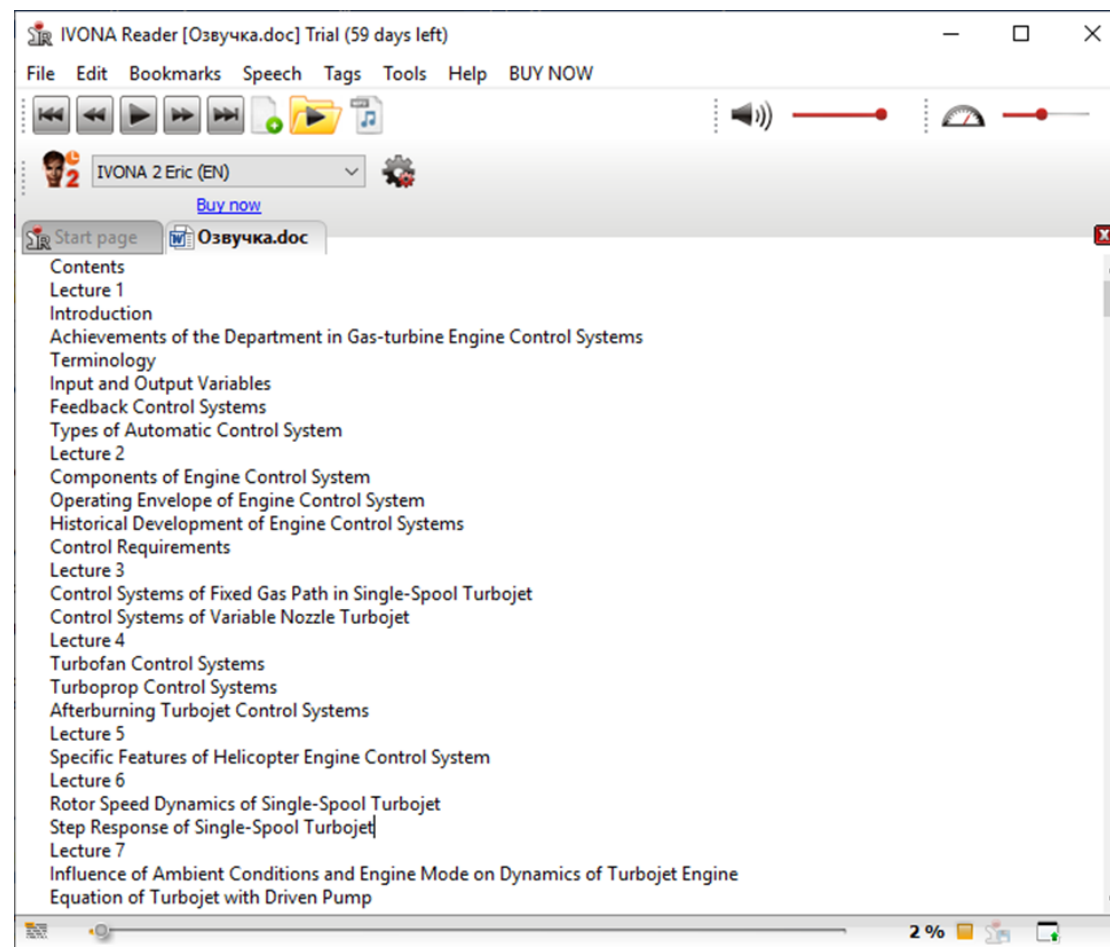
ABBYY Lingvo Tutor x5

Обучение Словарь Справка

EN RU Расписание Упражнения ABC

Слова для изучения	Всего слов	Выучено
<u>Aircraft Electrical System</u>	222	0
dictionary1-Types of motors	21	0
dictionary3-Engine parts	24	0
dictionary4-motor battery elements	29	0

An example of a soundtrack development in IVONA Reader



Completed Tasks

- compiled a highly specialized printed terminological dictionary in the field of aircraft engineering;
- managed to find an adequate amount of terminological material;
- ensured the availability of all necessary pieces of information in the dictionary;
- avoided unnecessary information;
- designed the electronic version of the dictionary to make it easier for users of different levels of English to work with technical texts in the field of aircraft engine construction.

Thank you for attention