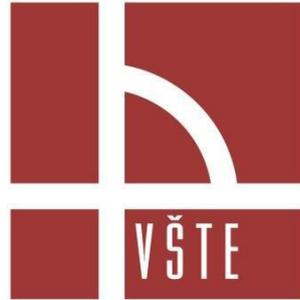


**INSTITUTE OF TECHNOLOGY AND  
BUSINESS IN ČESKÉ BUDĚJOVICE**



# **Methodology of Writing Professional Works**

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## Foreword

This textbook is intended for students of the Institute of Technology and Business in České Budějovice. The first edition was revised and updated: VOCHOZKA, M., J. VÁCHAL a P. ROUSEK, 2012. *Methodology of Writing Scientific Papers at ITB*. [CD]. České Budějovice: Institute of Technology and Business. ISBN 80-7468-027-4.

The aim is to facilitate writing seminar and scientific papers and theses. We are aware that this “know-how” is very difficult to acquire, especially in the early stages of studies, but at the same time, the acquisition of these skills facilitates communication within the professional community. The practice then shows that most of papers with difficult defence are not poor for "professional" reasons, but just because of the "ignorance" of formalities.

At the same time, the text is compulsory literature of the subject "Methodology of scientific writing" aimed at providing students with professional knowledge and practical skills in the preparation, development, presentation and defence of student papers. Upon completion of this course, the student should be able to define the objective and hypotheses of a paper, describe the methods used as well as collect information from information sources as per the citation standard and analyse them in compliance with the stated objective of the paper. They should also be able to synthesize the acquired knowledge and formulate conclusions, including recommendations and suggestions, and draft a presentation, or master the principles of verbal communication and be able to defend their achieved results before other experts.

Of course, the authors recognize that the presented instructions may appear as mandatory directions and the usage of references, text structuring, or formatting, etc. can be different in later academic practice (these formalities are always within the competence of the customer who determines their specific form). Because this text is intended to help readers who are yet to become authors of academic papers, we decided not to introduce a large number of different permissible styles which might be unnecessarily confusing and go with one style that we use at the Institute of Technology and Business (ITB) and present as required to our students.

The textbook is divided into separate chapters with a logical structure and mutual relationship. There is a standard structure of research (scientific) paper with a precisely defined internal breakdown and detailed instructions for implementation. Practical examples of composing the individual parts are provided as appropriate. The formal requirements for completion are clearly specified, including text formatting, drawing up tables, charts, pictures and diagrams,

etc. In general, bibliographic references and referencing standards are more accentuated. Attention is also drawn to the submission of a paper, the actual defence and evaluation of bachelor or master thesis. It also characterizes the creative approach to the concept of assigned topics and describes the issue of collection and evaluation of information, including statistical processing, and other related issues that are necessary to achieve the goal. Note that the supervisor should be consulted in case of any uncertainties during the development of a paper or thesis. You can find answers to many questions in the study and examination code, and the guide to writing papers and theses, the current referencing standards, seminar paper template, bachelor thesis template, dissertation template, or the study materials of the subject Methodology of Scientific Writing, etc.

Special thanks to doc. Ing. Ján Ližbetin, PhD. and PhDr. Irena Kozmanová, Ph.D. for their

The authors wish you every success in studying this textbook, especially in its practical application. Thank you in advance for any comments, suggestions and recommendations at: [stellner@mail.vstecb.cz](mailto:stellner@mail.vstecb.cz).

České Budějovice, November 2016

# 1 Science and Research

University student papers are characterized as **scientific** (research) **studies**. It follows that they are part of scientific research. **Science** is defined as the systematic way of observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena; it is a system of objective statements of facts based on methodology. Science is public because scientific knowledge is open to public scrutiny and clarified in the media. At the same time, science is historical because knowledge is based on previous events and research. It is repeatable because scientific conclusions can be validated and verified by repeating the experiment. Science is provisional, knowledge is constantly changing and evolving, and probabilistic as the interpretation of scientific experiments is based on mathematical models. Sciences explore quantitative and spatial relationships, organic and inorganic nature, man and social phenomena.

The **general classification** used for statistical purposes of the Czech government in accordance with the European Union standard is as follows:

- 1) NATURAL SCIENCES (mathematics, computer sciences and informatics, physical sciences, chemical sciences, earth sciences and related environmental sciences, biological sciences),
- 2) TECHNICAL SCIENCES (civil engineering, traffic engineering, electrical engineering, electronic engineering, information engineering, mechanical, nuclear and audio engineering, chemical engineering, material engineering, medical engineering, environmental engineering, environmental biotechnology, industrial biotechnology, nanotechnology),
- 3) MEDICAL SCIENCES (general medicine, clinical medicine, health sciences, medical biotechnology),
- 4) AGRICULTURAL SCIENCES (agriculture, forestry and fisheries, animal and milk sciences, veterinary sciences, agricultural biotechnology),
- 5) SOCIAL SCIENCES (psychology, economics and business, educational sciences, sociology, legal sciences, political sciences, socio-economic geography, media and communication),
- 6) HUMANITARIAN SCIENCES (history and archaeology, languages and literature, philosophy, ethics and religion, art).

In addition to the term 'science', the term '**research**' is also understood as the intellectual process of research with the aim of discovering, interpreting or redefining facts and processes, in other words, it means creative work for the purpose of expanding knowledge about man, culture and society and applying it to create new applications. What scientists do using different methods is what we call research. Research is divided into basic and applied research. **Basic (pure) research** is experimental or theoretical work carried out in order to acquire new knowledge (information) about fundamentals of phenomena and observed facts without considering their specific or practical application. **Applied research** is the original research undertaken to acquire new knowledge and its specific and practical application, therefore including the steps necessary to introduce new or modified products, services or processes into production

Furthermore, the term **experimental development** is currently used which *„includes the acquisition, pooling, shaping and use of the existing scientific and technological, business and other relevant knowledge and skills for development of new or substantially improved products, processes or services“* (Statistical Yearbook 2011).

At present, the so-called **information society** is under development where processing (handling) of information is more efficient than material processing. *„Information is without any doubt the basic element of the information society which links it with the concept of the educational society. However, the efficient use of information is dependent on rapid transmission and timely availability of information wherever needed and applicable“* (Musil 2011).

The so-called **knowledge society** is currently referred to in advanced countries where knowledge is the key source of wealth and knowledge workers are a dominant group of the workforce. It is characterized by high speed and easy dissemination of knowledge through information technologies, enhanced support for science and education, or considerable competition and globality.

## 2 Types of Scientific Papers and Selecting a Topic

### 2.1 Theses

The distinguished types of theses are:

- Bachelor's thesis (for Bc, BcA. degrees)
- Master's thesis (for Mgr., MgA., Ing. degrees)
- Rigorous thesis (for PhDr., RNDr., JUDr., ThDr. degrees)
- Dissertation thesis (for Ph.D., Th.D. degrees)
- Habilitation thesis (for doc. degree)

The process of selecting a topic of thesis is regulated by the Higher Education Act (the Act No. 111/1998 Coll., On Higher Education, as amended). The student will select a topic from a list of topics offered by the school. If the student does not select any topic from the list, they can propose their own topic. However, the school is not required to accept it. The acceptance or rejection is based on the prior review whether the proposed topic is adequate. The topic must be relevant for the profile of the future graduate and their specialization. The topic will become more precise in the process of development until the specific title of the thesis is defined.

At the the Institute of Technology and Business in České Budějovice, you can defend bachelor's, master's and dissertation theses. You must follow the relevant guidelines as published in the Information System.

### 2.2 Seminar Paper

Seminar paper is a research (technical) written paper with the objective to present theoretical and practical knowledge, especially the collection and evaluation of information (data) and the use of various methods. It does not fall under theses (bachelor, master, dissertation), but in many respects it will prepare the student for writing a bachelor's thesis.

For the ITB courses of Corporate Management 1 and Methodology of Writing Scientific Papers, the seminar paper is defined as follows: *"The formal structure of a seminar paper ... is based on the commonly used structure of research/scientific papers, i.e. title page, content, introduction, the aim of the paper, theoretical and methodological part (literature search, hypotheses, methodology), application part, draft measures, conclusion, bibliography, and appendices. The seminar paper is characterized as scientific text (research paper). It must be*

*at least 10 standard pages (1 standard page = 1800 characters including spaces). The title page, bibliography, appendices and summary are not included in the minimum scope. The recommended extent of a seminar paper is 15 standard pages. The student must refer to at least 10 sources in the seminar paper, including at least 1 textbook (university textbook), at least 1 foreign language source (quotations to be translated into Czech), and at least 2 journal studies from various professional journals. The sources are understood as printed books, professional journals, conference proceedings, statistical yearbooks, legal regulations, etc."* (ITB Information System).

### **Topic of the Paper**

The basic prerequisite for a well-prepared seminar paper and thesis is to select a suitable topic. The student must have an adequate overview and orientation of the analysed issue. The selected topic should reflect the field of study or subject and consider other factors such as the author's expected future focus or the interest of the organisation for which the paper is created. All the content of the paper depends on and should correspond with the selected topic. The topic of the thesis must be associated with the study program and field of study. The development of a thesis shows that the student applied the knowledge gained from studies of particular subjects.

Based on the initial analysis of the topic, the student will select an area where they can contribute and apply their knowledge so that it is not just a summary of the information published to date. The author's contribution can be understood in terms of the selected topic. This can be as follows:

1. Advance in knowledge of the given topic, expanding knowledge of the given issue (however, this is not expected and requested at the bachelor's thesis level);
2. A new view of the given topic based on newly asked questions and analysis procedures. However, this knowledge is not only based on the author's assumptions, but also on empirical research and re-evaluation of the existing knowledge or innovative logical argumentation; or
3. The specific practical application of the already known methods and procedures. The application of theoretical knowledge is the most often requested and commonly expected contribution of the work at the bachelor's level (both seminar paper and thesis).

There are two options for selecting a topic. The student can choose from a predefined list of topics, or formulate their own topic in compliance with the set restrictions. In many cases, the

selected topic of the thesis needs to be "narrowed". For example, the topic "Work Culture of the Bata Company" is too "wide", it is necessary to specify the topic in time and space, and identify the key questions, issues, and set hypotheses.

### **2.3 Most Common Mistakes**

- The topic is not consistent with the graduate profile. The student will select a topic which is not related to their professional focus.
- The topic is general. It then leads to describing the already known facts.
- The subject is too wide. The analysis of the topic goes beyond the scope of theses / scientific papers and the potential of a bachelor's student. Consequently, the latitude of the topic does not allow more extensive application of methods
- The topic is too narrow. The student cannot analyse the problem in the context of the whole topic.
- The student will select a topic for which they are not appropriately qualified (for example, because they did not select adequate elective courses or do not speak a foreign language which is necessary for analysing sources.)
- The selected methodological and theoretical topics are very challenging and the student is expected to be knowledgeable of the given field as well as study the key literature or have considerable experience in experimental research.
- Inadequate support from the supervisor. The supervisor of the thesis should be an expert in the given topic, they should be able to advise the student how to define the topic and set research questions and they should consult with the student the appropriate literature and methods.

### **3 Literature Review and Data Collection**

As above mentioned, the author must have at least general understanding of the analysed topic before writing a paper. Then they will expand their knowledge on the topic through studying some of the current encyclopaedic resources (libraries, specialised internet databases). At the same time, they should use keywords to search literature and identify whether the topic is quite well analysed - in other words, whether there are sources the student can rely on and get inspired by.

As the author expands their knowledge on the topic, they will choose more and more specialised literature to narrow the focus and studying textbooks is followed by review of professional journals. The study of the topic is concluded by foreign language literature at the highest professional level and consultations with experts in the given field. In the first stage, the student should identify the majority opinion and approach to given issue (the so-called mainstream). Only then will they focus their attention on minority and marginal opinion streams.

The aim of this process is to collect as much data, information and knowledge on the topic as possible in the form of notes, statements, or abstracts. When taking notes, you should remember they should be extensive and comprehensible enough to be used without having to revisit the original text. When annotating text, you should not forget to take note of bibliographic details such as the author's name, title of the book or periodical, number and title of a particular chapter or article, location within the document, edition serial number, the publisher's name, place and year of publication, ISBN and ISSN, the exact URL address of the website, the date of website visit, etc.) from which the notes are taken. In addition, every note taken should identify whether this is a literal quote, free paraphrasing or self-reflection in response to the text. In general, this data collection provides the basis for a theoretical and methodological part of the thesis, literature review and introduction to the topic.

The following sources are currently analysed, in:

- Printed matter that uphold private ownership (books, professional journals, corporate materials);
- Printed matter that we own (books);
- Copies of printed matter (xerox copies, digital camera images, scans);
- Electronic sources (websites); or
- Full-text sources (pdf).

When taking notes or annotating text, you should highlight the main ideas, definitions, key statements, ambiguous questions, or misrepresentations. Do not revisit any unmarked text (irrelevant text, so-called padding). Then record such highlighted or underlined text in computer.

The notes can be as follows:

- **Record of theses** (principal points) is brief, more or less commenting on the content of the book and presenting the key questions and issues, the essential ideas, statements and conclusions;
- **Digest** is a brief written abstract of the text, recording the key ideas. It follows the structure of the digested text in chapters and strives for maximum transparency. There can be a separately formulated digest (you interpret the content), verbatim digest (faithfully adheres to the author's statements, you take down quotes), or a mixed digest;
- **Tables, charts, diagrams** analyse quantitative data;
- **Factual excerpts** (in the strict sense) record all new, valuable information. They are divided into verbatim (copy the entire text passages or make a copy), abridged (regest), or combined.

**Computer records** can be organised as follows:

- Notes from one source are put in a separate text file. You can search them using keywords. This method can be effective for a small amount of analysed sources.
- Notes from multiple sources are put in one file. Be careful to differentiate foreign text, paraphrased text, or your own comments and ideas.

For all types of notes, you need to identify the information about a source precisely. This means bibliographic data as well as the particular pages quoted or paraphrased. Exact quotes are marked with quotation marks and deleted words and sentences with three dots.

It is impossible to study all sources. Therefore, you should carefully select references with the assistance of a teacher or another experienced researcher. You can also search by reviews, introductions of key expert studies, or research reports. You will select and sort out the appropriate literature into key (directly applicable and important), interesting (applicable) and pointless. You need to analyse sources efficiently not to waste your time on studies that will not help you analyse the problem. The following methods can be used to read literature (technical book, technical text):

**Review for information** of the whole text (quick, diagonal reading). You can find out

whether the work is original or translation and type of edition from the imprint of the publication (technical details at the end or at the front of the book). Check the content to see if a subject, name and location index is attached. Then you can read a foreword or introduction where you should identify the aims of the study, basic hypotheses and questions, evaluation and description of methods and sources used and comments on the structure of the technical publication. The general content and results should be summarized in the summary. If you conclude that you might need the work, flick through the whole book and pay attention to headings, tables, notes, bibliography, and read a few selected paragraphs.

**Normal, standard reading** will give you the initial guidance for further and later use. If the work is fully dedicated to your topic, you should read it all and look for new or inspirational parts. You can also read only parts of books such as chapters dedicated to your topic. You do not have to read the rest of chapters not applicable to your study.

**Detailed reading** is used for key sources you wish to fully understand, you do not skip a single ambiguous term, concept, or an unknown name. In parallel, you will use a dictionary of foreign words, terminological dictionary and encyclopaedias. Do not skip any difficult parts but try to understand them, consider new information and compare to other sources, check some data at random, and follow methods, arguments and links in your notes.

**Critical reading** can help you reveal the credibility of arguments and the soundness of conclusions. In other words, you are looking for answers to questions such as what issues is the author addressing, what methods are used, what sources are used, what arguments did he use and what new conclusions did he come up with. This allows you to really understand the text.

**Hermeneutics** is a scientific procedure of assessment and interpretation of texts. The foundations for hermeneutics were laid by the German philosopher and phenomenologist **Hans-Georg Gadamer** (1900–2002). Among other things, he formulated the so-called prior understanding of the text where before reading a book, the reader should consider the questions why they chose this book and what they expect from it.

The reader should also collect information about the author and historical context of the book's origin. The tradition under which the author created the work was defined by Gadamer as another component of correct interpretation of the text. You should try to disassociate yourselves from the tradition, take the position of an observer and open the tradition and the whole work to criticism. In terms of the author, the level of objectivity or subjectivity should be identified. The information about the author's education, job, world view, or motivation that led him to write his work will be helpful.

You can identify the credibility of sources by the publisher. For example, the press of a well-known university or a renowned professional journal where all published texts are subject to strict review procedures can be identified as a credible source. Of course, it does not mean that you have to agree with all the conclusions. However, if you download a full-text article from a private website, you should carefully check out who is the author. Remember that "Only the written word remains" is certainly not true. You should also be very careful to analyse data published by companies on their websites. It is often rather used for advertising than for impartial analysis of the company's business.

**Information technologies** and **the Internet**, a global system of interconnected computer networks, provide the elementary tools of all scientists, teachers or students. On the other hand, you should also recognize the **pitfalls of working online**. Nowadays, you can obtain a quantity of information in electronic form on various websites. Let us now focus on the advantages and disadvantages of this type of information.

The benefits of internet use mainly include that information is easy to access through catalogue or full-text search engines, up-to-date, and last but not least that it is available in electronic form. However, there are some drawbacks and pitfalls associated with information on the Internet. The first problem is a potential infringement of copyright not only applicable to printed documents but also to electronic resources. Another problem is that it is more difficult to verify information due to often ambiguous authorship of a post / article and reliability of information such as the case of Wikipedia.org Internet encyclopaedia which is not considered as a reliable source because its authorship is unclear. „*It is no longer the primary issue to acquire information. The problem is to evaluate and think critically about the validity and credibility of sources and integrate information into the context*“ (Česal 2007, p 85).

### **3.1 Books and Journals**

**Scientific (research) text** is one of the possible outcomes of scientific (research) work and part of research activity. It is characterized by scientific contribution which means that it explores a recognizable or identifiable subject and it should upgrade the existing research, not only repeat the known facts. The 'new' contribution can be a new view of the present debate, or the application of an already established theory to a new scope, or the expression of disagreement with views supported by arguments of another author, or the continuation of the existing research line.

Summary publications are certainly included in scientific texts. In most cases, however, the

summary identifies the present state of knowledge in the given field intended for those who lack this type of information” (Dlouhá 2011). Scientific (research) text should be derived from the current state of knowledge, i.e. follow up on the existing research and give say on the topic. And each time, it should address a theoretical or practical problem.

Scientific (research) texts are divided into six types: compilation, comparison, original theoretical research paper, scientific research paper, review article and summary essay.

**Compilation** in the strict sense of the word is a systematic summary of all that has been written about the topic of research, evaluation of given research, and an outline of how it should be further developed. Selecting and summarizing data already provides a scientific contribution. *“A quality compilation can be compared to a kind of collage, where you create a new, original and sophisticated work from results of the work of others”* (Šanderová 2005, p 70). However, just making a list of somebody else's views without comments, i.e. a kind of abstract or notes, cannot be considered a scientific (research) text.

**Comparison** is a type of scientific text as well as one of the essential scientific methods. It presents the process and results of comparison between two or more texts, approaches, concepts, data items or other facts. The **original theoretical research paper** presents a new theory or improves it or changes it fundamentally. A **scientific research paper** (essay) usually proposes a solution to a problem, scientific, philosophical or art question, etc. in a sophisticated and distinctive form, often without a scientific procedure. A **review article** evaluates and compares other texts dealing with a similar topic. At the same time, those texts are engaged with the wider context. A **summary essay** provides an exhaustive evaluation of all that has been written on a particular issue or problem and a list of key relevant literature to review and compare.

Many **case studies** have recently been published that *“analyse a particular phenomenon, process, or institution, etc. The purpose is to describe a unique and holistic case, and analyse its function, internal and external relationships, and strengths and weaknesses”* (Česal 2007, p 27).

Scientific texts (studies) are collectively referred to as **scientific (research) literature** divided into published and unpublished. Unpublished scientific literature includes scientific and research reports, lectures, all theses (bachelor, master, dissertation), and manuscripts of unprinted monographs or anthologies. Published scientific literature is printed works that are divided into non-periodical and periodical. Non-periodical scientific literature is divided into books (printed works of more than 49 standard pages) and brochures / booklets (5-48 pages).

In terms of content, scientific books are divided as follows:

1. **Information and bibliographic books** such as encyclopaedias, educational dictionaries or bibliographies. These are auxiliary sources of information that does not need to be cited in the scientific text. Nowadays hardly anybody will use a printed encyclopaedia, the Wikipedia encyclopaedia on the Internet is mostly used. In many ways, it provides good quality and up-to-date information, but do not forget that entries are freely created and edited. To this end, Wikipedia is sometimes very unreliable.

2. **Textbooks** (university textbooks, supplementary reading materials and summaries) introduce a new structure of known facts and generalize new scientific knowledge. They present, in didactic form, the essential results of given fields of science to students or researchers from other fields.

3. **Popular science books** are intended to promote scientific knowledge in wide strata of society and present the topic to non-experts in a comprehensive and summarized manner. They are characterized by a generalized view, more accessible stylization and reduced scientific instruments (they usually do not have footnotes). Strictly speaking, they should not be cited in scientific books. Sometimes there is a distinction between educational texts written for experts in the broader or related field and popularization texts that make new scientific knowledge available to the general public. However, the necessary simplification must not compromise the factual accuracy.

4. **Scientific (research) books** in the strict sense of the word are divided into **monographs** with a defined subject-matter, time and location, or a subject of research, and **syntheses** that analyse a broader topic. They show the result of original research and using scientific methods, their own methods, procedures and techniques, they systematically explore certain scientific issues. Based on their own analysis of sources, methods and data (original work) not yet used or based on a precise summary of results of the existing scientific literature (compilation work), and most often using both methods, they present new knowledge, views and theoretical generalization. In addition to that, proceedings from scientific congresses and conferences are included. From a formal point of view, a scientific (research) book must comprise scientific instruments, i.e. citations (footnotes, notes at the end of the book or individual chapters, or notes in brackets directly in the text), bibliography (i.e. literature and sources referred to in citations) and a list of abbreviations, pictures and graphics as appropriate. Ideally, a scientific book should also include a name, subject or location index but this decision is entirely up to the publishing. The aforementioned is not required for

academic theses.

5. **Sources** are functional aids for various institutions and organisations (collections of laws, parliamentary protocols and books, official schematics, statistical records, reports from congresses, conferences, various editions of documents, etc.), or published memoirs, autobiographies, diaries, and correspondence, or collected speeches. Sources may include, for example, a collection of advertising materials, daily newspapers, posters, everyday items or verbal information. In theory, sources can even be newly created, for example, by an interview with respondents.

**Periodically published scientific literature (periodicals)** refers to **scientific peer-reviewed journals** published on a regular basis with a pre-programmed profile and focus. They have an editorial board and their articles (studies, papers) are subject to peer review. In most cases, it is a peer review, i.e. anonymous evaluation by several reviewers with the same expertise as the author of the article under review. For example, the editorial board of the American Economic Review will only publish about seven percent of all articles submitted for review.

The below are **types of contributions** to scientific journals:

- Articles – present the original research results (see Chapter 7 for their structure details).
- Short letters - describe findings without detailed methods, etc.
- Review articles - summarize the existing knowledge acquired by investigation of other researchers.
- Research notes - minor short contributions
- Supplemental articles - mostly large figures and numerical data
- Comments - corrections or reviews of other authors' articles.
- Replies - respond to comments.
- Errata et corrigenda, errata - corrects the own published articles.

There is an official **list of reviewed non-impacted periodicals published in the Czech Republic**. (<http://www.vyzkum.cz/FrontClanek.aspx?idsekce=495942>).

You can see below the key Czech scientific journals related to the fields of study represented at ITB.

**Engineering:** Bulletin of Applied Mechanics; Engineering Mechanics; Proceedings of the VŠB (Faculty of Mining and Geology) - Technical University of Ostrava - Mechanical Engineering Series; Engineering technology.

**Transport and logistics technologies:** Transportation engineering; New railway technology; Scientific Papers of the University of Pardubice. Series B, Jan Perner, Transport Faculty; Roads and railways; Road horizon; Scientific and technical proceedings of ČD (the Czech Railways).

**Building construction, building management, civil engineering:** Concrete - technology, construction, reconstruction; Czech Journal of Civil Engineering; Building Horizon; Construction technology; Construction and interior.

**Business economics:** Acta Oeconomica Pragensia; Czech Financial and Accounting Journal; Taxes and Finance; E + M. Economics and Management; Economic Review - Central European Review of Economic Issues; European Financial and Accounting Journal; Littera Scripta; Statistics: Statistics and Economy Journal.

Comparing scientific results became very intensive in the 20th century. **Bibliometrics** which is the quantitative analysis of scientific literature, and **Scientometrics** which concerns itself with measuring and analysing scientific literature made considerable progress. Specifically, it compares the number of publications in specific journals of a certain kind, the number of citations of individual articles or authors. Citations (in terms of responses) are recorded and citation indexes (indexes) are compiled. Many scientists and politicians understand scientometrics as a tool for evaluating the scientific performance of individuals or the quality of scientific research.

The most commonly used citation indexes worldwide are provided by the American application (interface) the **Web of Knowledge** ([www.webofknowledge.com](http://www.webofknowledge.com)) which has paid access to bibliographic and citation databases - especially the **Web of Science** which allows you to search over 12,000 journals and 120,000 conference proceedings of the natural, technical, social and human sciences and art. It is broken down into the following database, for example: Science Citation Index (SCI), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A & HCI), or Conference Proceedings Citation Index.

The above databases are processed by the Institute for Scientific Information (ISI), a branch of the Thomson Corporation. Statistical data and quantitative tools for systematic and impartial evaluation, categorization and comparison of scientific journals are provided by the **Journal Citation Reports** (JCR) database. It processes data from more than 7600 journals of 220 scientific disciplines and publishes an annual edition that includes the previous year's

edition data and provides a well arranged and easy-to-use interface to identify the relationship between citing and cited journals. The databases allow you to search by author, topic, year, journal and identify the citation count, i.e. how many times, where and who cited the articles of the given author.

The Institute for Scientific Information (ISI) regularly reviews the importance and quality of scientific journals included in their own citation indexes. It uses the so-called Impact Factor. It is defined as the ratio of citations recorded in the year under review for all articles published in the given journal for the previous two years to the total number of all these articles.

You can see below **the Czech and Slovak impacted journals** for the fields of study represented at ITB: Ceramics-Silicates (Institute of Inorganic Chemistry, Academy of Sciences of the Czech Republic, Institute of Chemical Technology, Prague); **E + M - Economics and Management** (TU Liberec and others); **Journal of Economics** (Economic Institute in Bratislava); **Finance and Credit** (Faculty of Social Sciences, Charles University, Prague); **Political Economics** (University of Economics, Prague); **Prague Economic Papers** (University of Economics, Prague); **Radioengineering** (Faculty of Electrical Engineering CTU).

In addition to the U.S. Thomson Corporation products, there are **other journal databases** that ITB students can access for free:

- **Scopus** (the Dutch company) citation database is used to track citations in more than 21,000 journals, and among others, it registers 24 million patents.
- The European Reference Index for the Humanities (**ERIH**) is managed by the European Science Foundation and it monitors journals in humanities.
- The American **ProQuest** database offers to download texts from 9000 journal titles and collects most dissertations from American universities.

You cannot refer to articles from daily newspapers and social, hobby, or news magazines in a scientific text of business economics, etc. For example, Respekt, Ekonom, Reflex, or Týden journals cannot provide a source of information for a scientific text.

The relevant official methodology specifies periodicals that **are not scientific periodicals**:

- Periodicals without ISSN or e-ISSN;
- Periodicals or extraordinary periodicals published with ISSN, and in parallel with ISBN in book form;

- Periodicals without or without a published method of peer review (e.g. some periodicals published in Open Access form);
- Periodicals such as daily or newspaper press, i.e. regular daily press, thematic "popular" scientific supplements to daily and weekly newspapers, or scientific newspapers (e.g. Zdravotnické noviny, Hospodářské noviny, Učitelství noviny, etc.);
- Popular science periodicals intended for the general public and published by commercial publishings, or public and other institutions;
- Periodicals popularizing science intended for the wider community of experts, e.g. published by expert societies, scientific institutions, etc. for promotion and popularization of science;
- Periodicals of trade unions, political parties, associations, etc.;
- Film and radio periodicals;
- Business and insurance periodicals;
- Working papers and newsletters;
- Special issues of periodicals including conference papers are not considered as periodicals (Metodika 2013, p. 33).

**Electronic journals** (online journals, e-journals) can be full-fledged scientific journals, i.e. subject to peer review. Their advantage is access via the Internet and the possibility to download fulltext sources. The drawback is that sometimes they are published only temporarily and later they may even “disappear” from the Internet. Most e-journals exist in the fields of natural sciences, technical sciences and medical sciences. Also, printed magazines very often publish an electronic "supplement". The available e-journals may be accessed through subscribed online databases and their libraries, or in selected free digital archives. In detail, the procedure for searching electronic resources is discussed in Chapter Three.

Electronic journals include the scientific reviewed journal **Littera Scripta (Economy, Management, Marketing, Linguistics, History)** published by the Institute of Business Strategy of the Institute of Technology and Business in České Budějovice. It has been published twice a year in electronic form and in the English language since 2008. It is included in the list of reviewed non-impacted periodicals published in the Czech Republic and

in the ERIH Plus database. It is focused on publishing scientific studies in the fields of economics, business economics, management, marketing, tourism, public sector economics, management, administration, history, linguistics, teaching and education. For more details visit the website: <http://portal.vstecb.cz/publishingportal/littera-scripta>. Similarly, the scientific peer-reviewed journal LOGI is published by the Institute of Technology of ITB, focusing primarily on publishing transport and logistics. The journal is also included in the list of reviewed non-impacted periodicals published in the Czech Republic. For more details see <http://portal.vstecb.cz/publishingportal/logi>.

The most common source of information for writing a scholarly text is printed scientific books. You have the possibility to use university **libraries**, central technical libraries, specialized libraries, scientific libraries (“regional”), public municipal and local libraries, or private libraries. Most libraries provide online catalogues so you can search and order books without visiting the library. In library catalogues, the specific books are most often searched for an author, title, keywords or subject headings, ISBN. Once you find the required title, you can check whether a copy is available in the library and can be ordered.

ITB students most often use the following libraries:

**ITB Library and Information Centre** <http://katalog.vstecb.cz/> It is a library primarily focused on university textbooks, supplementary reading materials and bulletins. However, those sources (collected records) are not sufficient for writing theses. Therefore, ITB students will most often go to larger libraries:

**Academic library of the University of South Bohemia** <http://www.lib.jcu.cz/cs/eiz-abc>

**Research library of South Bohemia in České Budějovice** <http://www.cbvk.cz>

When searching for specialized books, it is advisable to search the **Union Catalogue** on the website of the **National Library of the Czech Republic** (<http://www.caslin.cz/>) since all major Czech libraries contribute to it. Check if the book is available in our country and in which library. Of course, our largest library holds other databases on the website ([www.nkp.cz](http://www.nkp.cz)).

You can also use the **Uniform Information Gateway (UIG)** (<http://info.jib.cz/>) which searches the catalogues of most Czech libraries and provides an overview of their records. If the book is not available from libraries in České Budějovice, you can request an interlibrary loan.

ITB students should also use the services of the following Czech university or specialized libraries: **National Technical Library** <https://www.techlib.cz/cs/>; **Central Technical**

**Library of Transport** <http://odis.cd.cz/knihovna1.asp>; **Central Library of CTU** (including Library of Faculty of Transportation Sciences) <http://knihovna.cvut.cz/uvod/>

ITB students can search all catalogues of the above mentioned libraries for titles of books to include in their collection of potential sources. This collection should contain more titles than can be analysed. Teachers should help them to select the appropriate books. The selected books can be borrowed directly from libraries in České Budějovice or interlibrary loans can be requested. However, this is a paid service.

However, printed resources are not enough for an expert today. It is also necessary to make extensive use of electronic resources. **Electronic information resources** for science, research and teaching provide global information in electronic form and are available from universities or scientific institutions. These are primarily **licensed resources**, i.e. commercial resources where the school has a license agreement with the supplier. The institution will pay an access fee and consequently, resources are only available to employees and students of the university. Online access to licensed resources is allowed from computers connected to the school's computer network, or by remote access. The use of resources other than for personal study and research purposes is prohibited by the applicable license agreements. Bulk downloads from particular resources clearly exceeding the current personal research needs are considered a breach of license terms and conditions and as a result, access to particular resource can be forbidden for the entire institution. Dissemination of these materials is not permitted and resources must be properly referenced. These databases hold professional or scientific journal records, articles, and abstracts, or e-books. Below is the list of general databases:

- Fulltext database - contains full texts, whole documents (including books, references, scientific / research journal articles, studies in the proceedings, printed works as well as digital libraries of publishings, institutional repositories of theses, or digitizing project outcomes, etc.)
- Bibliographic database - contains bibliographic information (records supplemented with abstracts)
- Factual database - consists of factual information (specific text or numerical data) – e.g. statistics or records of goods.
- E-books

At ITB, the electronic information resources are managed by the **ITB Library and Information**

**Centre.** They provide access to the following databases:

**1) ProQuest STM Package and ProQuest Central.** The service is available through a new interface at <http://search.proquest.com>, or it can be accessed through the portal <http://www.infozdroje.cz> where products are automatically displayed with related information and aids. Access is set up for the ITB computer network

The ProQuest STM Package offers more than 200 million abstract records and over 5700 scientific journal titles, including full text articles, and 40,000 periodical titles covered by complex bibliographic records, and other information from hard-to-access resources (e.g. conference papers, government reports, or video recordings).

ProQuest Central offers more than 17,500 journals, including over 11,500 full texts, 100,000 fulltext dissertations (Ph.D.), 1.7 million dissertation abstracts, 9000 market reports from 43 industries and 40 countries, 44,000 Hoover's company profiles, and updated profiles (snapshots) of 3600 industries, over 800 newspaper titles, including the Wall Street Journal and Los Angeles Times. (Snapshots), přes 800 titulů novin včetně The Wall Street Journal and Los Angeles Times.

**2) TECH Industry Gateway** – <http://tech.jib.cz/> - where you can find the Czech and foreign, paid and free resources from technology and natural and applied sciences. The uniform TECH interface allows to search full texts from many resources. For example, you can search articles, books, online resources, standards, patents, grants, contracts, statistical data, information on universities and research institutes.

**3) Uniform Information Gateway (UIG)** – <http://www.jib.cz/V?RN=345449695> – allows users to use different Czech and foreign resources (library catalogues, union catalogues, or full-text databases, etc.) from one location through one search interface. You can find here full texts of documents, book reviews, or you may order electronic document delivery (DDS).

**4) Business & Economics a ebrary Engineering & Technology** – <http://site.ebrary.com/lib/librarytitles/home.action>) This database is linked to the above mentioned ProQuest database. It provides access to a collection of 12,000 scientific electronic resources on accounting, business ethics, capital markets and investments, corporate culture and finance, economic policy, business, human resources, international trade, marketing, and real estates. It can be accessed online from all computers in school (possible to download

copies to e-readers, tablets and smartphones for 14 days (similar to loans). You are download up to 10 books at a time.

5) **SCOPUS** - Bibliographic database allows to search over 14,000 titles mostly of the European periodicals, focusing among others on natural sciences, construction, agriculture, environment, social sciences, medicine, and psychology, or economics. In addition to searching records of articles, patents, conferences and scientific websites, you can display abstracts with links to cited and citing articles. You can access it from the IP address of the school which means the database can be accessed without any logins from all computers at ITB at <http://www.scopus.com>. For the Scopus information pages visit <http://info.scopus.com>.

The following licensed (paid) resources of other universities than ITB should be mentioned:

- **JSTOR** digital archives (Journal Storage) - holds over 1500 titles of leading academic journals on humanities, social sciences and natural sciences (anthropology, environmental science, economics, philosophy, finance, history, literature, mathematics, political sciences, sociology, musicology, film science, statistics, education, etc.) including selected monographs and other materials for scientific work. Each journal is fully digitized from the first issue of the first year almost to date. For free access to JSTOR content, use Register & Read service (<http://about.jstor.org/rr>) which allows you to register and set up your personal MyJSTOR account to access 3 arbitrary articles in the database every 14 days.
- **EBSCO** - Multidisciplinary journal fulltext mega-database provides online access to databases that contain more than 3300 professional journals, newspapers and press releases of intelligence agencies, and over 1300 full-text handbook publications on humanities, social sciences, construction and medicine.
- **EconLIT** - Database with more than 521,000 records and selected abstracts of economic literature. It covers journal articles, book chapters and conference presentations on economic history, economic theories, and international, regional and urban economics and the related fields.
- **IEEE/IET Electronic Library** (IEEE Xplore) – Database focusing on technology, engineering, electrical engineering, informatics, transportation and presenting full texts of IEEE and IET publications as well as IEEE standards.
- **STN International** – (<http://www.fiz-karlsruhe.de>) - consists of 3 parts: CAS in the USA (Chemical Abstract Services), FIZ Karlsruhe in Germany and JICST in Japan. It

is the largest database centre for science and technology information focused on natural and technical sciences.

- **Compendex** (COMPUTerized ENgineering inDEX) (<http://www.ei.org/compendex>) - comprehensive information source for all engineering disciplines.
- **Emerald Management First 200** – is an electronic database of foreign journals focusing primarily on business and management.
- **ICONDA** (International CONstruction DAtabase) (<http://www.irb.fraunhofer.de/CIBlibrary/>) is the world's leading information source for the construction industry.
- **VINITI** (Vserossijskij institut naučnoj i tehničeskoj informacii, *Moscow*) (<http://www2.viniti.ru/>) - A portal in Russian provides access to scientific information resources of the Russian Academy of Sciences in science, technology and economics.

In addition to licensed databases, there are a number of **free resources** not subject to any license agreement. For example:

- **Worldcat** - <http://www.worldcat.org/> - A database that is connected with the collections and services of more than 10,000 libraries around the world.
- **Google Books** - <http://books.google.cz/> <http://books.google.com/> - Electronic previews are available for selected books here but the number of displayed pages of a publication is limited due to copyright protection.
- **Google Scholar** <http://scholar.google.cz/> Used to search scholarly publications such as peer-reviewed articles, dissertations, scientific books, etc. Advanced search identifies documents by author, source publication and date. The difference from **Google Books** is that Google Scholar does not have its own library, but only refers to external resources through the database.

The legal regulations are available in the current version on the public administration portal ([portal.gov.cz](http://portal.gov.cz)) where you can search texts of the regulations or search by number and title of the regulation. The European legislation is published on the EUR - Lex portal where, for example, you can enter a topic (science, competition, family law, etc.) using advanced fulltext search and choose whether it is a regulation, directive or decision within the legal framework of the European Union (Acquis communautaire). The Automated Legal Information System (ASPI) is an advanced database for studying legal standards and their interpretation. This portal not only contains legal standards and allows to compare their changes over time, but it also provides author's content with comments on laws, case law, findings and resolutions of the Constitutional Court of the Czech Republic and other useful models and applications.

Statistical data for economic research are available from the national or regional statistical offices (e.g. Czech Statistical Office portal, regional statistical portal of the European Union - EuroStat). You can find aggregated data for the research of macroeconomic parameters. Multinational organisations using a unified methodology for data collection and presentation can be used for international comparison. They include, in particular, the World Bank (<http://data.worldbank.org/>) and OECD (<https://data.oecd.org/>) data portals. An summary of data sources is provided by the Data on the Net (<http://3stages.org/idata/>) signpost which indexes the available databases and data providers to allow thematic searches. Data for microeconomic research (households and businesses) are typically not available to the general public. As an exception, there is the Integrated Public Use Microdata Series portal (<http://usa.ipums.org/usa/>) which contains the US census data since 1850. In the Czech environment, there are portals for corporate accounting data (Albertina and Report, MagnusWeb ). Finally, Amadeus is an European portal which provides detailed mapping of about 19 million European business entities.

Conference proceedings provide a unique opportunity to review the current issues or discussions in given field. Since the review process may be less challenging than that of renowned scientific journals, some conference proceedings are rather poor quality. Therefore, we recommend to focus on studies by leading experts and top institutions. These are usually indexed, i.e. they will get to the prestigious databases such as the Web of Science<sup>®</sup>: Conference Proceedings Citation Index - Science (CPCI-S) and Conference Proceedings Citation Index - Social Sciences & Humanities (CPCI-SSH).

### **3.2 Most Common Mistakes**

Mistakes in literature review writing are most often caused by:

- The author chooses literature that does not represent the elementary train of thought dealing with given issue. (S)he often cites literature of a poor scientific standard or literature that deals with the issue only superficially.
- The author does not distinguish significant parts of the studied literature from insignificant ones.
- The author only selects electronic, often unreliable sources of information which may lead to plagiarism.
- The author uses irrelevant sources such as Wikipedia.org, Seminárky.cz, or high school notes.
- The author uses insufficient resources. Sometimes they make do with one or even no source.

- The author will only focus on resources related to a narrow part of the topic.
- The author will only focus on review sources, they will not look for research (scientific) studies of a specific topic.
- The author uses too old scientific literature not in compliance with new knowledge and progress in solving the problem.
- The author uses unofficial documents, unreliable documents or draft versions of documents that do not meet the application criteria for research work (including, for example, lectures, etc.).

## 4 Quoting (Citation) and Paraphrasing

### 4.1 Basis Principles of Citation

Broadly speaking, bibliography means a set / collection of all resources on a given research topic. Each researcher makes a list of available resources for each new task – i.e. they perform a so-called bibliographic information search. Furthermore, they should continuously and systematically follow the latest literature in the scope of their specialization or discipline.

The results of bibliographic search form **bibliographic records**. The elementary information of a bibliographic record includes the name and surname of the author, the year of publication, the title of the paper, the place of publication, the publishing, and ISBN for non-periodical publications, or page numbers and ISSN for periodical publications. This information can be used especially for library searches, and flawless citations in note books, or accurate listing of bibliography.

**A bibliographic record** (citation record, bibliographic reference, or citation) is used for unique identification of the source and applicable for both direct and indirect citations. The language of the text must be used and words in the title of the work cannot be abbreviated or deleted.

The results of bibliographic search form **bibliographic records**. The elementary information of a bibliographic record includes the name and surname of the author, the year of publication, the title of the paper, the place of publication, the publishing, and ISBN for non-periodical publications, or page numbers and ISSN for periodical publications. This information can be used especially for library searches, and flawless citations in note books, or accurate listing of bibliography.

**A bibliographic record** (citation record, bibliographic reference, or citation) is used for unique identification of the source and applicable for both direct and indirect citations. The language of the text must be used and words in the title of the work cannot be abbreviated or deleted.

**ITB** students and teachers must observe the below **internal regulations and standards**:

Study and exam regulations [https://is.vstecb.cz/do/5610/uredni\\_deska/1905433/1905495/](https://is.vstecb.cz/do/5610/uredni_deska/1905433/1905495/)

Disciplinary rules for ITB students

[https://is.vstecb.cz/do/5610/uredni\\_deska/1905433/1905487/](https://is.vstecb.cz/do/5610/uredni_deska/1905433/1905487/)

Analysing scientific and scholarly texts is subject to **copyright**. Some specific uses of another person's scientific work are expressly permitted, in particular citing or referencing passages of published works by other authors provided that the author's name and the title of the work are referenced. Similarly, works can be references in a lecture for scientific or educational purposes. The relevant laws can be found on the website of the Ministry of Culture of the Czech Republic. Unfortunately, researchers behave badly, commit scientific fraud, make up or fabricate results, and modify, "adapt" or falsify data, or copy from other texts without reference (plagiarism) even in the fields of science, research and development. The Czech technical standard ČSN ISO 5127–2003 defines **plagiarism** as the presentation of another author's intellectual work, borrowed or imitated in whole or in part, as one's own original work. It includes a compilation of several works without listing their original authors, and inaccurate, careless or completely missing citations, paraphrasing without listing the author of the original, and copying and pasting information or graphics from the Internet into your own work without referencing a source, or stealing another person's words or work and pretend that they are your own.

For this reason, students should be particularly careful with their **illegal conduct** during the study and development of theses / scientific papers to avoid cheating on research results or having a scientific text written by someone else for consideration, or copying, that is stealing another author's text. They often commit **unethical acts** by copying passages of someone else's work and using them in their own research work without reference. Then it is very likely that they will be disclosed. The situation when a student only exchanges a few words in another author's text to prevent it from being identified through search programs and then pretends that it is his own text is also considered as scientific fraud. This is not paraphrasing, but plagiarism. This category includes the so-called **presto papers** or **paper mills** on the Internet where you can download various texts, materials, papers and tasks. They can be copied free or paid, or exchanged for uploading of your own work. Many companies are dealing in the texts of scientific papers and theses - the customer can order a paid work and the company will prepare it for them. If students present a purchased work without stating that it was created on a commercial basis, they proceed illegally. In any case, a student who pays for a paper to a company commits an unethical act because they made a matriculation oath and by the regulations, they are supposed to compose their scholarly / scientific works by themselves (independently). **Cryptomnesia** defined as the appearance in consciousness of memory images which are not recognized as such but which appear as original creations also poses problems. Such data cannot be used unless you trace them down and reference the

source. If you use them, you take the risk of being accused of plagiarism.

Less serious mistakes occur when the author is mentioned in the text but no relevant bibliographic information is provided. Students also often list misleading bibliographic information such as a confused year of publication, missing website reference, or the date of the visit to the Internet resources, etc.

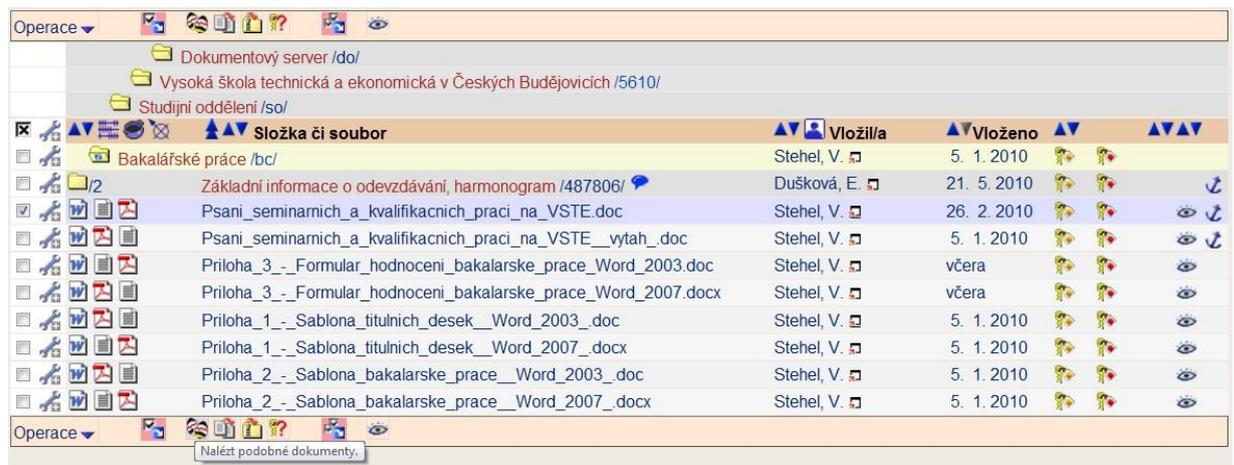
There is no doubt that the massive dissemination of information technologies has largely contributed to cheating in the form of plagiarism. There is no problem to identify and copy a text on the Internet that can be used for an assignment. Therefore, **anti-plagiarism software** is currently used by universities to a higher extent. ITB has joined anti-plagiarism software of the Masaryk University which checks and reveals plagiarism in scholarly works. This software is called Repozitar.cz which supplemented Theses.cz and Odevzdej.cz systems. Institutions will enter texts of seminar, bachelor, master and dissertation theses in the system and the software will analyse / compare them, show the percentage / links to the source that contains matching text and highlights passages that require review. Then matches will be identified, for example, there can be legally copied passages of some laws. If plagiarism is confirmed, disciplinary proceedings before the Disciplinary Panel will be instituted. A number of detection tools are used to detect plagiarism abroad. For example, Prevent Plagiarism in Published Works (<http://www.ithenticate.com/>), Turnitin (<http://www.turnitin.com/>), SafeAssign (<http://www.mydropbox.com/>) or Copy Catch Gold (<http://www.liv.ac.uk/csd/software/plagiarism/copycatch/>). While this detection tools are useful to fight unethical behaviour, they will certainly not identify all disputable cases. The human factor thus remains the key controls, namely the role of supervisor and opponent in case of theses and scientific papers.

### **Plagiarism Checking in the ITB Information System**

Students can check plagiarism themselves before submitting their work within the ITB information system (hereinafter referred to as IS). They will upload their work to the IS repository where they can check content for originality using the “As Like as Two Peas” function. The "As Like as Two Peas" function only identifies whether two texts are identical, it does not detect plagiarism as such. Therefore, you need to check the manuscript of the submitted work once again after using this function to identify whether the text marked as identical is properly cited / referenced. The correctly cited / referenced text is not plagiarism. However, for example, a four-page text that is a full compilation of other texts although cited

but not commented by the author where the author did not add any value to the text may be qualified as plagiarism because the text does not present new knowledge or newly interprets the known knowledge. Making a judgement that work is plagiarized is to some extent subjective which is why the individual cases must be carefully considered. In case of doubt, it is advisable to choose an alternative source (the Internet, student work database, etc.) and in particular, consult the supervisor.

**Figure 1: Plagiarism Checking in the ITB Information System**



Source: INSTITUTE OF TECHNOLOGY AND BUSINESS. ITB Information System [online] ]. © 2010 [cit. 2010-06-04]. Available from: <http://is.vstecb.cz/>

One of the general principles for citing is the clarity of citation which is ensured by a standard format used in accordance with the referencing standards. The source is cited in the language of the specific work while adhering to the spelling standards of that language. Citations must include complete information.

**Citation** is a bibliographic reference to another source (a specific scientific text, source of information, etc.). It communicates complete information on all the resources used, unambiguously and effectively referring to specific information, data, and opinions, or ideas. The sources are identified while at the same time the reader is able to locate the cited source. If you forget to refer to a source in the scientific text, you will commit scientific fraud and theft of another person's intellectual "property". To avoid this danger, you should clearly distinguish your own thoughts, statements, data and information from those we have adopted. By citing the author, you also show respect for this colleague and appreciate their contribution to scientific knowledge. A text without citations cannot be a scientific (research) text in the

strict sense. Citations refer to resources:

- from which **citations** are included in the text, i.e. literal wording of a part of another author's text. In other words, you cite a bibliographic record of this text;
- from which ideas, data and information are adopted – your basis;
- which you disagree with;
- recommended for more detailed study of the topic.

Another author's text can be used for writing a scientific (research) paper:

A) If you use **the general information** from another text (indisputable events, well-known facts), you do not have to refer to the source of information.

B) If you want to reference the author's opinion, and their original ideas or conclusions, use the so-called **direct citation**. ITB applies the Harvard referencing system where you provide a link to the source in the text by placing the author's surname immediately followed by the date of publication and the range of pages in brackets. You will copy exactly the referenced passage and mark it with quotation marks. Follow all the peculiarities of the text (different fonts, parentheses, hyphens, quotation marks, or abbreviations). You can also indent the citation and write it in smaller print or italics. In this case, quotation marks at the beginning and end of the citation are not used. Ideally, citations should be no longer than three to four lines. If there are too many references in the text, it becomes a list of definitions rather than a coherent and readable text. If there are few references in the text, it does not look scholarly and trustworthy.

**Example 1: Direct citation**

Skála (2010) says about the new Keynesian macroeconomics that *“It rejects the paradigm of perfectly competitive markets and flexible wages and prices. It is looking for market imperfections (such as the efficiency wage theory) resulting in involuntary unemployment while trying to identify the real causes of inflexible prices and wages”* (p. 13-14).

Source: SKÁLA, M., 2010. Nová keynesiánská makroekonomie - nový pohled na trh práce a makroekonomickou stabilitu. *E+M. Ekonomie a Management*. **13**(4), 6-15. ISSN 1212-3609.

C) To **paraphrase** the information you have found, you have to explain the ideas of someone else in our own words and you also have to refer to the source of information. This is the so-called **indirect citation**. Indirect citations, namely paraphrasing is the free interpretation of the original idea. There is reference to the paraphrased source in accordance with the referencing standards but a paraphrase itself is not in quotation marks. Indirect citations with reference to the source are useful for condensing the original text. The best combination is an appropriate mix of direct and indirect citations.

**Example 2: Indirect citation**

Holman (2004) identifies the causes of increasing public debt in political decisions of public authorities.

Source: HOLMAN, Robert. *Makroekonomie: středně pokročilý kurz*. 1<sup>st</sup> edition. Prague: C. H. Beck, 2004. ISBN 80-7179-764-2.

D) The general principle is to quote / refer to the original text. Taking over references or quotes from another source is strongly discouraged.

## **4.2 In-text Citations (References)**

For in-text citations, you place the author's name and the year of publication, or the page or range of pages in brackets. When citing one author who published two publications in one year, they should be distinguished by letter after the year of publication. If the author's name is already mentioned in the text, there is only the year of publication, or the page in brackets.

**Example 3: Citation**

A slight economic recovery was experienced in 2000 and the unemployment rate decreased from 9.0% to 8.3% (Sirovátka and Žižlavský, 2002). However, this trend was not sustained and the unemployment rate rose as high as to 9.8% in 2002. Žídek (2006) therefore rightly stated that *“Two-thirds of the unemployed only had primary education. On the contrary, the population with a university degree was almost certain to find a job”* (p. 126).

Source: NOVÁK, V. et al., 2016. *Trhy práce v České republice po roce 1989: regionální komparace politik zaměstnanosti*. Praha: Setoutbooks.cz, s.r.o. ISBN 978-80-86277-81-3.

## **4.3 Bibliography**

The essential principles of creating a bibliographic record (citation record, bibliographic reference, or quote) in the Harvard referencing system's bibliography (literature and reference lists):

## **Author's name**

The name of the person or corporation responsible for creating the contents of a referenced / cited document. In capital letters. The first name is usually listed similar to the source. For simplicity, you can write the first letter of the first name and a dot. The selected option of writing should be followed in the whole document.

NOVÁK, J. CLARK, J. H.

Two or three authors:

NOVÁK, J. a P. PLOVÁK.

NOVÁK, J., L. SOVÁK a P. PLOVÁK.

Four and more authors:

NOVÁK, J. et al.

If an organisation – corporation or perhaps a Ministry is the author of the document, capital letters should also be used.

MINISTRY OF FINANCE OF THE CZECH REPUBLIC.

CZECH STATISTICAL OFFICE.

If the author is unknown, the information can be omitted in extreme cases.

If you quote an author of multiple works published in the same year, use letters a, b, c to distinguish between them. It would be like this in the text:

As Novák (2008a) already stated... Novák (2008b) also mentions...

Publications should be clearly distinguished in bibliography. For example:

Novák, J., 2008a. Title of Publication. Place of Publication: Publishing. ISBN. Novák, J.,

2008b. Title of Publication. Place of Publication: Publishing. ISBN. Novák, J., 2010. Title of Publication. Place of Publication: Publishing. ISBN.

## **Title**

The text of the title in the citation should match the quoted document. If there is a different title on the cover and on the masthead inside the source book, whatever is on the masthead, or the CD content, will prevail. Type in italics and end with a period.

*Title of document.*

Subheadings are listed if they provide the essential information about the content, otherwise they should be omitted. A subtitle follows the colon.

*How to make a wish correctly: 7 rules to make your dreams come true*

Typing a title to reference an article in a periodical publication (journal) or a collection / anthology, or any similar publication, first type the title of the article or paper (in standard script), end with a period and then continue "In:", and further type the title of the publication (journal, anthology) in italics. In: is required for a collection / anthology and optional for articles, but it is recommended for clarity. Again, typing must be consistent for periodicals with In: or without In: throughout the document.

Title of article. In: *Title of publication*.

#### MEDIUM TYPE

If your source is a printed publication (book, journal), you do not specify the type of media. If the medium is other than paper, you must specify the type.

You put it in square brackets before the dot near the name. If the cited publication is published on a CD, put in [CD], if you quote an article or other content from the Internet, put in [online].  
[CD] [online] [online database] [e-mail] [photo] [map]

#### **Edition number**

The edition number must always be provided, except for the first edition.

It must be recorded exactly as it appears in the referenced document. For example, "2nd revised edition" and "2nd, revised edition" are two different versions of the edition! The language of the source must be used if the source is in a different language.

End with a dot.

2., updated edition.

3<sup>rd</sup> edition.

3<sup>rd</sup> ed., revised.

#### **Publishing information for non-periodical publications**

Publishing information includes the place of publication, the publisher and the year of publication. The basic format is as follows: Place of publication: Publishing, 2011. These details are given for books - non-periodical publications. We type the text as provided in the referenced document, separating by a colon and the year by a comma, ending with a dot. České Budějovice: Institute of Technology and Business, 2010. Prague: Grada, 1998.

#### **Place of publication**

If more than one place of publication are listed, give only the first or the one that is highlighted. If the place of publication is unknown [p. 1.], replace or omit it, or put the

expected place of publication in square brackets.  
[p. l.]: Institute of Technology and Business, 2010.  
[Prague]: Grada, 1998.

### **Publishing**

The names of publishings are shortened by omitting details that are not necessary for identification – e.g. type the name without the legal form (limited), or a known brand (not Grada Publishing, but just Grada). If more publishings are listed, give only the first one. If you don't know the publishing's name, say [s. n.] or omit it, or put the expected publishing in brackets.

České Budějovice: [s. n.], 2010.  
Prague: [Grada], 1998.

### **Year of publication**

Provide the year for a printed publication, and the year, month and day, or even time if available for an online publication. Separate the date of publication from the place of publication with a comma, followed by a period.

1996.

1996-02-10, 13:43.

If the year of publication is missing, put [b. r.] in square brackets. If you can estimate the time of publication, put your estimate in square brackets. In some cases (for some online sources), it can be omitted.

Prague: Publishing, [b. r.].

Prague: Publishing, [2010].

### **Year of publication, periodical year and number**

For journals and other periodical publications, the year of publication, the year (and volume) and issue number of the journal should be provided. You give the year and a comma, followed by the year number in bold (if a Roman number is provided in the source, give the Roman number), followed without space by the publication number in round brackets and a comma after brackets (continue with page reference).

2010, **6**(3), 25–37.

### **Page numbering**

For periodical publications, page numbers with the referenced article should always be provided (a long dash between numbers, not a hyphen).

2010, 6(3), 25–37.

For non-periodical publications, the total number of pages is not provided, just a page reference if a part of the publication is referenced (e.g. chapters). It is better to identify the page reference with "p.".

2010, p. 160–178.

### **Referencing (citation) date**

For an online source, the time when you obtained information from the source must be indicated in square brackets. The date is preceded by the "cit." abbreviation and the date is provided in the form as shown in the example below. If you are referencing a rapidly changing source, it is better to give the exact time of citation.

Type in front of the dot with the year and issue number, or after the page reference. If neither of those are referenced, put it immediately after the year of publication (without a comma).

[cit. 2006-02-10]. [cit. 2009-04-27, 16:47].

### **Standard identifier**

ISSN for periodical publications and ISBN for non-periodical publications. This is a unique identifier that clearly distinguishes the publication from others. It should be provided in a standardized form, without a colon.

ISBN or ISSN is followed by a dot in the reference.

ISBN 974-80-76267-43-2.

ISSN 1234-5678.

Note that some documents may not have an identifier, in this case this section of the record will be omitted.

### **Availability**

For online resources, the availability should be indicated - where you can read it. For websites (www) you put in "Available from:" and specify the URL, i.e. the address displayed on the web browser's address bar. There is no dot after the address.

Available from: <http://www.vstecb.cz/Odborny-casopis-Littera-Scripta-163.htm>

Many scientific journals have recently introduced the Digital Object Identifier (DOI). IDF (International DOI Foundation) URL shortener based on the ISO standards is used. The aim of this service is to provide quick and permanent access to Internet links. A DOI link (for example 10.1109 / 5.771073) can be transformed into a URL (<https://doi.org/10.1109/5.771073>) that will point to an object (source, page, abstract) permanently. Any changes will update the destination address and DOI remains the same.

An example of a bibliographic record: ŠOLTÉS, V. and B. GAVUROVÁ, 2014. The Functionality Comparison of the Health Care Systems by the Analytical Hierarchy Process Method. *E&M Ekonomie a Management*. **17**(3), 100-117. doi: dx.doi.org/10.15240/tul/001/2014-3-009

If you cite yourself, it is called **self-citation**. This is a quote / reference like any other. You cite ourselves whenever you draw upon your own older works.

Everything that is subject to copyright must be properly quoted. It is mainly written text as well as pictures and other objects that are identifiable and available on some storage media. It includes email, audio (interview, music), video (YouTube video, TV show, etc.).

#### **4.4 Examples of Data in Bibliography**

##### **Monograph – printed version**

NOVÁK, P., 2006. *Title of the work*. Place: Publishing. ISBN 80-00000-00-0.

##### **Monograph – electronic version – published on CD**

NOVÁK, P., 2006. *Title of the work* [CD]. Place: Publishing. ISBN 80-00000-00-0.

##### **Monograph – electronic version – published online**

NOVÁK, P., 2006. *Title of the work* [online]. Place: Publishing, 2006-04-04 [cit. 2011-02-02]. ISBN 80-00000-00-0. Available from: [http://www.web.cz/a\\_tak\\_dale.cz](http://www.web.cz/a_tak_dale.cz)

##### **Monograph chapter, article in an anthology/collection – printed version**

PLOVÁK, P., 2006. Title of the chapter. In: *Title of the work*. Place: Publishing, 56–74. ISBN 80-00000-00-0.

##### **Monograph chapter, article in an anthology/collection – electronic version – published on CD**

PLOVÁK, P., 2006. Title of the chapter. In: *Title of the work* [CD]. Place: Publishing, 56–74. ISBN 80-00000-00-0.

##### **Monograph chapter, article in an anthology/collection – electronic version – published**

**online**

PLOVÁK, P., 2006. Title of the chapter. In: *Title of the work* [online]. Place: Publishing, 2006-04-04, 56–74 [cit. 2011-02-02]. ISBN 80-00000-00-0. Available from: [http://www.web.cz/a\\_tak\\_dale.cz](http://www.web.cz/a_tak_dale.cz)

**Serial publication, journal – printed version**

SOVÁK, Z., 2009a. Title of the article. *Title of the periodical*. 7(3), 885–899. ISSN 0000-0000.

**Serial publication, journal – electronic version – published on CD**

SOVÁK, Z., 2009a. Title of the article. *Title of the periodical* [CD]. Place: Publishing, 7(3), 885–899. ISSN 0000-0000.

**Serial publication, journal – electronic version – published online**

SOVÁK, Z., 2009a. Title of the article. *Title of the periodical* [online]. Place: Publishing, 7(3), 885–899

[cit. 2011-02-02]. ISSN 0000-0000. Available from: [http://www.web.cz/a\\_tak\\_dale.cz](http://www.web.cz/a_tak_dale.cz)

**Website (as a whole) (date of publication = last updated)**

SOVÁK, Z., 2010. *Title of the website* [online]. Place: Publishing, 4 April 2006, 11:35

[cit. 2011-03-12]. Available from: [http://www.web.cz/a\\_tak\\_dale.cz](http://www.web.cz/a_tak_dale.cz)

**Text on websites (not like an article in a journal, anthology or monograph)**

PLOVÁK, P., 2006. Title of the text. In: *Title of the website* [online]. Place: Publishing, 4 April 2006, 11:35 [cit. 2011-03-12, 16:12]. Available from: [http://www.web.cz/a\\_tak\\_dale.cz](http://www.web.cz/a_tak_dale.cz)

**Law – official (printed) version reference**

CZECH REPUBLIC, 1998. Act no. 111 of 22 April 1998 on Higher Education Institutions and on amendments and supplements to other acts (the Higher Education Act). In: *Collection of Law of the Czech Republic*. Section 39, p. 5388–5419. ISSN 1211-1244.

**Law – on-line version reference on portal.gov.cz**

CZECH REPUBLIC. Act no. 111 of 22 April 1998 on Higher Education Institutions and on amendments and supplements to other acts (the Higher Education Act). In: *Public Administration Portal of the Czech Republic* [online]. Ministry of the Interior [cit. 2010-09-01]. Available from:

[http://portal.gov.cz/wps/portal/\\_s.155/701?number1=111%2F1998&number2=&name=&text=](http://portal.gov.cz/wps/portal/_s.155/701?number1=111%2F1998&number2=&name=&text=)

**Decree – official (printed) version reference (similarly, on-line Decree)**

CZECH REPUBLIC, 2004. Ministry of the Environment. Decree no. 696 of 21 December 2004, laying down the process of monitoring, reporting and verification of greenhouse gas emissions. In: *Collection of Law of the Czech Republic*. Section 235, p. 12306–12358. ISSN 1211-1244.

### **Bachelor's (master's and dissertation) theses in printed form**

SURNAME, Name, 2010. *Title of the thesis*. České Budějovice. Bachelor's thesis. Institute of Technology and Business in České Budějovice, Department of Economics and Management.

### **Bachelor's (master's and dissertation) theses published online**

SURNAME, J., 2010. *Title of the thesis* [online]. České Budějovice [cit. 2011-02-02]. Bachelor's thesis. Institute of Technology and Business in České Budějovice, Department of Economics and Management. Available from: [http://www.web.cz/a\\_tak\\_dale.cz](http://www.web.cz/a_tak_dale.cz)

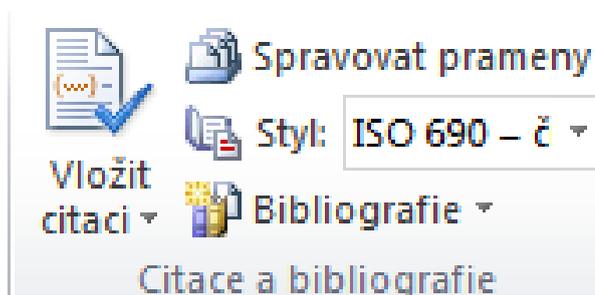
### **Advertising and marketing brochure**

BUSINESS NAME. *Title of the brochure*. [p. 1.]: Company, ©2008.

## **4.5 Microsoft Office Word 2010 Application**

Microsoft Office Word 2007 or higher has a built-in *Citations and Bibliography* function which allows to automatically manage your bibliography, works cited and references. This function is available on the *References* tab in the above MS Office Word version, older versions do not provide this functionality.

**Figure 2:** „Citations and Bibliography“ function in Microsoft Office Word 2010



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [Access 15 May 2012]. Available from: <http://office.microsoft.com/cs-cz/word/>

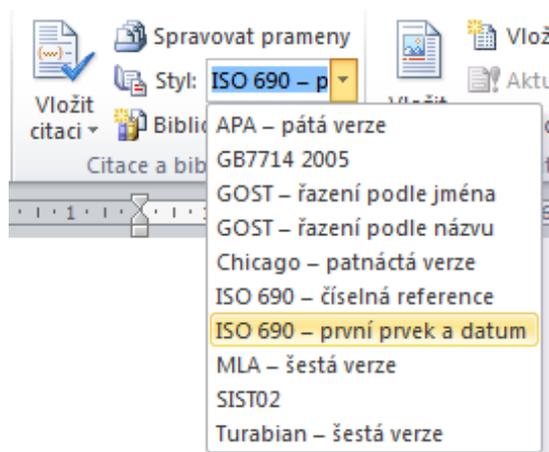
This function allows to insert a reference / citation in the text, insert new and manage the existing sources, and choose a referencing standard, or create a bibliography.

### ***Choosing a referencing / citation standard***

The first recommended step is to choose a referencing standard / citation style that will be applied throughout the document. The system used at ITB is referred to as *ISO 690 - First Element-Date*, i.e. the surname of the first author and the date of publication are referenced in the text. Note that minor international deviations in ISO 690 exist. Microsoft Office Word applies the international standard ISO 690. In the Czech Republic, the status of this standard is

the Czech technical standard ČSN ISO 690, or the Slovak technical standard STN ISO 690 in Slovakia respectively. The details of the specific national standards may vary and the list generated in Microsoft Office Word is not exactly the same as ČSN ISO 690.

**Figure 3: Selecting a citation standard in Microsoft Office Word 2010**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [Access 15 May 2012]. Available from: <http://office.microsoft.com/cs-cz/word/>

**Table 1: Citation standards in Microsoft Office Word 2010**

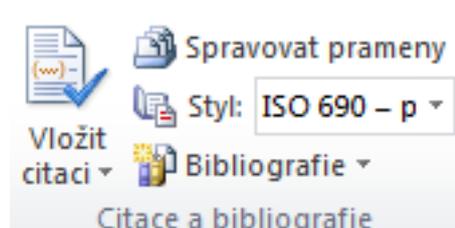
Zkratka a normy	Autor normy
APA	American Psychological Association
GB7714	Standardization Administration of China
GOST	Federal agency of the Russian Federation for technical standards and metrology
Chicago	The Chicago Manual of Style
ISO 690	International Standards Organisation
MLA	Modern Language Association
SIST02	Japan Science and Technology Agency standards
Turabian	Turabian style

Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [Access 15 May 2012]. Available from: <http://office.microsoft.com/cs-cz/word/>

### ***Insert Citation***

For inserting an in-text citation, click *Insert Citation* on the References tab and select *Add new source ...* It is important that the cursor is at the place you selected for citation in your document.

**Figure 4: Insert citation in Microsoft Office Word 2010**

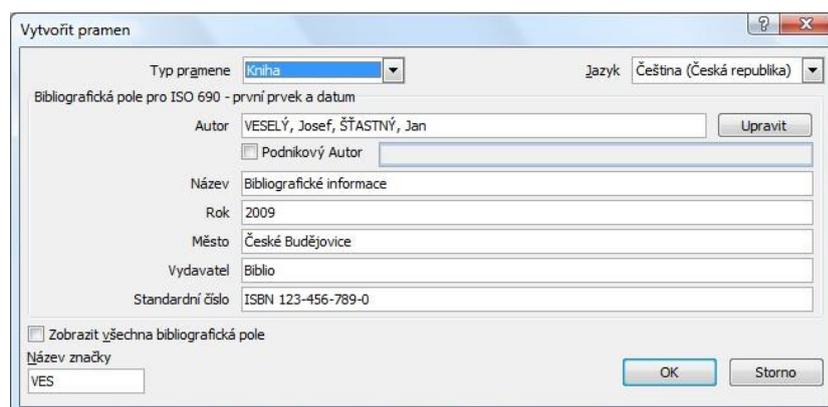


Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [Access 15 May 2012]. Available from: <http://office.microsoft.com/cs-cz/word/>

### ***Add new source***

To add a new source, a new window will appear where you must fill in the required data. First select the Type of Source from the menu and then edit the required bibliographic information such as name of the author, title of the work, year of publication, etc.

**Figure 5: Add new source in Microsoft Office Word 2010**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [Access 15 May 2012]. Available from: <http://office.microsoft.com/cs-cz/word/>

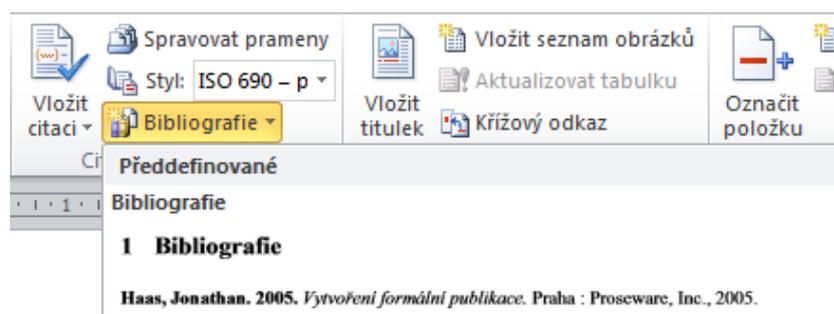
### ***Manage the existing sources***

Click the *Manage* button under References to edit the existing sources. A dialog appears where you can search sources with different keywords, move between the main and current list, delete, edit, and add new sources.

### ***Create a bibliography***

Microsoft Office Word 2010 also allows to create an automatic bibliography. Click *Bibliography* and then select *Insert bibliography*.

**Figure 6: Create a bibliography in Microsoft Office Word 2010**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [Access 15 May 2012]. Available from: <http://office.microsoft.com/cs-cz/word/>

## 4.6 Citace.com Website Application

You can also use the website Citace.com to create citations according to ISO 690 and ISO 690-2 standards where a bibliographic citation generator is published. When you select the relevant document on the generator's start page, the following table will be displayed to enter the relevant details. The structure of the data to fill in depends on the selected type of publication. The highlighted fields in the form are required.

**Figure 7: Adding bibliographic information on Citace.com**

Source: KRČÁL, Martin. Citace.com [online]. ©2004-2012 [cit. 2012-05-14]. Available from: <http://generator.citace.com/?druh=1&ukol=1>

## 4.7 Zotero Citation Manager, Browser Application and Add-on

This tool allows you to save sources and objects with a single click directly from the web browser where you usually search information. This application is most often used to create in-text citations or a bibliography according to the selected citation standard. It is also used in general to create collections and thematic bibliographies. It also enables to share and synchronize bibliographies and it can be used for writing longer texts using add-ons for Google documents and MS Word.

## ***Add new source***

There are two options. The first option is to automatic adding using the browser add-on where you can click the document icon (see Figure below) and download the bibliographic information about the document to the user database. This option can only be used for websites whose source files directly contain meta data of sources. These websites include most academic sites (JSTORE, EBSCO, Google Scholar, and others) and library catalogues (ALEPH). The second option is to use the relevant form to insert a new resource.

**Figure 8: Add source from the browser using Zotero add-ons**

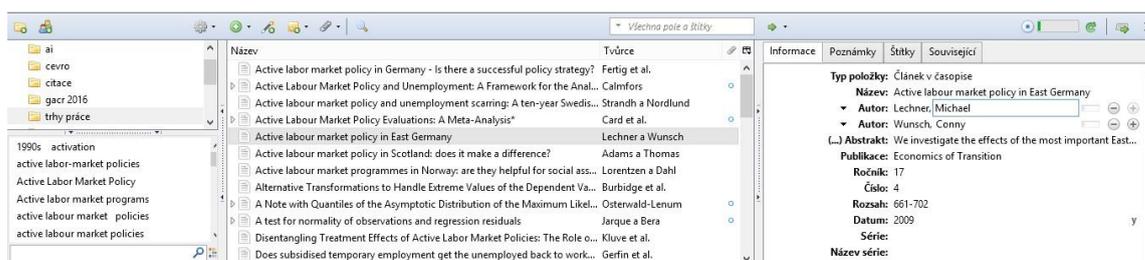


Source: Roy Rosenzweig Center for History and New Media. Zotero [software]. [15 April 2016]. Available from: <https://www.zotero.org/download/>

## ***Manage the existing sources***

Adding items with a single click is the most common use of Zotero. Sources are added and edited in the database tree of the application. To access the source database, click the "Z" icon in the web browser, or execute a stand-alone program. Select the item and then edit it in the right side of the window. All required fields are preset according to the selected type of source (journal article, book, book chapter, thesis, paper, etc.).

**Figure 9: Manage sources using Zotero**

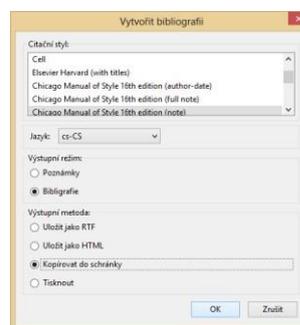


Source: Roy Rosenzweig Center for History and New Media. Zotero [software]. [access 15 April 2016]. Available from: <https://www.zotero.org/download/>

### ***Create a bibliography***

You can create a bibliography in alphabetical order according to the citation standard by selecting several sources in the central part of the application, or by selecting the entire collection on the left side of the application (see Figure 9). Then press the right mouse button (open the contextual menu) and select the option Create bibliography from collection (or, from selected items). A pop-up window will appear where you can select a citation style (which can be added from the style repository - currently over 8000 style templates) and the output language that will apply to the exported bibliography.

**Figure 10: Create bibliography using Zotero**



Source: Roy Rosenzweig Center for History and New Media. Zotero [software]. [access 15 April 2016]. Available from: <https://www.zotero.org/download/>

## **4.8. Most Common Mistakes**

The following common formal errors should be avoided by authors of scientific (research) papers:

- The paper contains spelling and grammatical errors or misspellings.
- The text is worded inappropriately or incomprehensibly.
- The author uses sentences that are too long or just plain sentences.
- Abbreviations are used incorrectly in the text - the meaning of the abbreviation is not explained, one abbreviation is used for two different terms, other than common abbreviations are used.
- The author uses inappropriate formal editing of text and embedded objects.
- The author does not adhere to citation standards (most often in case of sources under inserted objects and in bibliography).
- The formal structure of the work is not relevant for a scientific text.
- Pages, headings, or embedded objects are not numbered which makes it more difficult to

navigate in the text.

- Failure to translate a foreign language source for direct citations into Czech. Many authors argue that you should always quote the original text because every translation is an interpretation. Nevertheless, the original text should only be cited where the text is newly interpreted, or the previous common interpretation is challenged, etc. It is not necessary for the fields of study represented at ITB.

## 5 Structure of Thesis/Scientific Paper

### 5.1 Basic Text Structure

The basic structure (composition, scheme) used in scientific texts referred to as "problem - solution" consists of:

1. **Introduction** - the author defines goals and hypotheses and gives general statements of the existing knowledge in the given topic and evaluates the resources used;
2. **Essay** – the core of the text where the author analyses the topic, answers questions, challenges, and formulates a thesis, or gives arguments, etc.;
3. **Conclusion** – presents results and conclusions made by the author and outlines prospects for future research.

The standard format of scientific, technical and medical research texts (papers, articles) is based on the so-called **IMRAD** model which stands for Introduction, Research Methods, Results, Analysis and Discussion. A scientific article of this type is defined as a published report on results of the initial basic research. A similar scheme is used in dissertation theses, grant project applications and grant project reports. It is used in sciences with prevailing experimental research in line with the established method, presentation and discussion of results. It is less suitable for social and human sciences, sometime even not applicable, for example, when the context of a problem or event is examined, or two theories and their applications in practice are compared.

The parts of the IMRAD model are:

**Introduction** - Questions: What? Why? What research problem was studied? You justify why this work is prepared. You summarize the existing knowledge, and evaluate authors who published related texts, and emphasize why this work is important, and review the relevance of the problem, and clearly formulate goals of the scientific work. It is also good to provide an outline of interdisciplinary relations.

*“The first paragraph should include some words from the title of the paper / article and the following sentences should present the research problem (the core of the matter) which the paper / article analyses. Avoid common knowledge that readers are familiar with or can find it in textbooks. The second paragraph should mention the motivation why the paper / article is written. The author should explain this is a logical step in the context of ongoing research that should be presented to the community of experts. Another reason may be that certain deficiencies are identified in scientific publications and need to be addressed.*

*The concept of work selected by the author is based on these circumstances. The third paragraph should justify why this publication is needed. Here the reader expects a clearly formulated research question that a research project sets out to answer.*“ (Hušák 2007). A well-prepared introduction will help you clarify the research question and propose a logical structure of work and gradually analyse the problem. It will also define your work in the framework of the present research. In other words, you will explain who you follow and relate to, agree with or challenge. It is worth writing the introduction at the beginning of the creative process and review it at the end.

**Methods** (methodology) – How was the problem studied? You describe and review the methodology, research protocol, statistical processing; in the natural sciences, for example, sets of experimental objects, laboratory methods, data collection and evaluation, or measuring instruments. You describe the structure of the study and measuring instruments, tools and techniques used in research. The reproducibility of the study should be ensured.

**Results** – Questions: What was found? What was identified? In this part, you summarize your findings. Čmejková (1999) says: *„The results are usually presented in a selective way, those that enrich the knowledge and bring new insights into the topic are selected. Tables, charts and statistics are commonly used to present results in some fields. In this part, the author purely gives out results of their research while the interpretation or consideration of what these results mean in the broader scientific context is provided in the last part.*“ (p. 91). The results only include information about the actual measured data. In this part, you should organize the data in a logical sequence, and only include tables, charts and figures that are indispensable to document and clarify the research problem, and confirm the hypotheses. Do not repeat the data given in tables or charts, just explain and comment, evaluate and add clarifications or summaries.

**Discussion** – Question: What do the findings mean / show? You do not repeat results, you just evaluate their importance and draw conclusions. You consider a possible generalization of results and its limitations. You refer to previous work in given field and consider the impact of the results on further research or their practical use. (Höschl 1999; Chýla 2006). According to Hušák (2007), discussion should be prepared as follows: *“Summarize the findings; any problems related to the methods used should be mentioned; do not repeat the information or material already described in Introduction, Methods, and Results; the results are compared with the present... published information; do not make statements that are not sufficiently supported by your own data; discuss... scientific implications of the work; you can formulate new hypotheses if they are justified but you must clearly say in the text they are only hypotheses indeed; suggest how the research could continue. The actual results of your*

*research are challenged in the Discussion section with respect to views of the research problem available in the literature about the problem. Describe how these results can change or contribute to the current state of knowledge and mention how the problem should be further studied. Of course, the views of those who have a completely different opinion and, on the other hand, authors whose views are similar to your hypothesis are discussed... The most important findings are summarized in the final paragraph in Discussion and presented as recommendations for practice and further research“.*

According to the methodology applied at **ITB**, the **formal structure of a seminar paper** is as follows: title page, content, introduction, aim of the paper, theory and methods (literature review, introduction to the problem, research problem / research questions / hypotheses, methodology), application (application part, discussion of results, proposals of measures), conclusion, bibliography, list of abbreviations, list of tables or pictures, appendices.

**Templates** of seminar and bachelor and master theses are available to students in the information system of ITB and they must be used for development of papers or theses. The preset parts of the paper cannot be changed or even left out.

**Project** is a specific type of document where the general structure can be defined:

- Project title,
- Identification of the project promoter,
- Project annotation,
- Project team members,
- Definition of goals (main, partial, description),
- Description of the project solution,
- Subject and time schedule of the project,
- Project financing.

Depending on the focus of the project (EU Structural Funds project, research project, business plan, etc.), the outline of the given type of project is supplemented with specific sub-sections. The basic structure consists of an introductory page, content, introduction, project goals and objectives, methods, application and discussion of results, conclusion, bibliography, and appendices.

At the end of the discussion on the text structure, the principle of balance between chapters and subchapters should be reminded. If the extent of any chapter is excessive, the author

should consider to reduce it, divide it into several parts or divide it into subchapters to not affect the consistency of the resulting text.

## 5.2 Introduction

No scientific work can begin directly with the first chapter, i.e. the introduction. The text must always be preceded by the title page including the title of the work, the name of the author, the full name of the school “Institute of Technology and Business in České Budějovice”, and a statement that the project was completed independently: "I declare that this seminar / bachelor / master thesis was composed by myself using only the above mentioned sources." plus automatically generated content. More extensive work must also include acknowledgements to all people who helped you complete the project successfully, an abstract or keywords.

### 5.2.1 Abstract

An abstract is a brief and comprehensive description of the content of a research article / thesis, newly discovered facts and the resulting conclusions. It only provides the main results and conclusions and it is composed so that it carries its own meaning even without the rest of text of the work. In any abstract, it is advisable to emphasize new knowledge and contribution of the author. The scientific level of an abstract should be aimed at readers who are familiar with the topic but are not familiar with the work.

An abstract provides the following information, in particular: subject and aim of study, general description of methods, place of solution, description of new findings, and conclusions. The extent of an abstract is approximately 200 words, i.e. 1500 characters including spaces. An abstract is plain and continuous text which should not contain any highlights, abbreviations (except of those generally known and used), citations, and references to the text of the work, or graphics such as pictures, tables, etc. Instead of general formulations, you should provide accurate and factual content. An abstract is given in the Czech language, or in the language of the text of the work, and translated into English. Both language versions of an abstract are filed in the information system and help searching by focus of the text. An abstract is an integral part of a research article / thesis / paper.

Sometimes the term “abstract” is used as a synonym for “annotation” and “résumé”. **Annotation** is auxiliary and general information added to some text (or, other documents, sources), briefly characterizing its content. If created by the author, it is an abstract / resume, and if created by someone else (researcher, editor, reviewer), then it may be bookmark and book cover annotation, database or bibliography annotation, or annotation in a publishing catalogue, or a review etc. **Résumé** (resume, summary) is a brief summary of content of a text

and its main ideas reflecting the basic structure of the text. It is often synonymous with the word abstract - annotation.

**A review** is yet another important type of scientific text. In case of theses, it would be a thesis review. It is sufficient for quick and accurate information if the review size does not exceed 1500 words or 2 standard pages. It allows readers to get information and evaluation of a scientific book as well as evaluation of the author. Readers of a review are looking for answers to questions - does it make sense to read the book? What methods did the author use? What conclusions did he make and what was the response? What is criticized about the book? They can also be inspired to evaluate the book at the beginning of the scientific text where you can challenge or refer to the review. In this case, you cite the review as a full-fledged scientific text.

**Example 4: Abstract**

*„The paper presents one of the possible approaches to measuring the performance of a company, or measuring technical efficiency on a set of construction companies. It defines the theoretical basis of technical efficiency which provides information on the level of exploitation of a company's production capacity which allows to identify the company's potential and potential losses. Single factor linear production functions are used for analysis. A production function, the strength of production parameters as well as derived production functions by the year and region are specified for the set of businesses under review. The defined approach allows to predict functions in the respective regions and their average production with the preset structure of production factors documenting the characteristics of the respective region.”*

Source: Vochozka, Váchal a Straková 2015, p 15.

### 5.2.2 **Key words**

Keywords are a selection of the essential terminology and concepts discussed in the paper. It is mainly used to search the relevant works in library databases. They are presented in the language of the work and translated into English. The number of keywords should not be less than three and not more than seven. They are written one by one and separated by commas with a period at the end.

**Example 5: Keywords for the above abstract**

Company's performance; technical efficiency; single-factor production function.

### 5.2.3 **Content**

The table of contents is inserted before the text part in scientific papers. It may include numbered headings from the introduction to conclusion as well as non-numbered headings of lists and appendices. Three levels of headings at maximum should be set to display in the

table of contents although in principle, the multi-level breakdown can be used in the work itself.

Microsoft Office Word 2010 applications: Select a style for each paragraph which determines properties for the entire paragraph, including size and font. Styles are the key for creating a table of contents where only certain heading levels are processed. Go to *Styles* on the *Home* tab to select the style you wish to use. The advantage of using styles is that you can change the appearance of your entire document easily all at once. Changing parameters of a defined style will reflect in all paragraphs where that style is applied. In the initial dialog box, you can change fonts and font size, paragraph indentation, spacing and paragraph breaks, text language, numbering, and many other parameters. The table of contents is generated by clicking the *Content* button from the menu on the *Reference* tab.

### **5.3 Introduction**

The introduction is the first content chapter of the thesis and will introduce the topic to the reader. You define the research problem and outline the main questions or hypotheses and adumbrate the value added of the work. Furthermore, the introduction should justify the selected topic and show why this topic is important and how it relates to the context, i.e. the present research. One paragraph can describe the current state of the topic or provide an overview of the relevant published literature. The future tense of a continuous text is used in the introduction without graphics, bullets, and highlighting, or footnotes, etc.

#### **Example 6: Introduction**

Seminar paper “Economic Analysis of a Selected Company” will focus on the economic analysis of Tescoma s.r.o. (hereinafter referred to as Tescoma). I will apply the hypothesis the company is creating values in the period under review, and the company is financially healthy and achieving above-average results on the indicators under review in comparison with the values of the industry, i.e. has a high profit potential. The economic analysis will include the evaluation of the company’s financial statements (financial analysis) that analyses „hard data“ extracted from financial accounts in 2009-2014. The basis of the economic analysis will be a quantitative part represented by financial analysis. In this framework, the absolute, differential and ratio indicators will be analysed. The creditworthiness business model - Kralicek Quicktest will also be applied. The next part will consist of partial qualitative analyses. The qualitative part of the economic analysis will be reduced to three analyses - spider analysis, Pollak viability prediction and SWOT analysis. I will look at the application of theoretical knowledge and the use of adequate analytical methods, while assessing the current economic situation and the company’s performance and viability. I will provide a summary of the economic situation and the company’s performance and propose measures that would help to correct any deficiencies identified through the analysis. I chose the subject of Tescoma because it is well known and I consider it a specific business because it falls within so-called family businesses. The topic is very important because the economic analysis has a significant impact on success factors of a business. An appropriate and high-quality analysis is very important for the company’s management and can be seen as ideal for a comprehensive review of the company's situation. The majority of companies have currently been using methods defined, for example, in the publication of

## **5.4 Research Aims and Objectives**

The research problem of the thesis is generally determined by its topic. The problem is a deviation of the actual reality from the desired reality which requires to find a yet unknown solution. Based on the defined problem, the aim will be briefly and clearly formulated which must be achievable and specific. The aim formulation should include active verbs such as “analyse”, “compare”, “identify”, and “describe”, or “formulate” and so on. With a deeper insight into the essence of the problem, the aim and objectives are gradually specified, complemented, clarified and adapted to the specific conditions of the organisation in which the work is developed. Consequently, hypotheses are based on the aim and objectives.

The author composes a work in the sequence and on the schedule as they continue their analysis towards solution. It is important to keep in mind that all text in a seminar paper or thesis must always be related to the aim of the work and every idea used in the work should contribute to successful completion of the aim and objectives of the work.

### **Example 7: Aim of the thesis / paper**

The aim of the thesis / paper is to evaluate the financial situation of MADETA, a. s. in the period of 2000-2009.

The aim of the thesis / paper is to evaluate the current business strategy of the selected company, including a proposal for innovation.

The aim of the thesis / paper is financial analysis of two companies and comparison of its results.

## **5.5 Theory and Methods**

### **Literature review**

#### **5.5.1**

A literature review is a critical survey of existing knowledge in the given topic and as such it is the required basis for selecting appropriate methods to complete and fulfil the aims and objectives of the work. In writing this chapter, the author mainly refers to the information and data collected before the start of writing.

The main purpose of this chapter is to provide an overview of the current literature related to the same topic. In parallel with the main aims, the literary review also fulfils some complementary aims and objectives, for example, to identify possible deviations of the actual state from the desired state, and prevent an investigation of already discovered facts, or avoid

mistakes based on the experience of predecessors and follow up on predecessors, etc. In a literature review, you should examine the bibliography critically, i.e. what key books, articles, papers and documents were used and how they helped. Most of them are scientific (research) texts, so you should provide their characteristics, evaluate the expertise of their authors in terms of the questions you asked, and justify the selection of texts.

#### **Example 8: Literature review**

There is quite a little scientific information on the topic. An exception would be the scientific monograph by P. Evans-Pritchard (2014) who focused on the analysis of in-house communication in Japanese engineering companies. His conclusions allowed me to clarify the questions in the survey. However, most of his book are dedicated to advertising and promotion. M. Novotný (1998) carried out research of Czech companies in late 1990s. Given the very low number of respondents, I could not rely on his conclusions. The study by A. Veselý (2012) who analysed in detail this phenomenon in a company XCV was the most valuable source of information related to internal communication.

#### **5.5.2 Problem Statement**

The aim of this part is to give the reader a sound summary of the essential previously published information. The text provides the essential information about the problem in the context of not commonly known ideas. The primary objective of this part is to compare opinions of different authors based on a sufficient amount of collected information, and then present the author's own views and formulate his/her own opinions on the discussed topic.

It is therefore necessary for this chapter to contain the author's own opinion and his/her own approach to the discussed topic, and in case of any difference of opinion with other authors, the author's tendency should be explained. For example, if there are multiple definitions of a scientific term, all of them can be mentioned in the text but the author should point out the one to which (s)he is inclined and how this term is understood in the text.

A common point of discussion is where formulas used for calculations in the application part should be included. It is correct to include them within the methodology where you describe and explain the methods used in research.

#### **Research problem, research question**

Research (especially qualitative) begins with a definition of the **research problem**, i.e. what you want to analyse, what you would like to investigate and what you would like to achieve. The best thing is to formulate the research problem as a question (the so-called **research question**). The final statement of a research problem should be preceded by a study of the literature and mapping of what has been identified, established, described and how. The investigation of a research problem should extend existing knowledge of the topic and add

something new to it. There are three types of research studies:

a) **Descriptive.** You ask the question "What is it like?" and you describe the situation, state, or the occurrence of a phenomenon. In this case, the commonly used methods include questionnaire, observation, interview, or scaling. This is the simplest research study.

Example: What are the main features of the Japanese style of management?

b) **Relational.** We identify the relationships of phenomena or factors. We ask the question whether and how close is the relationship between the examined phenomena. Statistical methods are most often used (correlation, factor analysis).

Example: What is the relationship between the Japanese style of management and the success of the Japanese economy?

c) **Causal.** You identify the cause (cause-consequence) resulting in a certain consequence. Statistical methods are most often used. This is the most challenging research study and the solution will bring the most valuable results.

Example: Do cafeterias cause a significant increase in employee motivation?

All three types of research questions can be formulated in most theses.

The research question (research study) can be divided into **partial research (clarifying) questions** (also called sub-questions) within so-called **topic decomposition**.

Example:

Research problem/study: A small number of clients of a travel agency

Research question: Are clients satisfied with services of the travel agency?

Topic decomposition = Partial (clarifying) research questions:

- Are clients satisfied with travel agents?
- Are clients satisfied with transportation?
- Are clients satisfied with trip packages?

The next step is to set up **hypotheses**, i.e. assumptions that you try to confirm or refute by research. In setting up these, you should use the available and relevant data and predefined

research questions. Those are declarative sentences that express the relationship between two variables. Hypotheses must be formulated to allow later testing if they are true. The verifiability of hypotheses is ensured by the fact that selected variables are measurable or classifiable.

The following is considered to be a hypothesis: 1) proposition suspected to be true but for which no proof or disproof has yet been found, 2) explanation that cannot as of yet be confirmed with enough accuracy, 3) assumption that still needs to be verified.

Hypotheses may be related to the existence or absence of certain phenomena, and the existence or absence of relationships between these phenomena, and the existence or absence of causes and consequences of these phenomena. There are explanatory hypotheses (explaining the causes of a problem), or descriptive and predictive hypotheses (generalising problems). By verifying the accuracy of hypotheses step by step, the author will analyse the defined research problem and fulfil the defined objectives. The logical structure thus starts from the definition of a research problem addressed in your thesis and the definition of aims and objectives through the formulation of hypotheses. Unlike the aim or objective that needs to be fulfilled in any case, hypotheses can be refuted. The refutation or confirmation of hypotheses leads to the successful completion of the work. Hypotheses are verified in the Discussion of Results chapter, it is wrong to verify hypotheses at the very end in Conclusion.

An example of a research problem and its further clarification:

Research problem statement: Customer churn followed the repair shop reconstruction.

Research question: Are the customers satisfied with the service?

Topic decomposition = Partial (clarifying) research questions:

- Are the customers satisfied with new repair prices?
- Are the customers satisfied with the waiting time for a repair that has increased since the reconstruction?

Hypotheses:

- Customers do not visit the repair shop because of higher repair prices.
- Customers do not visit the repair shop because of the longer waiting time.

Another example:

Research problem:

Research question: Are readers generally satisfied with services of the university library?

Topic decomposition = Partial (clarifying) research questions:

- Are readers satisfied with reference services?
- Are readers satisfied with lending services?

Hypotheses:

- The overall satisfaction levels of readers differ according to socio-economic characteristics.
- The overall satisfaction differs according to age.
- The most satisfied readers are in the senior category.

### 5.5.3 Hypotheses in economic and econometric research

In economic and econometric research, a useful hypothesis is typically identified (called theory or thesis) by the fact that it is nontrivial. If there is an unambiguous response to your hypothesis, you do not need to conduct a research. A hypothesis should be meaningful, brief and understandable for the community of experts. It is good for research based on data analysis if the hypothesis can be tested to some extent. There should be a method, experiment, or some other procedures that can be used for testing of the hypothesis.

The concept of rejecting null hypotheses ( $H_0$ ) is used for statistical testing of hypotheses. A null hypothesis is always part of every statistical test. For example, a few statistical tests are used to test the suitability and relevance of the regression model as a whole. The Ramsey RESET test has a null hypothesis  $H_0$ : A regression model being tested is well specified. The White test has a null hypothesis  $H_0$ : There is no heteroscedasticity in the regression model being tested. Both tests produce some statistics depending on the number of observations and the number of variables (e.g.  $F = 14.5$ ). There is p-value always assigned to this number which is the key for decision whether to reject a hypothesis. The p-value can be 0 to 1, therefore it can be interpreted as a percentage (e.g.  $0.075 = 7.5\%$ ). To reject a hypothesis, you must determine the alpha significance level. In statistical terms, this is a so-called type I error which provides a basis of comparison for p-value. It would be usually 5 to 10% in the social sciences while it has a lower level in the exact sciences depending on the discipline.

In the following example, the alpha significance level is 5% which means that the null

hypothesis is rejected if the p-value is below 5% inclusive.

- Ramsey RESET, p-value = 0.001: How do you decide? The p-value is less than the alpha significance level of 0.05, therefore the H0 statement is rejected; which is to say the thesis is rejected that the regression model being tested is properly specified. In other words, it is not well specified.
- White test, p-value = 0.04: How do you decide? The p-value is less than the alpha significance level of 0.05, therefore the H0 statement is rejected; which is to say the thesis is rejected that there is no heteroscedasticity in the regression model. In other words, there is heteroscedasticity in the model.
- Ramsey RESET, p-value = 0.41: How do you decide? The p-value (41 %) is greater than the alpha significance level of 0.05 (5 %). Therefore the H0 statement is not rejected; which is to say the thesis is not rejected that the regression model being tested is properly specified. In other words, it is well specified.
- White test, p-value = 0.74: How do you decide? The p-value (74 %) is greater than the alpha significance level of 0.05 (5 %). Therefore the H0 statement is not rejected; which is to say the thesis is not rejected that there is no heteroscedasticity in the regression model. In other words, there is no heteroscedasticity in the model.

As you can see, it depends on the statement of the null hypothesis and it is not always the negative statement that is rejected. The whole econometrics is based on testing and test criteria that have null hypotheses (t-test for a regression coefficient, t-test for analysis of variance, and F-test for multiple regression coefficients, or chi square test of goodness of fit, etc.).

#### 5.5.4 Methodology for a scientific / research paper

**Methodology of science** is the study of methods that can be used in particular cases. **Methodology** is a consistent process and standard pattern to solve a recurring problem or application of methods in a specific case (when solving a specific problem). In principle, the methodology is broken down into the actual solution methodology and processing methodology, including statistical methods. A **method** is a sophisticated and impartially correct way of identifying objects based on established patterns or knowledge explanation. **Methodology for a scientific / research paper** describes methods used in writing academic

text. A literature review can be referenced in brief (in the past tense) but methodology should mainly be focused on the methods the author intends to use in the application part (in the future tense). Apart from the description of used methods, the methodology for a scientific / research paper specifies when and for what purposes each method was used.

**Specific methods** at ITB will be determined by the teacher based on the student's field of study and the topic of thesis / paper. The following text just briefly outlines what methods can be used in the development of scientific papers. For details of instructions how to use the methods see the respective summaries (guides) of the discipline.

### ***Data Collection Methods***

**Document analysis** reviews and evaluates documents in both printed and electronic form. Sometimes the information you are looking for can be identified directly from such written documents, at other times the content of documents only suggests where the information can be acquired. Reviewing documents has the advantage over other data collection methods that you can spend almost unlimited time reading and studying them. The drawbacks are that documents may be incomplete or outdated.

**An interview** allows the face-to-face contact between researcher and respondent. There are various types of interviews such as guided interview, open interview, hidden interview, etc. All types of interviews are time-consuming and challenging in terms of interviewing skills that affect the quality of collected information. The danger of conversation is that people tend to answer questions with a certain slant and they tend to misrepresent answers to appear intelligent, to conceal personal information, to avoid embarrassment, especially in personal contact. However, the benefits can be seen above all in conducting and moderating the interview, including target interview questions and real time responses, etc. You can also monitor the manifestations of nonverbal communication of respondent. They often carry more information than the interview itself. However, they should be perceived very sensitively and again, the most important is the interrogator / researcher and their experience. If any type of interview is used, you are advised to attach a transcript of questions and answers or their audio recordings (consent from the respondent is required) to your research paper / thesis. If audio information is recorded, it should be attached on an adequate audio storage medium to the printed form of a research paper / thesis.

**A questionnaire survey** is conducted in a predefined group of respondents who receive questionnaires wished to be filled. There are several types of questionnaire surveys: random,

targeted and many others. All types of surveys have some common parameters. The most important thing is to formulate questions precisely and unambiguously. The advantage of a questionnaire survey is the possibility to address a very high number of respondents, lower cost and time consumption. The disadvantages consist in the low response rate of questionnaires and the inability to ask supplementary questions or provide additional explanation what you exactly mean by the question, etc. The key for the output is the evaluation of a questionnaire survey in sufficient depth using statistical methods. For the purposes of a scientific paper / thesis, it is not enough to say that a certain percentage of respondents answered the question in a particular way. It is also recommended to attach a copy of the questionnaire, or even the database of answers, to the scientific paper / thesis.

**Observation** is a purposeful, planned and systematic monitoring of certain facts resulting in description of the observed fact, or explanation of certain regularities. A specific type of observation is the experiment carried out under supervised or directly controlled conditions. Measurement is considered another specific type of observation in which a quantitative parameter of the examined object is measured. The pitfalls of observation studies lie in the difficulty of preparation and possible non-standard behaviour of the observed person in the presence of an observer. If the observed people give consent for observation, you are recommended to make an audio or video recording and attach it to your scientific paper / thesis (a suitable format for electronic form, or a CD or DVD for printed form).

### ***Research Data Evaluation Methods***

**Data comparison** is the simplest method to compare the analysed phenomena or objects. This method makes it possible to identify the differences or matches of the objects being compared. You can compare:

- Materially different sets of data with different types of elements.
- Spatially different sets of data with identical types of elements from different locations.
- Time-varying sets of data with materially and spatially identical elements from different time-frames.

**Data abstraction** employs a specific feature of the thinking process that allows to separate one part of reality and examine it separately from others. Abstraction allows to dig deep into the essence of a phenomenon and to examine only the key characteristics. Sometimes it is necessary to use this method as the basis for other methods. The abstraction method is mainly applicable to theoretical papers where the author needs to eliminate the influence of less significant factors of a phenomenon to achieve a relevant result.

**Induction** is a technique for making generalizations where you proceed from specific phenomena in practice to general theoretical knowledge. Strong (complete) induction means that a statement holds for all values of a given set. In this case, the conclusions drawn are unambiguous. Incomplete induction means that not all the values of a given set are available at the beginning of the investigation. Consequently, the conclusions can not be considered as unambiguous but probable. The actual probability depends on the number and total quantity of phenomena being studied.

**Deduction** is the opposite of induction, therefore a technique derived from general knowledge. This method is used to verify theoretical conclusions using practical examples.

**The process of analysis** breaks down the whole phenomenon into parts and components to be separately studied. The identification of all parts and their relationships makes it possible to come to know the phenomenon as a whole. There are several types of analyses:

- Classification analysis orders phenomena into groups of sets according to the essential features of a group of phenomena.
- Relationship analysis examines the relationships among phenomena.
- Cause and effect analysis identifies the causes and consequences of particular phenomena.
- Systems analysis examines more complex systems in three stages:
  - System definition - definition of elements and relationships inside and around the system.
  - System analysis - detailed analysis of elements and relationships defined in stage one.
  - Conclusions - suggestions to improve elements or streamline relationships.

**Synthesis** proceeds in the opposite direction to analysis. A synthesis composes or combines parts or elements as to form a whole based on known and described characteristics of particular phenomena.

**Generalization** means summing up general aspects to make a judgment. It is a thinking process that moves from unique to general. This procedure must reflect reality.

**The modelling method** simplifies complex processes in reality to abstract processes based on some prerequisites. Modeling like using these abstract processes allows to clarify and understand some of the relationships, processes, patterns, and properties of the original real processes. In most cases, the above abstraction method is expected in modelling. Thus, a model depicts reality adjusted for insignificant influences. Models are used in a number of theoretical disciplines, e.g. economics.

**Analogy** is a comparison between two objects, or systems of objects that highlights respects in which they are thought to be similar. It is a thinking operation which allows to derive properties of the examined phenomenon based on knowledge of properties of a similar phenomenon. The result of analogy is not scientific evidence, but only hypotheses that need to be verified by an alternative method. Analogy makes it possible to transfer knowledge from one scientific discipline to another.

### ***Marketing Research Methods***

Marketing research is the systematic gathering and analysis of market information. It is further used for decision-making about issues relating to marketing products and services.

Marketing research is part of a broader issue of general research which is divided into primary and secondary. Primary research identifies new information directly on the market which is more costly and time- and labour- consuming. Secondary research gathers the previously known data that was originally collected for other research purposes. The drawback of secondary information is that it may be obsolete.

From another point of view, research can be divided into quantitative and qualitative. Quantitative research gathers numerical data (figures) as frequencies or quantities whileas qualitative research identifies causal relationships or verbal evaluation, etc.

In terms of systems, there are different types of marketing research:

- *Descriptive marketing research describes the frequency and nature of the system being studied.*
- *Diagnostic marketing research looks for causal relationships, causes and consequences, or relationships among elements of the system being studied.*
- *Prognostic marketing research seeks to trace the present development and forecast the future trend and identify the key factors that may influence this trend.*
- *Conceptual marketing research develops a marketing concept, including long-term strategies and short-term future policies.*

The process of marketing research begins with a preparatory phase where you have to define the problem, specify the required data, identify data sources, define the data collection methods, and develop a marketing research project. What follows is the actual implementation phase where data are gathered and processed and analysed to draw and present conclusions.

The analytical part of marketing research includes the following analyses:

- Marketing information system analysis,
- Macro environment analysis including the most important factors,
- Micro environment analysis including interest groups,
- SWOT analysis.

In the synthesis part, decisions are made based on the collected data, short-term goals are formulated and long-term strategies are developed as well as competencies are defined, and the workers are motivated and led by the management, and all the aforementioned is supervised.

**The marketing information system analysis** makes it possible to gather data from internal sources (such as stock levels, cost functions, and receivables, or payables, etc.) and external sources (such as the media marketing environment or competition information) in one place. This is secondary research where information identified in the past is collected.

**Macro (external) environment analysis** through analysis of the most important factors. The macro environment includes all factors that can influence the organisation but are realistically out of the organisation's control. The macro environment contains both modifiable and especially non-modifiable factors. All these factors are subject to the above mentioned factor analysis. In particular, demographic development, legal environment, cultural conditions, socio-economic factors, and technology capabilities are analysed as well as the closest surroundings, including suppliers, customers, and competitors, or distributors.

**Micro (internal) environment analysis** through interest groups analysis. The micro environment generally consists of those elements that exist within or inside the organisation. In the narrow sense, the analysis of interest groups examines the entities (any association of individuals or organisations) that, on the basis of one or more shared concerns, attempt to influence the operation of the organisation in their favour. The narrow scope primarily includes owners (shareholders) and employees as well as creditors. In a broader sense, those are all entities that influence or are influenced by the organisation. In addition to the aforementioned, the broader scope may include, for example, government or municipal institutions.

**SWOT analysis** is a structured planning tool that can be used to evaluate the strengths and weaknesses (the part focused on the internal environment), and the threats and opportunities

(the part focused on the external environment) involved in running a business venture. The SWOT analysis will result in the conclusions represented by a set of recommendations. Accepting the strengths and eliminating the weaknesses increases the likelihood of taking external opportunities and decreases risks from external threats. The result is not only a SWOT matrix, but above all the detailed interpretation of the matrix.

### ***Mathematical and Statistical Data Evaluation Methods***

**Index analysis** helps to analyse the socio-economic indicators. The index analysis compares materially and spatially different or time-varying indicators to calculate the index of absolute difference or the index of relative difference as the percent of index. Indices can be calculated from homogeneous as well as heterogeneous indicators.

**Quantile analysis** breaks down a set of quantitative observations and separates a defined number of the highest and lowest values. This analysis uses the terms such as minimum (the lowest value), maximum (the highest value), range (the minimum and maximum difference), median (the middle value of a series of numbers), quartiles (a quarter of the highest and lowest series), and quantiles (the defined percent of the highest and lowest values), or the quantile range (the difference between the highest and lowest values of the quantile).

**Regression analysis** is a statistical method that estimates the value of a dependent variable based on known independent variables. Regression analysis estimates a formula that determines this dependency ratio with as high accuracy as possible. In graphics, the result of regression analysis will be represented by a trend line - a curve corresponding as closely as possible to the original values of a dependent and independent variable. Consequently, the identified trend is tested for probative values.

**Correlation analysis** is a statistical method used to evaluate the strength of relationship between two quantitative variables. A correlation between variables indicates that as one variable changes in value, the other variable tends to change in a specific direction. Even if there is a causal relationship between the variables, correlation analysis (the correlation coefficient) does not tell you which variable is the cause and which is the effect. The correlation coefficient is a statistical measure of the strength of the relationship between the relative movements of two variables.

**Time series analysis** compares data comparable in terms of area and cause-and-effect organised in the chronological respect. Tables and charts are the most common tools of time series analysis. They provide additional information such as time series average, and value

deviations from the mean, or growth rate, etc. Data for at least 3 to 5 time periods are required to create a good quality time series.

**Cluster analysis** is a method used to sort units into groups. Different groups are defined so that elements of a group are similar enough to each other as well as different enough from elements of other groups.

**Methods for reducing the number of input variables** reduce data dimensions with the least possible loss of information. These methods include, for example, factor analysis which expresses the input variable by linear combination of hidden factors to reduce data dimensions. (A redundant input variable containing redundant information can be omitted.) Furthermore, principal component analysis is considered as a method for reducing the number of input variables. Principal component analysis uses the variance of the original variables to reduce data dimensions.

#### *Methods of other disciplines*

**Managerial decision-making methods** provide support for decision-making under risk and uncertainty. These methods allow you to sort the variants by criteria. They include the mean value theorem, mean-variance rule, utility rule, minimax rule, maximax rule, Hurwicz's rule, and Savage's or Laplace's criterion.

**Cost output analysis** is a “single-criterion” decision-making method that allows to order the variants on the basis of the input-output ratio. The cost output methods include cost minimisation analysis, cost effectiveness analysis, and cost-utility analysis, or cost-benefit analysis.

**Financial methods** are mainly used in the calculation of financial parameters of capital projects. The net present value, internal rate of return or return on investment (ROI) are typical examples of financial methods.

**Operational research methods** can also be used as supporting methods for writing seminar papers or theses. Operations research includes various other disciplines such as the graph theory, game theory, and mathematical programming, or queueing theory.

#### **5.5.5 The most common mistakes**

In the theoretical-methodological part, some of the following shortcomings occur most frequently in

the works:

- Literary research lacks direct quotations and references to specific publications or scholarly articles.
- The introduction to the problem is merely a compilation of non-sequential citations from different sources without the actual text, which would act as a unifying element.
- The mentioned literary sources have no relation to the solution of the work, resp. to the goal of the work.
- The introduction to the problem is too broad and contains information that is widely known.
- Hypotheses are exactly unverifiable (general or too broad). The author should make hypotheses to make their confirmation or rebuttal unquestionable (eg by reference to the result of calculation or statistical verification of the hypothesis).
- The hypotheses are verified at the end of the thesis.
- The methodology is unspecified. It is only an inventory of methods, does not contain clarification where the author gets the data, prepares it for the application, how it processes the data, what results it expects and how he will interpret the results.
- The methodology is irrelevant to the objective of the work. It solves a different problem than the author chose at the beginning of the work.
- The methodology focuses only on part of the problem (for example, only collecting information, not processing it or interpreting it).

## **5.6 Application part and discussion of results**

### **5.6.1 Application part**

**The application part** contains a solution to a specific problem and formulation of its own conclusions, while it should be based on the practice of specific companies, companies or organizations and address specific, topical problems. It is a key part of seminar and qualification work, which applies the theoretical knowledge gained on a practical example. While the introduction to the problem is rather a compilation of previously published findings, the application part of the thesis contains a solution to a specific problem and the formulation of own conclusions, which will be followed by discussion of results with proposals for measures. The extent of this part should exceed the theoretical part.

For this part of the work serves as a necessary basis for information obtained in the phase of data collection. There is often a need for additional information. This implies that the process of data acquisition and collection is a continuous process in the processing of extensive written work.

The author often encounters the problem of unavailability of information. The reasons for this can vary: from the reluctance of the employees of the organization concerned to provide this information, despite the inability to obtain information for business secrets, to legislative obstacles. Some problems can be avoided by choosing the topic and its applications in the company willing to provide information. Other information barriers will not be overcome, which will require a student's creative approach, but must in no way resort to speculation or deliberate lies.

Seminar and especially theses deal mostly with a complex problem, characterized by a higher number of partial problems and a greater number of relationships between them. After solving this complex problem, more information is needed. The usual method of solution is the analytical-synthetic method, in which the problem is broken down into partial sub-problems, which are first examined separately, followed by an examination of the relations between these sub-problems and the results are synthesized at the end.

The author must proceed in a creative way in order to distinguish the main problems from the secondary ones. The application must pay particular attention to the main ones and avoid dwindling in insignificant details that would distract the reader's attention and distract him from key issues.

In particular, theses should reflect the "order" of the practice of specific enterprises. They have to solve their problems. Therefore, it is logical that the reader of the thesis will look for its benefits in the application part. It predetermines the correctness of the applied procedure and brings concrete results that should or can be applied to the practice of a particular company.

#### **5.6.2 Discussion of results**

Application of methods, whose description must be included in the chapter devoted to the methodology of work, will contribute to the solution of the problem, formulation of results and their subsequent discussion. In this chapter, which immediately follows the application part, the author subjects the findings to a critical examination, and thus reveals possible shortcomings. The discussion is thus based on a logical argumentation of the author, his perspective on the issue and the ability of objective approach. The author must be able to look at obtained information and results from many perspectives. It should take into account all relevant relationships. The discussion underlines the importance of results and highlights the newly opened issues and the need to address them.

In the discussion of results, we compare information from the introduction to the issue with the results of critical data analysis, information from the questionnaire and interviews, statistics and other sources. We detect matches, detect any discrepancies. We answer the research questions posed within the research problem, verify the hypotheses, ie confirm or refute the individual hypotheses, state the conditions of their validity. If the hypotheses are not confirmed, we are looking for the causes and reasons for this condition. In other words, the discussion will confirm or disprove our original ideas and assumptions.

### **5.6.3 Proposals of action**

The primary aim of the thesis is not to write and defend it, but to make practical use of the information and conclusions. The work must result in proposals of concrete measures, which are recommendations helping to solve the defined problem and thus achieve the goal. Ideally, the business takes over and implements the solution. Therefore, the proposals must be realistic, substantiated by arguments, economically acceptable.

In particular, the following principles are recommended:

- To take into account the specific conditions of the research organization.
- To be based on the feasibility of the proposed measures.
- To respect the knowledge gained from the study of literature and consultations with the staff of the organization.

For the proposed measures, it is also recommended to indicate responsible persons, measurable indicators of implementation and the method of their control. For example, we recommend adding a price balance sheet, comparing the recommended product from several companies, etc.

### **5.6.4 Most common mistakes**

Also in the application part it is possible to trace repeated errors:

- The application part does not correspond to the specified methodology of work.
- The application part repeats the methodology and is not specific in this case.
- The application part is merely a set of graphs, tables or calculations without own text and without interpretation of results.
- The discussion of results does not go far enough and does not correspond to the significance of the results obtained.
- The discussion of results focuses on unnecessary details and does not interpret the information obtained in the context of the objectives of the work.
- Proposed measures are not based on the results obtained.

- The draft measures are superficial and no systemic approach is applied.
- The draft measures address the consequences, not the causes of phenomena.

## **5.7 Conclusion**

The conclusion of the thesis is a summary of the whole text, which contains a statement of the fulfillment (or failure) of the goal, confirmation or refutation of hypotheses, the resulting recommendations and suggestions, naming problems that seem relevant but could not be solved in the work. research and possible related topic. The conclusion should include the sentence “Goal was met” and a description of how the author specifically accomplished the goal. In order to keep the time sequence for the reader, the conclusion is written in the past tense.

Conclusion in a sense follows the introduction. In the introduction the problem is defined, the conclusion describes the fulfillment of the objective in relation to this problem and recommendations that will help to solve it. Defined hypotheses should be mentioned at the end even if they were not confirmed during the work. The extent of the seminar and theses does not allow to investigate the problem in great depth, so it is advisable to mention the areas that were not solved within the work. These areas may be subject to follow-up research and follow-up work. If the author assumes continuation of his / her studies, he / she should mention what work he / she will follow in a possible diploma thesis. It should maintain a certain professional continuity of its professional profile.

The conclusion is written in the same form as the introduction, so it does not contain any graphic elements, highlighted text, bullets, footnotes.

The scope of the conclusion should be slightly larger than the scope of the introduction. One-page conclusion is sufficient for seminar papers, qualification works should have a conclusion about the approximate extent of two standard pages.

## 5.8 Lists

### List of used sources

#### 5.8.1

At the end of each work, a list of sources used (unpublished materials, literature, articles and other documents) must be provided. The list must not contain any source quoted in the text of the work. Conversely, all sources listed in the bibliography should be used in the text. It is unacceptable to mention sources that we have not processed or which are not related to the topic of the work. A single form of citation must be used throughout the work and the corresponding way of compiling a list of references must be used. ITB requires Harvard citation standard (Harvard referencing system).

Items in the bibliography are always listed in alphabetical order, precisely in the form prescribed by citation standards.

From the list of used literature it is clear at first glance what attention and diligence we devoted to the preparation of the solution, how we are familiar with the current state of the field, whether we are able to work in relevant foreign languages or what space we devote to different opinions.

Microsoft Office Word since 2007 allows you to automatically generate a bibliography and other citation features. Brief instructions for using these features are provided in the *Quotations and Paraphrases* chapter of the *Applications in Microsoft Office Word 2010*.

#### 5.8.2 Registers

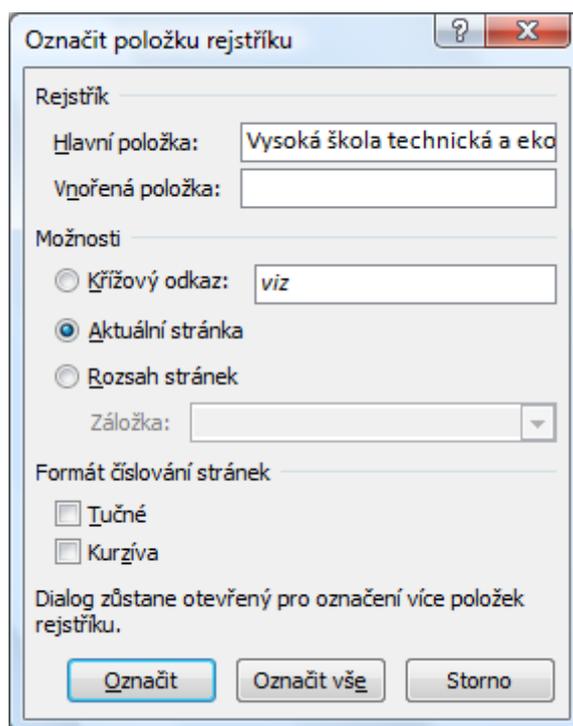
The registers are used for larger and highly specialized works. These are lists of key terms, phrases, or names that appear in the work, with links to pages where these terms are discussed. Two types of indexes are the most commonly used: index of terms (factual) and index of names. Both types are characterized by the fact that the entries in these registers are sorted alphabetically and only key terms and names are selected here.

#### *Applications in Microsoft Office Word 2010*

Some text editors allow the automatic generation of indexes. Here is a brief guide on how to work with indexes in Microsoft Office Word 2010. The *Index* menu can be found on the *Reference* sheet.

The text contains the name of the person or term to be registered in the register. This word or phrase is selected, and the Select Item button displays the following dialog box.

**Figure 11: Definition of entries in register**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

When you press the *Mark* button, the selected phrase is marked as an entry for registration in the index. Pressing the *Mark All* button selects all occurrences of the phrase in the entire document. In the example above, all instances of the phrase "University of Technology and Economics" would be recorded, but other shapes such as the University of Technology and Economics or ITB would be omitted. Other phrase forms could be included in the register under the same concept so that they would fill in the same form of registered phrase as the main item, ie the University of Technology and Economics, even though the text uses a different form. Finally, it is necessary to automatically generate an register at the selected location of the document by clicking the *Insert Register* button.

#### **Example 9: Register of names**

Havel, Václav.....	1, 14
Hus, Jan .....	2, 3, 26

#### **5.8.3 List of used abbreviations**

If the author uses abbreviations in the text, it is necessary at the first occurrence of the

abbreviation properly explained and at the end of the work list of used abbreviations with an explanation of their meaning.

This does not apply to some types of abbreviations, which need not be explained or included in the final list:

- abbreviations of stable phrases (etc., ie, eg),
- abbreviations of academic degrees (Bc., Ing., Mgr., MUDr., JUDr., Ph.D., doc., prof.),
- unit abbreviations (m, s, kg, GB, m n. m., km/h),
- abbreviations known and used by industry (in economics: HDP, ROE, ROI, DPH).

**Example 10: Usage of abbreviations**

Several universities are located in České Budějovice (hereinafter referred to as ČB), besides the University of South Bohemia it is also the Institute of Technology and Business (hereinafter referred to as ITB).

**List of used abbreviations**

*Abbreviation      Full text of abbreviation*

ČB      České Budějovice

ITB      Institute of Technology and Business in České Budějovice

**5.8.4 List of tables**

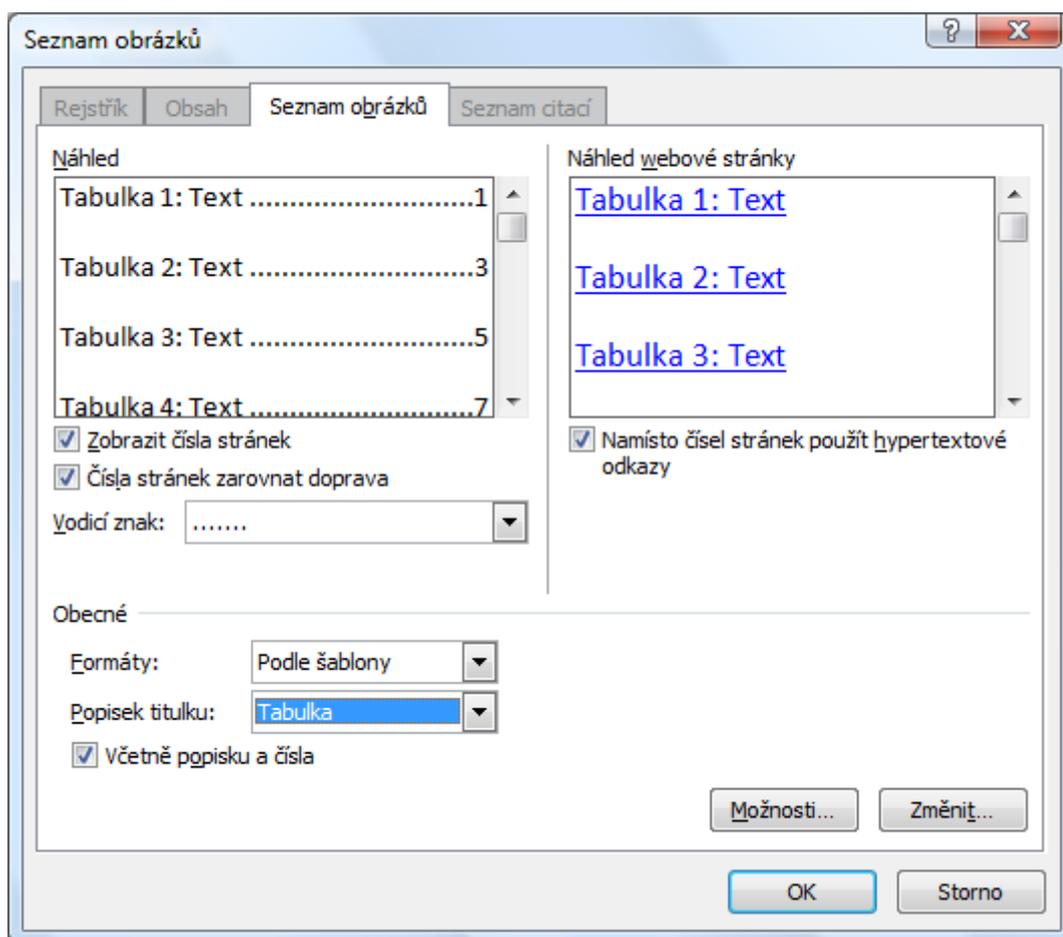
Larger documents are sometimes accompanied by a list of tables. Tables are labeled with the table (or tab) title, table sequence number and table name. All these data referring to the table shall be included in the list of tables.

***Applications in program Microsoft Office Word 2010***

In Microsoft Office Word 2010, the *Caption* feature, which is located on the *Links* tab, automatically generates a list of tables.

Automatic generation is carried out via the *Insert Picture List* button and assumes that each table has its own caption assigned by the *Insert Title* button.

Figure 12: Generation of list of tables



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

The previous dialog box allows you to generate a list for all objects that have their own label type and are numbered in a single number sequence.

#### Example 11: List of tables

Table N 1: Basic data from the company's balance sheet .....	2
Table N 2: Sales development of the company .....	4

#### List of figures

All graphic elements are referred to as figures within the scholarly texts – these graphic elements are any figures, graphs, diagrams, etc. All mentioned pictorial elements are designated by one numerical series denoted by the abbreviation "Figure" The list of figures, if included in the work, includes all the graphical objects referred to as figures.

#### *Applications in program Microsoft Office Word 2010*

The list of figures is inserted in Microsoft Office Word 2010 similar to the table list described

above using the *Insert Image List* button in the *Captions* feature on the *Reference* tab.

**Example 12: List of figures**

Figure 1: Organization chart of the company ..... 5  
Figure 2: Graph of sales development ..... 10

**5.8.6 List of attachments**

In the case of a higher number of attachments, their list is included so that the reader can better orientate in them. For the same reason, each attachment is labeled with its number and brief title. The attachments form a separate part of the work and are therefore numbered separately (eg ATTACHMENT No....). Each attachment should be on a separate sheet, the pages of the attachment are not numbered and its scope is not included in the prescribed range of the text part itself.

**Example 13: List of attachments**

- Attachment N. 1: Diagram of money circulation in the economy
- Attachment N. 2: Table of basic economic indicators of the Czech Republic

**5.9 Attachments**

Attachment part usually contains tables, graphs, diagrams, which should not be used directly in the text. The reason for inserting them in the attachments may be their large scope, as objects with a maximum size of one quarter of a page should be inserted into the text. Another reason for adding material to attachments may be its lesser importance for the content of the work. However, this does not mean that any material can be inserted into the *nénnexes*. The author must always ask himself how closely the material relates to the content, or whether the attachment will benefit the reader.

Some works may have electronic documents attached to the appropriate part carriers (most often burned to CD or DVD). These are mainly outputs of computer programs, very large documents, audio recordings, video recordings, etc. However, electronic attachments run the risk that the reader will not have the appropriate technology or software to play them at the required moment, which makes the attachment meaningless. For this reason, the insertion of electronic attachments must be carefully considered.

Attachments that cannot be firmly bound to work (electronic media, large format drawing, etc.) are inserted into an envelope or pocket that is glued to the inside of the back plates.

Attachments shall be designated by the word "Attachment", shall be numbered with a

continuous series of Arabic numerals starting from one, and each attachment shall be short and concise. It is necessary to refer to the attachments in the text of the thesis, because the most beneficial attachment is meaningless if the reader does not find it at the appropriate moment. The reference shall be made at the point where the Attachment is referred to.

## **5.10 Most common mistakes**

The author should avoid the following mistakes when creating the structure of his professional work:

- The author does not adhere to the prescribed structure or explain why he could not adhere to the structure in his work.
- Some parts do not pursue the aim of the work, so they are redundant.
- Some parts of the work that predetermine the quality fulfillment of the goal are missing
- Abstract is an introduction to the work, not a summary.
- The aim of the thesis is too vague and unrelated to the issue.
- The aim of the work cannot be met.
- The conclusion does not give an answer as to whether the objective of the work has been fulfilled.
- The conclusion of the thesis is not concrete.
- The lists, especially the literature used, do not comply with the established standards for writing texts.
- The attachments are inserted in order to increase the volume of work and are in no way related to its content.
- The attachments are irrelevant for the purpose of the work.
- The attachments are too extensive due to the length of work.

## **5.11 Structure of quantitative work**

In non-quantitative scientific work, the relationship of variables in hypotheses, evaluation of numerical data and subsequent verification of hypotheses is not defined. More work is done with description, observation, comparison and analysis of the collected material.

For these works, instead of hypotheses, a research problem is identified where the researcher precisely formulates what he / she wants to investigate, whom he / she wants to investigate, when and in what situations. In essence, it is the formulation of questions that the researcher seeks to answer. It is very important to correctly set them - not broadly, not too simply, not to set a topic instead of a research problem. It can be a descriptive research problem (we look for the answer to the question "what is it like?", Describe the situation, condition or occurrence of a phenomenon, mostly using observation, scaling, questionnaire, interview), relational or causal (we find causal - causal relationships, we identify the cause that led to a certain effect, ie the answer to the question "why is it?").

Qualitative research reveals new facts and creates new hypotheses from them. This research is structural. For the needs of technical fields of study, it is possible to use the structure of theses (formal types below). These include descriptive work, but mainly work with specific assignments, such as drawing work, building documentation, modeling, etc..

The Department of Civil Engineering distinguishes three formal types of theses:

### **5.10.1 Written work of descriptive character**

On the basis of the given topic the investigator observes and tries to draw hypotheses or theories from observations. The methods of this work are just observation, analytical induction, interview, comparison and analysis of the collected material. Examples of topics: Typology and design of living space, Color as an element of user comfort, Comparison of test procedures for roof waterproofing membranes, Non-traditional heating systems etc.

### **5.10.2 Written work with drawing attachment**

A part of some assignments of diploma theses at technically profiled departments is drawing appendix. The scope of work is at least 30 pages of text and drawing documentation according to the type of assignment.

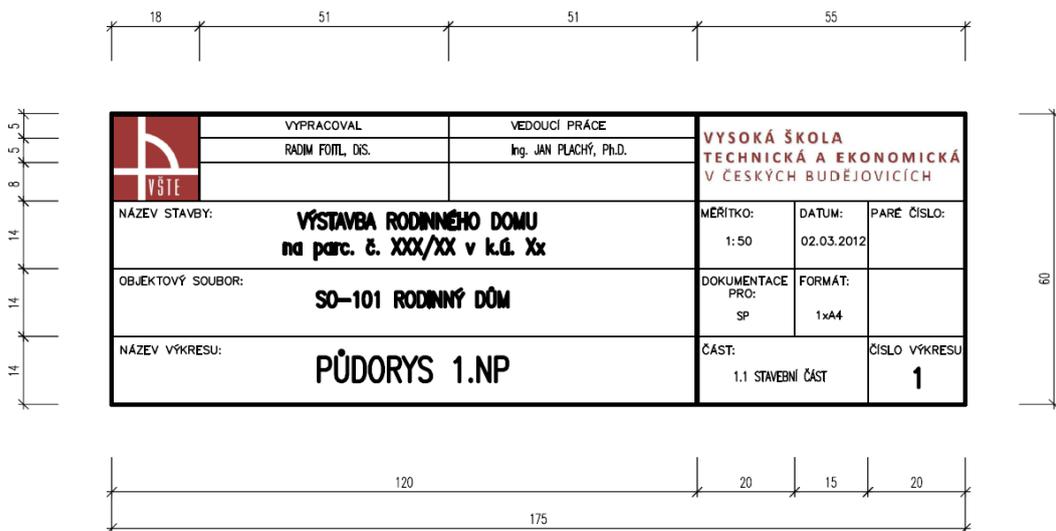
The following requirements apply to this type of work:

1. If it is a drawing documentation, it must be drawn according to ČSN 01 3420:2004.

Building drawings - Drawings of building part.

2. The drawing documentation must be marked with a description field according to the model in Figure No. 14 and in accordance with Decree No. 499/2006 Coll. Description field can be downloaded in digital form from IS. (Available at <https://is.vstecb.cz/auth/do/5610/skripta/246176/> [cit.2012-03-08].)

**Figure 13: Description field of the drawing documentation**



Source: INSTITUTE OF TECHNOLOGY AND BUSINESS. Information system ITB [online] ]. © 2010 [cit. 2010-06-04]. Available at: <http://is.vstecb.cz/>

3. The drawings shall be folded to A4 format, inserted into flaps with flap marks marked on the title page in the lower right corner with a description box, as shown in Figure 14. List of the drawings is shown on the inside of these boards. The drawings are backed up on a CD where they are stored in PDF format.

4. The whole work (that is, the separately bound text part and the tabs with flaps with the drawing part) is stored in hard paper sheets of A4 format bound by a cloth. The upper side of the boards will be marked in the same way as the upper side of the written theses (title page, see chapter 3.1). On the inside of the top plate is a list of parts of the drawings. A CD case is attached to the inside of the backplate. The case can be closed so that the CD does not fall out.

Examples of topics: Construction-technical survey and study of the castle usage in Komařice, Design of the building with natural air-conditioning etc.

### 5.10.3 Project documentation of buildings

The third type of theses submitted by technically profiled departments is project documentation.

1. Project documentation is prepared according to relevant laws, standards, directives and decrees. These are mainly:

- Act No. 183/2006 Coll. as amended - Act on Spatial Planning and Building Code (Building Act). Available at the Ministry of Regional Development portal: <http://www.mmr.cz/Ministerstvo/Platne-pravni-predpisy/Ozlast-uzemniho-planovani-a-stavebniho-radu>. [ cit. 2012-01-25 ].
- Decree č.499/2006 Coll. on building documentation. Available at the Ministry of Regional Development portal: <http://www.mmr.cz/Ministerstvo/Platne-pravni-predpisy/Oblast-uzemniho-planovani-a-stavebniho-radu>. [ cit. 2012-01-25 ].
- ČSN 01 3420 – Drawings of buildings – Drawing drawings of building part.

In terms of processing, the project documentation consists of written and drawing parts.

The design, calculation and drawing of building structures are governed by the entire set of applicable national, EU standards and technical literature. These regulations are followed by other regulations and laws within the EU.

Information on changes and information on newly issued standards can be obtained in the ÚNMZ Bulletin Available at: <http://www.unmz.cz/urad/vestnik-unmz> [ cit. 2012-01-30 ].

For example, the list of standards is Available at the website of the Office for Technical Standardization, Metrology and Testing: <http://seznamcsn.unmz.cz/vyhledavani.aspx> [ cit. 2012-01-30 ].

2. Project documentation is processed in accordance with valid legal regulations. Deviations from these regulations may be permitted by the supervisor of the thesis.

3. Individual parts of the project documentation must be marked with a description field according to the model in Figure No. 14 and in accordance with Decree No. 499/2006 Coll. Description field can be downloaded in digital form from IS. (Available at <https://is.vstecb.cz/auth/do/5610/skripta/246176/> [cit. 2012-03-08].)

4. The drawings shall be folded to A4 format, inserted into flap plates marked on the title page in the lower right corner with a description box in accordance with the model in Figure 14. A list of the drawings is given on the inside of these plates. The drawings are backed up on a CD

where they are stored in PDF format.

5. The project documentation will be composed in hard paper sheets of A4 format bound by a weaver. As the introductory part, the text part (introductory pages, generated BP content, introduction, aim of the thesis, theoretical part, list of literature) will be inserted in the first place. The upper side of the boards will be marked in the same way as the upper side of the written theses (title page, see chapter 3.1). On the inside of the top plate is a list of parts of the project documentation. A CD case is attached to the inside of the back plate. The case can be closed so that the CD does not fall out.

Examples of topics: Project of a modern family house using KM BETA elements, Project of a family house in Sweden etc..

## 6 Formal aspect of work

This chapter contains the basic formal rules for creating professional texts. There are electronic templates in the ITB information system that must be used when writing seminar and qualification theses. These templates contain setting of basic parameters for creation of seminar and qualification works at ITB.

Professional texts are created using professional style. Its aim is to provide exact, clear and relatively complete information from various fields and to instruct someone, eventually, to teach him something. The authors do not resort to emotionally tinged formulations, maintain a correct perspective, do not improve the text with fun insertions, bonmots, and stories. They pay particular attention to “dry” language, brevity, objectivity, completeness, factual accuracy, precision, clarity and clarity, present facts and explanations through professional terminology.

Within the framework of professional style, some authors recognize culturally diverse intellectual styles (Čmejrková 1999):

**French (Gallic) style** – it strives for an elegant, aesthetic expression, so that it usually becomes verbose or talkative. It is characterized by poetic primers, surprising comparisons and connections, infinite sentences and a high frequency of adjectives. The authors are more interested in demonstrating the beauty of language than in presenting new scientific outputs. These are very intellectually demanding texts that take care of the aesthetic impression.

**German (Teutonic, Central European) style** is language-saving, it uses long and complex sentences in which all expressions are precisely "treated". Šanderová (2005) aptly characterized it: „*Rather than an interpretation of the problem, such a text is often a record of the author's thought processes, of its kind a report of how difficult it is to reach the conclusions ... rather than an interpretation of the problem, such a text is often a record of the author's thought processes, of its kind a report of how difficult it is to reach the conclusions ... its solution*“ (p. 57). He is characterized by the high prestige of the scientist, the demanding presentation of scientific knowledge, the great respect for the theory and the hierarchy of the theoretical construct. Emphasis is placed on science and intellectuality, which is reflected in the deeper differences between professional (scientific) and unprofessional (common) language. The texts are mostly factually oriented, preferring verbal names, verb nouns and explanatory and attributive clauses. The reader is not directly addressed, subjective factors are severely limited and essays are understood as non-scientific texts.

**Anglo-Saxon style** chooses, according to Šanderová (2005), “an author who cares that the text is understood as he intended it. This style puts the greatest emphasis on intelligibility and clarity of claims. It also pays great attention to the logic and structure of the interpretation so that it is clear what led the author to the research, how he proceeded, what conclusions he reached and how confident it is (whether, in what respects and why it certainly has doubts). Using a well-designed structure, the author guides the reader by hand from the formulation of the problem to its solution, for he wants the reader to understand the text as he intended it. Emphasis is placed on concrete knowledge or conclusions and evidence or arguments on which it bases its assertions. However, excessive efforts to avoid misunderstandings sometimes lead to some dryness and unnecessary 'semi-paternity' of the text, which may bother some readers' (p. 58). There is evident respect for empirical data, professional texts are more understandable, readable and resemble nonprofessional texts. The texts are dominated by short sentences, direct argumentation, a high proportion of verbs, and the reader is repeatedly addressed. Essays are a highly valued form of scientific communication.

The styles mentioned above are hardly different in professional texts, but it also depends on the field. It is clear that the professional style of technician, economist, builder or historian is fundamentally different. For students in the Czech Republic, it is currently advisable to combine the Anglo-Saxon and German styles. In particular, accuracy, originality and benefits remain common requirements for the scientific text.

**Czech scientific style** was closest to the German style by the end of the 20th century. In the 21st century, due to internationalization, Americanization and globalization, it is approaching the Anglo-Saxon style. More and more scientists, mainly from science, medical and technical fields, publish their research results in world languages, especially in English. English is now the dominant language of scientific communication and, in a way, is increasingly squeezing out individual national languages from scientific communication.

**Some general principles for writing professional work:**

1. It is not recommended to write a job under time stress, it should be the result of long-term, systematic and precise activity.
2. It is naive to assume that the first version of the scientific text will be of sufficient quality. Nor is it worthwhile to underestimate cooperation with a teacher. It also pays to ask colleagues for advice and comments on the entire text.
3. We should separate clearly speculations from the facts.
4. The value and accuracy of our own results has to be estimated compare to existing

results.

5. Particular attention has to be paid to the results that indicate a new direction for research.
6. We do not conceal negative results, they should be mentioned and explained.
7. We use accurate and understandable language, avoiding slang and colloquial expressions.
8. We do not confuse criticism of other professional texts with personal attacks, we do not irritate other authors but critically deal with them. On the other hand, we do not conceal that a source has been very appealing to us, inspired and explain why we have given it priority over others
9. We strive for maximum accuracy and logic.

## 6.1 Text formatting

The text of the seminar paper is written on white, opaque A4 paper, which is oriented in portrait orientation. The A4 paper size is 210 mm wide and 297 mm high. The standard page of the text (so-called standard page) contains 1800 characters, which corresponds to 30 lines per page and 60 characters per line. In order to verify that the required minimum range is met, the best way to divide the number of characters in a document (including spaces, text fields, footnotes, and explanatory notes) is by 1800. The text is printed on loose sheets from one side. The margins of the party are determined as follows:

- top margin: 25 mm,
- bottom margin: 15 mm,
- left margin: 35 mm,
- right margin: 10 mm.

The writing of the works uses a serif font (Times New Roman, Cambria, Palatino Linotype, etc.) of 12 points with a line spacing of 1.5. The text is most often justified. The layout, font selection, highlighting, text alignment, etc. must be uniform throughout the document.

For highlighting, it is best to type in italics, less bold, and underlining the error is underlining, because underlining is a sign of hyperlink. Also, interleaving or other fonts are not used when typing text on a computer

There are two different ways to visualize paragraphs. The first option is a space between paragraphs, which must be set automatically in the *Paragraph* menu and not manually by double-line. The second alternative is to indent the first line in the paragraph, but this must

also be done through the first line indent function and not with tabs or spaces. Both of these options are used to separate two text paragraphs, so make sure that they do not separate the first text paragraph from the title. In the latter case, this means that the first text paragraph after the title is not indented. Nor is it appropriate to combine the two methods.

During the final adjustments of the work it is necessary to check the adherence to basic typographic principles:

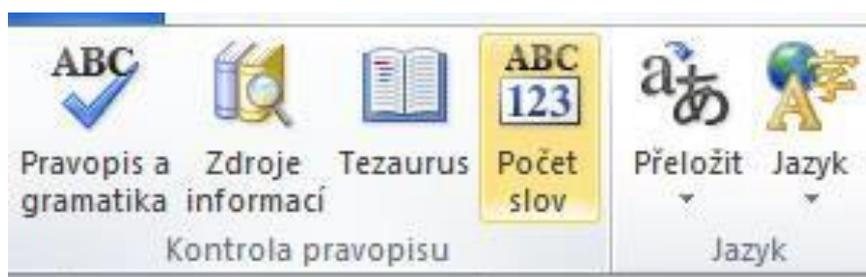
- There should not be a headline, object title, first line of paragraph from the next page (so called widow).
- The last line of a paragraph from the previous page cannot stand alone at the top of the page (so called orphan).
- The line should not end with a one-letter preposition (v, s, k, z, u, o) and should not end with a single-letter conjunction (a, i).
- Steady units should not be divided between several lines (such as a digit with a unit, a first name with a last name, a date, and more).
- When using hyphenation, it should not happen that two characters or even a single character remain on a single line. For this purpose, the hyphen used to divide a word counts as characters.

### 6.1.1 Applications in program Microsoft Office Word 2010

The page size and orientation are set on the *Page Layout* tab in the *Page Setup* section of the *Size* and *Orientation* options. By default, A4 is set to portrait, so these settings may not change

If someone wants to find the number of standard pages, they have to find out the number of characters, which is the function located under the following path *Revision, Spell check, Number of words*.

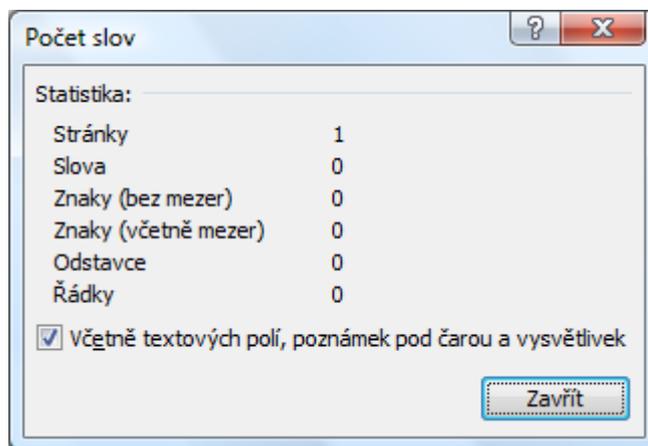
Figure 14: Function „Number of words“ in program Microsoft Office Word 2010



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

Click on the corresponding button to display a window showing the number of pages, words, characters, paragraphs, and lines.

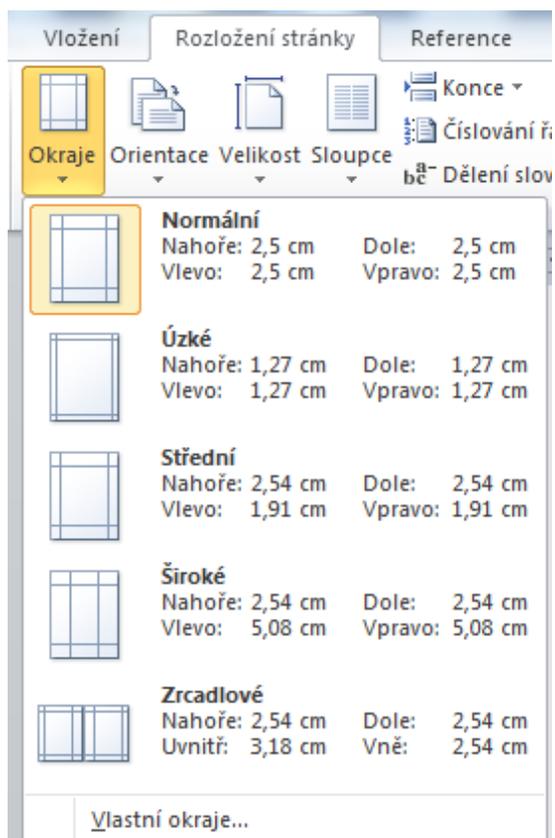
**Figure 15: Finding the number of pages, words, characters, paragraphs, and lines**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

For documents that are likely to be printed and bound later, margin settings are important. All edges are preset to 2.5 cm, which is not standard. You can change this on the *Page Layout* tab, in the *Page Setup* section, with the *Margins* feature, which you can set to any custom value.

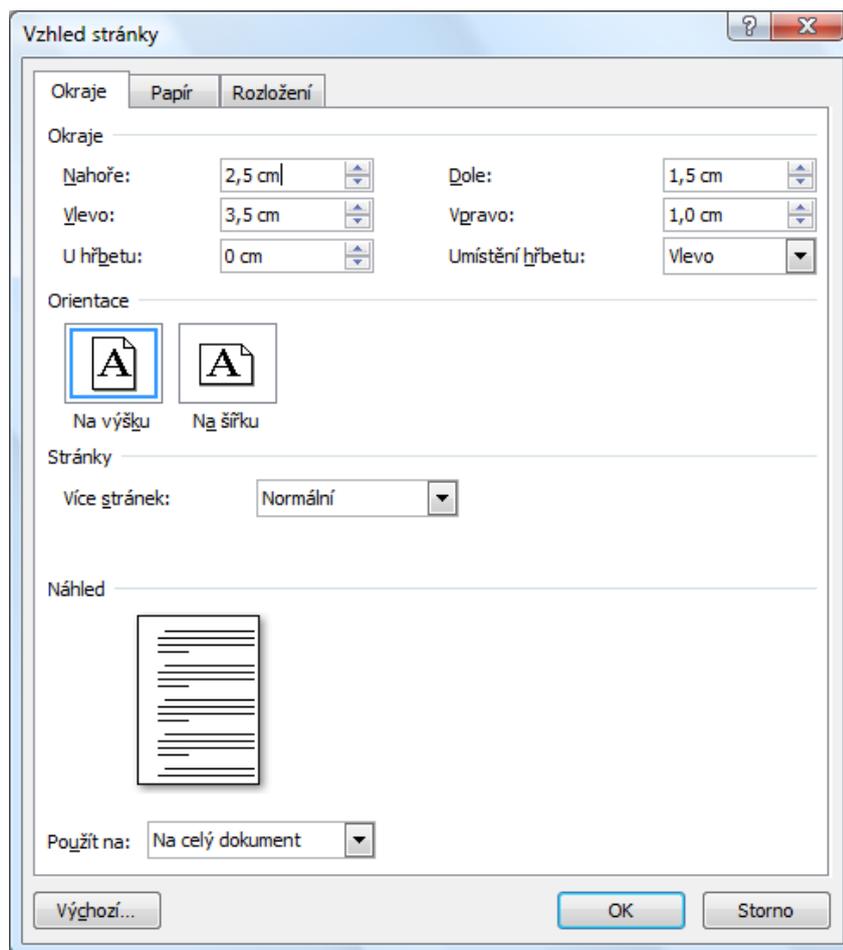
Figure 16: Function „Margins“ in program Microsoft Office Word 2010



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

This feature allows you to set any margin. For technical texts at ITB, the standard requires values that correspond to the following figure.

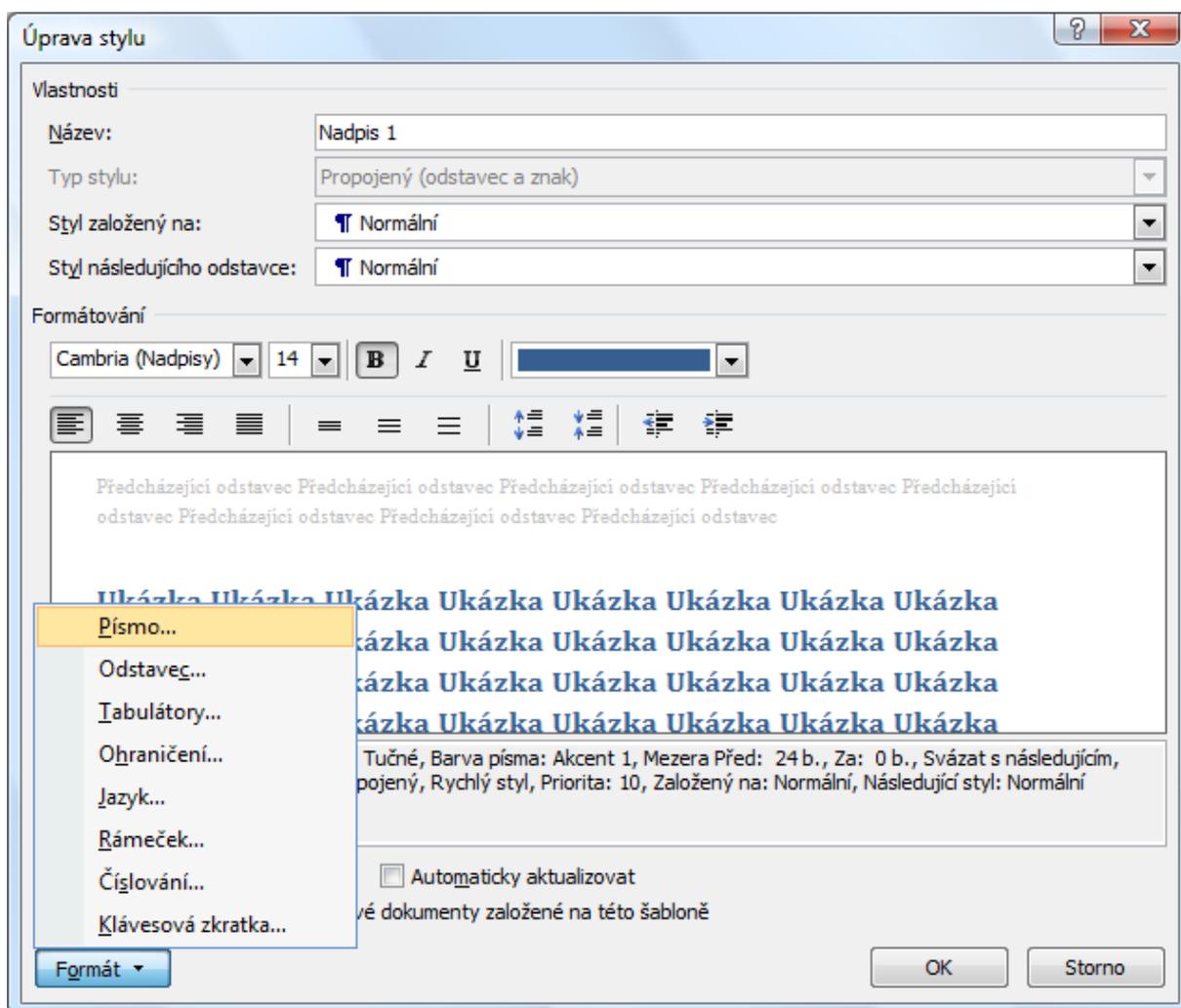
Figure 17: Setting the page margins in Microsoft Office Word 2010



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

Font and font size are adjusted in the *Home* menu by choosing *Font...* Line spacing and alignment are changed in the same menu by *Paragraph ...*

Figure 18: Change of style settings



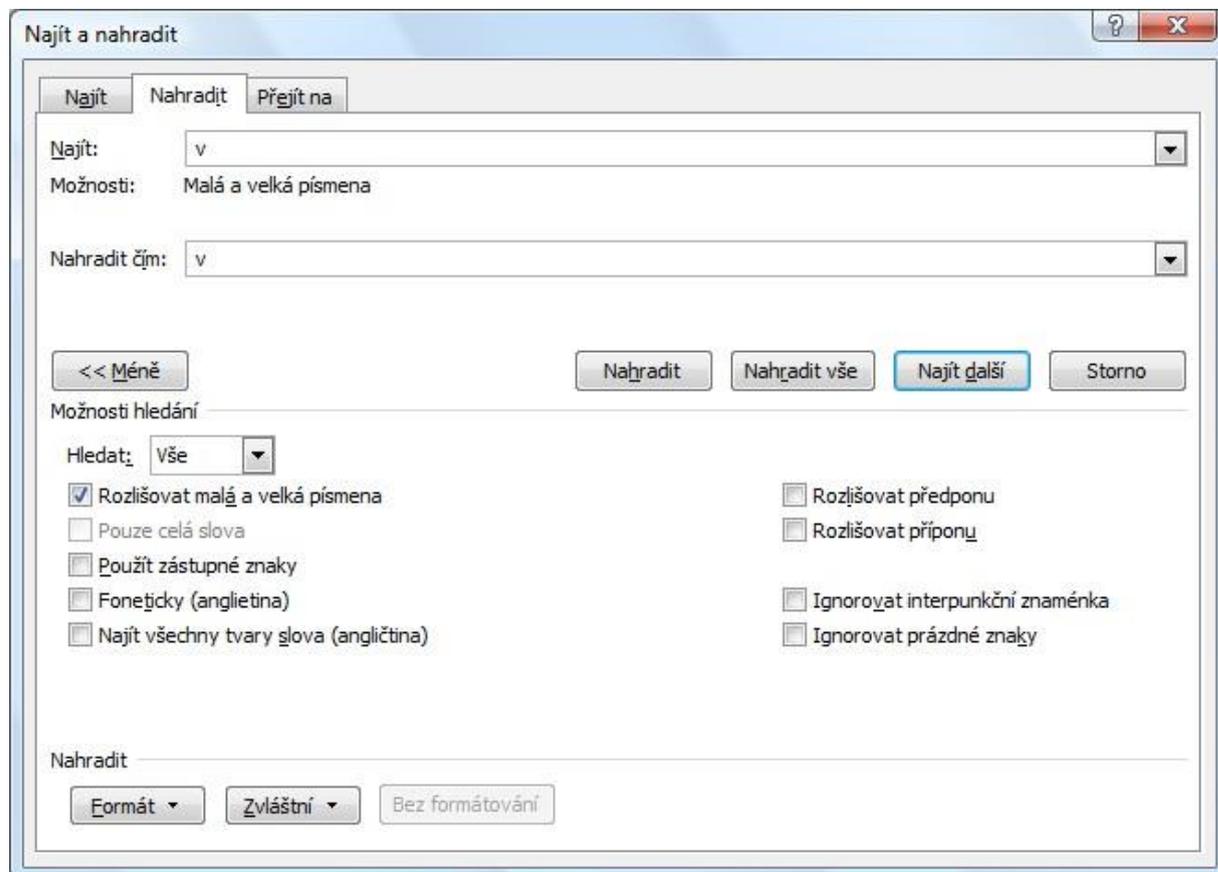
Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

Unwanted caption at the bottom of the page is removed in the *Paragraph* menu on the *Text Flow* sheet by checking option the *Bind the lines*. A single line on a page other than the rest of the *Paragraph* is handled in the Paragraph menu on the Text Flow tab when the Bind Lines option is checked. All these options can be solved systematically for the entire document by the style editing option described above. At the end of the editing of all documents, one-letter and sometimes two-letter prepositions are removed from the line breaks. To do this, use the Replace function (*Home > Edit > Replace*), ctrl + h. In the latest version, MS Word automatically gives a fixed, non-breaking space for one letter prepositions. One approach is therefore to go through only selected prepositions. In the latest version, MS Word automatically gives a fixed, non-breaking space for one letter prepositions. One approach is therefore to go through only selected prepositions.

In the *Find* field, fill in “space, one letter preposition, space” and in the *Replace with* field, fill

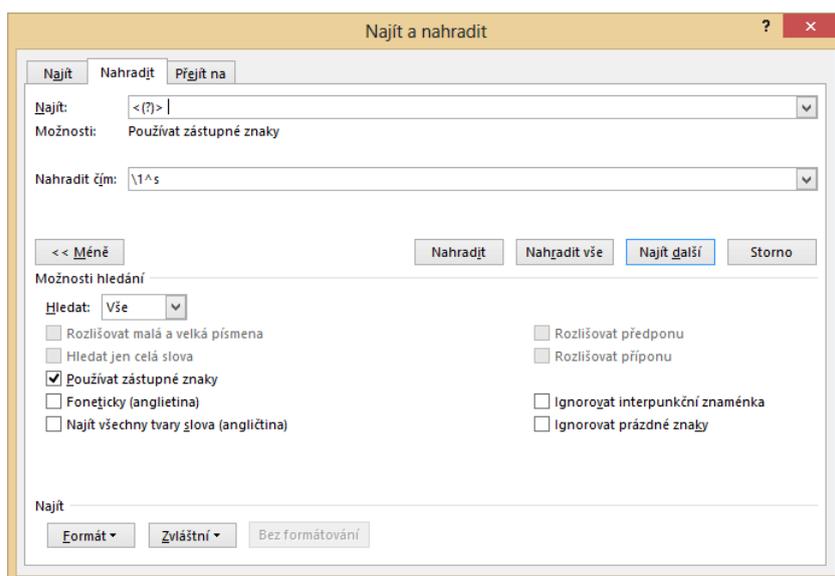
with “space, one letter preposition, fixed space”. It is important to check the Case sensitivity option under *More >>* and then replace each large preposition and each small preposition separately.

**Figure 19: Replacement of one-letter prepositions**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

The other option is to place a fixed space for all one- or two-letter expressions, whether or not prepositions. Open the "Replace" dialog box with ctrl + h and enter "<(?>)" in quotation marks in the "Find" field without forgetting the space after the last bracket ">" in parentheses. Select advanced options by clicking the "More >>" button and select the option to use wildcards. The parentheses define a group of characters with sequence number 1. A question mark is any character. Parentheses indicate the beginning and end of a word. Next, in the "Replace with:" field, enter the quotation marks "\ 1 ^ s", where "\" represents the found text, and the number 1 then transforms the first group of characters followed by a fixed space "^ s".



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

For two-letter expressions, use the Find “<(?>|” option again with a classic space after the last bracket and type “\ 1 ^ s” in the Replace field without the quotation marks.

## 6.2 Standard language

Linguistic and formal adaptation of a professional text is a very important part of each professional text. It is assumed that the author will want to make impression not only by using a number of resources reviewed, new thoughts and ideas, but only by correct linguistic form, correct grammar, sophisticated sentence structures and layout of the text, correct language without any colloquial or slang expressions and phrases. Another important thing is the use of correct and suitable terminology: *“From the lexical perspective, both written and oral presentations require that the author accurately uses established professional terminology. If not particularly addressed by the author, deviations from a common terminological system negatively affect the comprehensiveness of both written and oral presentation.”* (Jelínek 1955, p. 29). It is assumed that all students gained the basic knowledge in this field in their Czech lessons at elementary and secondary schools.

The stylistics of a professional text, division into paragraphs, and professional presentation can be studied using a lot of **manuals**, e. g.: ŠANDEROVÁ, J. and A. MILTOVÁ, 2009. *Jak číst a psát odborný text ve společenských vědách: několik zásad pro začátečníky*. Praha: Sociologické nakladatelství. ISBN 80-86429-40-7; ČMEJRKOVÁ, S., F. DANEŠ and J. SVĚTLÁ, 2002. *Jak napsat odborný text*. Voznice: Leda. ISBN 80-85927-69-1; VLACH, F., R. HEČKOVÁ and M. JŮZL, 2012. *Technologie úprav odborného textu*. Brno: Institut

mezioborových studií Brno. ISBN 978-80-87182-28-4; PANOUSHKOVÁ, M., 2012. *K problematice čtení a psaní odborného textu*. Ústí nad Orlicí: Univerzita Hradec Králové, Filozofická fakulta. ISBN 978-

80-7405-178-4; JINDRA, P., 2007. *Souvěťí a odborný styl*. Třebíč: Akcent. ISBN 978-80-7268-460-1.

Any professional work must be written in standard language, without any typing or spelling mistakes. Therefore, prior to submitting, any text shall be proofread. Text editors (a possibility to check spelling and grammar of the text, available in all Microsoft Office applications) are not fully reliable. It is thus recommendable to ask a colleague (preferably a bohemist) for proofreading and correction of any mistakes. If there are any doubts, for Czech texts, it is possible to use Pravidla českého pravopisu, Slovník spisovné češtiny or Internetová jazyková příručka (ÚSTAV PRO JAZYK ČESKÝ AV ČR. *Internetová jazyková příručka* [online]. ©2008– 2012 [cit. 2010-05-29]. Available at: <http://prirucka.ujc.cas.cz/>).

As a convention, professional texts often use so-called “pluralis auctoris” as a symbol of the author’s identification with a scientist (“we analyse”). The author uses the first person plural also in the case of the so-called plural of inclusion, thus forming a common category of a reader and the author/authors or the whole discourse community. If the first person singular is used, it is only in the introduction part for expressing his/her personal opinion or formulating personal motives. In Anglo-Saxon environment, the ich-form is used in the whole text of scientific works.

In terms of conventional writing of professional texts, passive sentence constructions (“it is known”) or impersonal constructions (“it can be assumed”) are recommended in order to express objectivity.

### **6.3 Hyphenation**

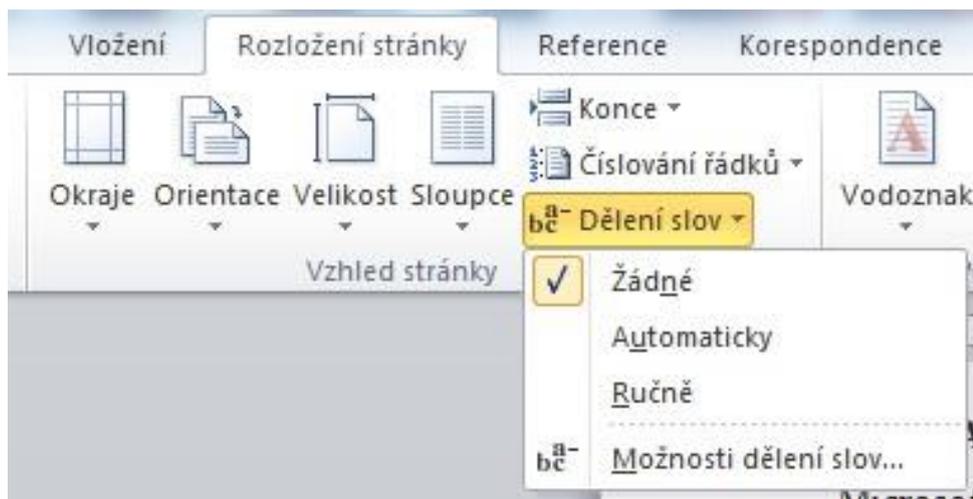
Shall the author decide on division of words, spelling and other rules must be observed. The list of words and expressions that cannot be divided is shown below:

- Words that would start at the end of one page and finished at the beginning of the following page
- Words in more then three consecutive lines,
- Words in headings,
- Academic titles,
- Shortened names and surnames
- Numbers with units and names of objects counted.

### 6.3.1 Applications in program Microsoft Office Word 2010

Microsoft Office Word, version 2010, enables to set hyphenation using *Page layout* tab in the section Page setup, choose Hyphenation, where it is possible to set up prohibition of hyphenation, automatic hyphenation, manual hyphenation, and other parameters. By default, hyphenation is switched off.

Figure 20: Function “Hyphenation” in Microsoft Office Word 2010



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

## 6.4 Specific symbols

### 6.4.1 No-break space, non-breaking hyphen

So-called non-break space and non-breaking hyphen are used to make two connected words act like a single word. If words connected by non-break space beyond the end of a line, both words are moved at the beginning of the following line. Non-break space is used for linking one-letter prepositions with the following word so that the preposition is not at the end of the line, which is considered a typing mistake. Non-break space is inserted instead of a common space by means of Ctrl+Shift+space. Non-breaking hyphen works on the same principle. It is inserted using Ctrl+Shift+hyphen.

### 6.4.2 Line and page breaks

Line break while maintaining the existing paragraph is inserted using Shift+Enter. The whole text is a single paragraph, *Line spacing* thus does not create greater vertical space or indentation of the following line. In the format of text alignment, *Line spacing* causes line stretching to the full width of the page (although it may contain only a few words), and the

text continues on the following line. Page break is inserted using Ctrl+Enter or in *Insert* menu by pressing End of page. Therefore, using multiple *Line spacing* is considered a substantial typing mistake.

### 6.4.3 Punctuation marks

Punctuation marks serve for separating or dividing sentences or complex expressions. Full stops, commas, question marks, exclamation marks, colons, and semicolons are written immediately after a preceding word without a space, but they are followed by a space. If there are several consecutive punctuation marks, space is inserted after the last one. If a sentence is finished by an abbreviation, both the sentence and the abbreviation are finished by a common full stop. There are several exceptions to this rule, e. g. point (in decimals), full stop or colon in the case of time data adjacent to the number on both sides without being separated by space.

#### Example 14: Punctuation marks

A classical complete sentence that contains punctuation marks;

This agenda is handled by Marketingová, Ltd., which is our representative in this matter.

This agenda is handled by Marketingová, Ltd.

### 6.4.4 Brackets

Brackets are used to enclose less important, loosely inserted statements. Most frequently used type of brackets is parentheses; exceptionally, square brackets or curly brackets are used. Conventionally, one type of brackets is used for a specific purpose, e. g. for rewriting pronunciation, where square brackets are used. The text enclosed between brackets is without space, i.e. there is no space between a bracket and a text. If there is only a specific word or expression in brackets, the brackets are a part of a complex sentence, and the punctuation marks are written outside the brackets. However, if a whole statement is in brackets, the statement is considered an independent sentence, which is finished inside the brackets. The text outside the brackets is separated by space; the only exception is the aforementioned punctuation marks.

#### Example 15: Brackets

Expression in brackets (parentheses)

Expression in brackets [square brackets].

Expression in brackets {curly brackets}

(Sentence in parentheses.)

### 6.4.5 Quotation marks

Quotation marks are used to emphasize literal quotations, for direct speech, exact titles, and expressions in foreign language or to explain meaning of a word. There are three types of quotation marks used: double (most often), single, and double angle (rarely). Initial quotation marks (sometimes referred to as lower quotes) are written in front of a quoted expression without space, final quotation marks (upper quotes) are inserted immediately after the quoted text, also without space. From the outer side, quotation marks are separated by space. If a whole sentence is enclosed in quotation marks, it is finished within the quotation marks; if only a single word or expression is enclosed in quotation marks, the sentence is finished outside the quotation marks.

#### Example 16: Quotation marks

Double quotes in Czech: „devadesát devět – šedesát šest“, in English “ninety-nine”. Single quotes: ‚nine – six‘. Double angle quotes (Russian type) »Russian«..

### 6.4.6 Dash and hyphen

Dash is inserted when separating sentences. In some cases, their use is similar to the use of comma or brackets. Dash cannot be used at the beginning or end of line. It is longer than a hyphen, and in this case, it is separated from text with space on both sides. In other cases, dash is used to replace and, up to, from/to, vs. Here, dash is also longer, cannot be used at the beginning or end of line, but it is not separated by space (except when at least one of the separated expressions is multi-word). Microsoft Word enables to insert dash using Alt+0150.

#### Example 17: Em dash

Unit costs – which means average and marginal costs – are given in CZK per production unit. Presented in chapters 3–5. In 2007–2010.

Hyphen is used to join two words in a single unit. Graphically, hyphen is shorter than dash, it is inserted without space. Hyphen is used for writing dates in the following format: year-month-day. It is inserted using a relevant key on the keyboard or using Alt+45. Should hyphen appear at the end of line, one hyphen is written at the end of line (which separates a relevant word), and one hyphen is written at the beginning of the following line (the original hyphen). If hyphen is used to join multi-word expressions, it is usually replaced by a dash, which is separated by space on both sides.

**Example 18: Hyphens**

Theoretical – methodological part

**6.4.7 Ellipsis**

Ellipsis is marked with three dots, which form a single character. If three dots have a function of an omitted word (or a longer text) in the middle of a sentence, they act like the omitted word (or omitted text): they are separated by space on both sides and the following text starts with a small letter, not a capital letter. This is used especially for shortening citations by an unimportant part. Three dots can also be used as a continuation of an incomplete enumeration. In case three dots are at the end of sentence, they serve also as are perceived as a completion of the sentence, and no full stop is inserted.

**Example 19: Ellipsis**

The director said that “financial indicators of our company ... have not shown a favourable development recently.” A number of financial indicators have been calculated: ROA, ROE, ROI...

**6.4.8 Slash**

Slash can exceptionally be used for visual separating of expressions. In such a case, it is written with space on both sides. Slash is, however, more often for other purposes, and it is inserted without space.

**Example 20: Slash**

Basic cost variables: overall costs / variable costs / fixed costs / average costs / average variable costs / average fixed costs / marginal costs. Act No. 111/1998 Coll.

**6.4.9 Numbers**

Numbers can be written verbally or in numbers. In no case, numbers cannot be divided in several lines. A verbally written number mostly do not represent one word but a phrase. Numbers written in digits are separated by non-break space after three orders from a decimal point. No dot is used except for monetary or currency units. Four-digit numbers are also separated in professional texts (except for years).

**Example 21: Numbers**

One hundred and fifty-eight

15 168

5,890 42

2.010 CZK

2 010 kg

year 2010

#### 6.4.10 Mathematical symbols

The use of mathematical symbols in the text is often inevitable and clearer. According to the rules, mathematical symbols are separated by a space from number or other expressions. In the case of “minus” for indicating a negative value, it is not separated with a space. The same rule applies to “times” when using multiplication. In some cases, it is possible to choose between using a symbol or a verbal designation of a symbol. The correct use of symbols in the text is shown in Table 2.

**Table 2: List of mathematical symbols**

Mathematical operations	Verbal designation	Symbol	Symbol inserted by	Note
Subtraction	minus	–	Alt+8722	Longer than hyphen and shorter than dash
Multiplication	krát	× or .	Alt+0215	* or x is not used
Division	Divided by	: or /		÷ is not used
	plus minus	±	Alt+0177	Not used +

#### **Example 22: Mathematical symbols**

The synergistic effect is characterized by the equation  $2 + 2 = 5$ .

The value of return on assets is  $-2$ .

The feedback process is repeated  $3\times$ .

The feedback process is usually repeated 3 times.

### 6.4.11 Section sign

Section sign can be used only with a concrete section number of an Act. This symbol cannot be used at the beginning of a sentence. Section sign is separated from a section number by a non-break space.

#### **Example 23: Section sign**

In § (Section) 1 of the Act No. 111/1998 Coll.

### 6.4.12 Percentage and per mille

A percentage or per mille symbols is used only with a concrete number. As a noun (percentage), it is separated by a space from a number, as an adjective (percent), it is inserted without a space between a number and a word. The same principle is used in writing the words “percent” or “per mille”; ten percent is written as two words, ten-percent as one word. The symbol for percentage has its own key on the keyboard, while the symbol for per mille is inserted using Alt+0137.

Here, it shall be mentioned that there is a difference between percentage and percentage point. Percentage is defined as a hundredth of a whole, percentage point is a difference of two percentages.

#### **Example 24: Percentage or per mille**

GDP growth was 9 %.

GDP growth was 9 percent.

GDP growth was nine percent.

The price level is rising at 3% rate.

The price level is rising at 3-percent rate.

The price level is rising at three-percent rate.

In the previous year, the consumer prices index achieved the value of 10 percent, this year, it has been 8 percent.

The consumer price index thus decreased by 2 percentage points year on year.

### 6.4.13 Dates and times

The most common way of writing dates is in digits in the following order: day, dot, space, month, dot, space, year. It is also possible to write the month verbally, the order is thus as follows: day, dot, space, month (in words), space, year. In highly specialized texts, the following format is used: year, hyphen, month (in two-digit form). In all cases mentioned above, year is given in four-digit form.

When interpreting data intervals, the phrase “up to” (phrase *from ...to...*) can be replaced by a hyphen. A hyphen between a single-word phrase is not separated by a space, a hyphen between multi-word phrases is separated by a space on both sides.

**Example 25: Dates in Czech language**

31. 1. 2010  
31. January 2010 2010-01-31  
1.–31. January 2010  
1. January – 31. December 2010

The basic unit of time is a second (different from seconds used in expressing angle size). Základní jednotkou času je sekunda (nikoliv vteřina, která je jednou z jednotek úhlu). Times are written as follows: hour(s), colon, minute(s), colon, second(s), comma, decimal. In order to specify whether is hours + minutes or minutes + seconds, the following format is recommended: hour(s), dot, minute(s), colon, second, comma, decimal.

When writing time intervals (up to, from...to...), hyphen not separated by a space can be used.

**Example 26: Times**

Sixteen hours and thirty minutes is written as 16.30. Sixteen minutes and thirty seconds is written as 16:30. Sixteen seconds and the tenths of a second are written as 16,3. 17.18:19,2 is a shortened recording of seventeen hours, eighteen minutes, nineteen seconds and two tenths of a second. Office hours: 16.00–18.00.

## 6.5 Abbreviations

In some cases, it is possible to use an abbreviation instead of repeating the same expressions. It is also possible to shorten the terms whose abbreviations are commonly used in a given field. Each abbreviation has the same genre as the original, unshortened expression (in Czech language). There are two ways of shortening a word: either individual words are shortened, dots are inserted immediately after each shortened word and a space is inserted after the dot (this type of shortening is called graphical abbreviation; it is used e. g. for shortening legal forms), or only the first letters of a multi-word phrase are selected and written in capitals (acronym).

**Graphical abbreviations** are used only in written presentation, when reading, it is necessary to read the whole meaning of the abbreviation. If an abbreviation completed with a dot is situated at the end of a sentence, full stop is not inserted.

**Acronyms** can be used both in written and oral presentation. In Czech language, this type of

abbreviations can be inflected using a suffix, which is not written in capital letters. For clarity, acronyms can be separated with spaces by individual wholes. In this context, it is necessary to draw attention to a frequent mistake that many authors make. When referring to other part of the text, the word “see” is frequently used in Czech language. Neither in Czech nor English, this is an abbreviation; therefore a dot shall not be inserted. In fact, it is an imperative of the verb “to see”.

#### **Example 27: Abbreviations**

ITB was established in 2006.

One of the mobile operators on the Czech market is Telefónica Czech Republic, a. s.

Additional information can be found in all Iss at <http://is.vstecb.cz/>.

Bibliographic citations are governed by ČSN ISO 690:2011.

### **6.5.1 Conventionally used abbreviations**

#### ***Academic, academic-scientific, and Scientific and pedagogical degrees***

In academia, we encounter abbreviations of academic, academic-scientific, and academic and pedagogical degrees every day. The use of such abbreviations is according to established practice. Academic and scientific and pedagogical degrees in Czech environment (prof., doc., Ing., Mgr., Bc., PhDr., JUDr. etc.) are listed before a person’s name(s), starting from the highest one (in the case of degrees at the same level, they are listed in the chronological order starting from the newest one), and are not separated by commas. Academic-scientific degrees Ph.D. (CSc., DrSc.), MBA are listed after a person’s name starting from the earliest received, and are separated by a comma in most cases (including the surname). If a person has two identical degrees from different universities or different faculties, both degrees can be used, with a Latin abbreviation *et*. In a sentence, the degrees after the name are separated with a comma on both sides from the remaining text. As a rule, all degrees are listed; it is possible to omit lower degrees (usually, after achieving the Master’s Degree, Bachelor’s degree is usually omitted; “docent” is never used after achieving the Professor’s Degree, and Master’s Degree is omitted after achieving JUDr., PhDr., etc.). The degree, together with a name and surname, create a whole that cannot be separated into two lines.

**Table 3: Abbreviated academic, academic-scientific, and scientific and pedagogical degrees – Czech environment**

Abbreviation	Degree	Position	Note
DiS.	diplovaný specialista (qualified specialist – associate degree)	After the name	Higher vocational education
Bc.	Bachelor	Before the name	Academic degree, Bachelor's Degree
Ing.	Inženýr (Engineer – Bachelor's Degree in technical fields)	Before the name	Academic degree, Master's Degree
Mgr.	Master	Before the name	Academic degree, Master's Degree
MBA	Master of Business Administration	After the name	
Ph.D.	Doctor	After the name	Academic-scientific degree, Doctor's Degree
CSc.	kandidát věd (Candidate of Sciences; older degree, now replaced by Ph.D.)	After the name	Academic-scientific degree, not awarded nowadays
DrSc.	doktor věd (Doctor of Science; academic research degree, doctorate in sciences)	After the name	Academic-scientific Degree, not awarded nowadays
doc.	Docent (associate professor)	Before the name	Scientific and pedagogical degree
prof.	Professor	Before the name	Scientific and pedagogical degree

**Example 28: Academic, academic-scientific, and scientific and pedagogical degrees**

prof. Ing. Jan Váchal, CSc.

doc. Ing. Marek Vochozka, MBA, Ph.D.

Ing. et Ing. Alexandra Novotná

Bc. Ladislav Novák

***Monetary and currency units***

In professional works, it is often necessary to mention monetary and currency units. If a monetary unit is given separately without a numerical expression, it shall not be abbreviated (dollars, euro). A currency abbreviation is before the number if the number is completed by a comma and hyphen, in other cases, its position is after the number. When writing numbers, orders are separated by a space or point. If the number is connected with a noun, the symbol

of currency is separated with a non-break space from the number. Numbers and currency symbols make a whole that shall not be separated into several lines. As an adjective, currency symbol is not separated from number. In common texts, the abbreviations CZK, €, \$ etc. are used, while in a professional text, it is more common to use CZK, EUR, USD etc. A symbol for dollar is written using Ctrl+Alt+ú, symbol for euro is inserted using Ctrl+Alt+e. In Czech language, if euro is written in words, it is not written with capitals at the beginning, and it is inflected as “město”.

**Example 29: Monetary and currency units**

You must pay a fee of CZK 100,- without delay.

The price was 100.000 CZK.

The price was 100 000 CZK.

You must stick a 200-CZK stamp on the application.

***Physical quantities and their units***

Not only in technical fields, it may be necessary to use symbols of measures, weights, and other physical quantities, whose writing is established. Units and numbers are separated by a non-break space so that they are not in different lines. As an adjective, the number is not separated from a unit by a space. When writing units, established symbol including the size of letter, upper index, etc., must be strictly observed.

There are basic units to which derived units can be assigned by adding relevant prefixes. A derived unit consisting of a prefix and a basic unit cannot be separated by a space. Individual physical quantities use established rules for creating derived units; it is thus not possible to combine each prefix with each quantity, e. g. it is not possible to use “hectometre” for 100 metres, megagram for 1 ton, etc.

There is an exception for creating derived units in the case of units for computer data. The reason is that computers work in the binary system, not in decimal numeral system. Prefix “kilo” thus does not mean  $10^3$ , but  $2^{10}$ , “mega” is  $2^{20}$ , “giga”  $2^{30}$  etc. Kilobyte thus have 1024 bytes, megabyte 1024 kilobytes (1 048 576 bytes) etc.

**Table 4: Selected quantities and their units**

Quantity	Unit	Symbol
length	Metre	m
mass	Gram	g
time	Second	s
	hour	h
Amount of substance	mole	mol
Electric current	ampere	A
Electric potential	volt	V
Power	watt	W
Luminous intensity	candela	cd
Information	bit [bit]	b
	byte [bajt]	B

**Table 5: Selected prefixes for derived units**

Prefix	Symbol	$10^n$
tera	T	$10^{12}$
giga	G	$10^9$
mega	M	$10^6$
kilo	k	$10^3$
hecto	h	$10^2$
deca	da	$10^1$
deci	d	$10^{-1}$
centi	c	$10^{-2}$
milli	m	$10^{-3}$
micro	$\mu$	$10^{-6}$
nano	n	$10^{-9}$
pico	p	$10^{-12}$

Units for some quantities can be created by composition of other units, for example units for area ( $m^2$ ), volume ( $m^3$ ), velocity (m/s, km/h or  $m \cdot s^{-1}$ ,  $km \cdot h^{-1}$ ) or density ( $kg/m^3$  or  $kg \cdot m^{-3}$ ).

**Example 30: Physical quantities and their values and units**

Nowadays, standard track gauge is 1435 mm.

1435-mm track gauge is considered standard nowadays.

Built-up area in the given area is 696 m<sup>2</sup>.

In the CR, road speed in towns is limited to 50 km/h.

In the CR, road speed in towns is limited to 50 km.h<sup>-1</sup>.

**Legal form**

In the economic field, traditionally used abbreviations use mainly the abbreviations of legal forms of some companies. Such abbreviations are used only with a name of a concrete company, and are separated with a comma from the name of the company. In a sentence, the abbreviations are separated with a comma on both sides (from the name of the company and the following text). If not connected with a concrete name of a company, the legal form is usually written without being abbreviated. Generally, it can be stated that a point is written after the abbreviated word, and all spaces within the abbreviation remain. Table 6 shows the abbreviations of selected legal forms, no other abbreviations are used. These abbreviations cannot be written in two lines as well. (In the case of company names, it is necessary to strictly follow their wording according to the Commercial Register, even in the cases when the name is registered incorrectly.)

**Table 6: Abbreviations in selected legal forms – Czech Republic**

<b>Abbreviation</b>	<b>Legal form</b>
a. s.	akciová společnost: joint-stock company
s. r. o. or spol. s r. o.	společnost s ručením omezeným: private limited company
k. s.	komanditní společnost: limited partnership business company
v. o. s.	veřejná obchodní společnost: general partnership
s. p.	státní podnik: state enterprise
n. p.	národní podnik: national enterprise
o. p. s.	obecně prospěšná společnost: public benefit corporation

**Example 31: Legal forms**

ČEZ, a. s.

Company ČEZ, a. s., reported record profit last year.

## 6.6 Lists and enumerations

In some cases, it is suitable to add a list or enumeration to the text. There are several options to do so: using bullets, alphabetically, numerically.

In the case of using alphabet or numbers, each new enumeration is numbered from the beginning and therefore starts with number one, or letter *a*. Symbols for such lists are usually separated from the following text by a symbol of parenthesis “)” (in the cases of alphabetical and numerical enumeration) or by a point (only in the case of numerical enumeration). It is not recommended to combine the individual types excessively; it is much better to use one method which will be predominantly used throughout the whole work.

Individual items in the enumeration can be separate sentences beginning with a capital letter and finished by a full stop. If the items are not sentences, each line is started with a small letter, each line is ended with a comma or semicolon (usually at the end of longer statements or expressions), and the enumeration is completed with a full stop. If individual enumeration items are adequately graphically differentiated by being placed in individual lines, no punctuation mark (including full stop at the end) has to be inserted. It is recommended to use the same method within the whole text. This also applies to individual enumerations, if there are both sentences and phrases or expressions. Incomplete enumeration is finished by a comma and three dots with a space.

It is not recommended to use lists and enumerations as a dominant form of presentation. Seminar works and theses shall be written in the form of a continuous text. .

### **Example 32: List whose items are parts of one sentence**

List of accounting classes of a chart of accounts:

- Fixed asset, inventories,
- Financial accounts,
- Netting relationships

### **Příklad 33: Seznam, jehož položky jsou samostatnými větami**

Stručný popis vybraných účtových tříd:

- Dlouhodobým majetkem je dlouhodobý nehmotný majetek, dlouhodobý hmotný majetek, dlouhodobý finanční majetek.
- Zásobami jsou skladovány materiál, nedokončená výroba, polotovary vlastní výroby, výrobky a zvířata, skladované zboží.

## **6.7 Footnotes**

Footnotes are used to specify or explain certain information in the text. According to ČSN ISO 690:2011, footnotes may also contain reference to the source of a quoted text. However, this kind of citations is not used at ITB.

## **6.8 Headings and subheadings**

Any headings and subheadings are placed on a separate line, starting with a capital letter, continue with small letters, and are not finished by full stop. Heading at any section or subsection must be adjacent to the following text and shall never be situated at the end of a page. In Microsoft Word 2010, this can be ensured by selecting *Paragraph*, where in *Text*, the option *Create link* is selected. The heading and the introductory lines of the first paragraph thus create a unit that will not be separated into two pages.

The main chapters (introduction, objective, theoretical part, application part, and conclusion) usually start on a new page, which does not apply to sub-chapters, which are written as a continuous text. This shall be ensured systemically through *Paragraph*, *Text*, *Insert end of page before* instead of using *Line spacing*, which is not stable in the case of subsequent editing of the text and often results in shifting a heading originally placed at the beginning of the following page in the middle of the page.

Headings of the first level are written in sanserif, most commonly Arial or Calibri, size 24, in bold. Headings of the second level are written in bold and in italics, with the same font as the heading of the first level, size 17. For headings of the third level, it is recommended to use bold font, the same font as in the case of the heading of the first level, size 14.5.

In order to make the text clearer and to simplify searching in the text, headings of all levels are numbered using Arabic numerals according to the hierarchical structure. Numbering of headings clearly defines the order, importance, and relationships of individual chapters. Numbering of chapters allows cross-references.

The main headings are indicated by a number without a dot, subheadings contain the numbers of all superior chapters separated by dots but not finished with a dot. The titles of all content chapters from the introduction to the conclusion are numbered. Content titles, bibliography, index of terms, name index, list of abbreviations, list of tables, list of figures, list of attachments, etc. are not numbered.

It should not happen that headings of the first, second and third levels will follow immediately after each other without any text inserted. Should this happen, under the heading of the second level, a text shall be inserted which will e.g. briefly explain the division of the chapter into subchapters.

**Example 34: Headings and subheadings**

3 Theoretical and methodological part

3.1 Literary research and introduction

In this work, literary research is divided into two parts. First of them defines the terms used in the text, the second part puts the topic in the context within the current world trends.

3.1.1 Terms definition

Demand is the relationship between the quantity purchased and the price the consumer is willing to pay for a given amount.

## **6.9 Tables, graphs and figures**

Tables, graphs, and figures are a suitable extension of a topic being described. Before inserting such objects, the following questions shall be asked:

- Is it necessary to make this object a part of the work?
- Would it be better to publish it in an attachment?

The extent of any of such objects shall not exceed a third of a page. Larger objects shall be inserted in an attachment and a reference is made in the text.

Own tables, graphs and figures shall be used. It is not allowed to use tables, graphs, and figures from other publications or studies. This is only possible if such objects are modified or completed, and a reference to the original source is made.

The inserted objects bear a title with a type of the object and sequence number so that they can be referenced in the text, and a brief title with the object type and sequence number is given, placed above the object, not finished with full stop. Below the object, there is always a reference to the source: the word Source followed by a colon and a source document in accordance with the citation standards ČSN ISO 690:2011. Titles

and captions are written in the same font as the main text, size 10.

Title, object, and reference to a source make a whole; therefore, these parts shall not be separated into several pages.

Objects are references in the text by the object name and number. Instead of using “the following table”, it is recommended to use “Table 1”.

### **6.9.1 Tables**

Tables are used for presenting structured data. They must be presented so that their meaning is clear even without additional explanations in the text. Tables in the text are indicated as Tab. or Table. Each table shall contain the data given in the same units; each cell shall contain only one piece of information.

Data in tables shall be written in the same font as the rest of the text, only smaller (size 10 most often). Legend (names of lines) is aligned to the left, header (name of columns) is centered, text in the fields is centered, and numerical values in the fields are aligned according to the decimal order. Texts in header and legends start with a capital letter, texts in the fields are written in small letters. Outside table borders and the line separating the header from the rest of the table is usually thicker.

Tables in the text cannot be separated into several pages, except for the tables in attachments, whose extent is greater than one page. In such cases, table header is repeated at the beginning of each page. If a graph is created based on the data in the table, it is recommended to place both objects on the same page.

### Example 35: Table

As in the case of other companies, the Bank's profit and loss account includes the costs and yields of its operations. The basic structure of the Bank's profit and loss accounts is given in Table 19 – 3, which shows the structure of costs and yields of Czech banking system.

**Table. 19 – 3: Basic structure of profit and loss account of Czech banking system in 2003**

<b>Costs and revenues</b>	<b>mil. CZK</b>
Interest yielded	99 773
Interest costs	45 470
Fees and commissions received	35 657
Fees and commissions paid	9 314
Return on shares	824
Profit on foreign exchange transactions	6 347
Profit on other financial operations	2 436
<b>Profit on financial activities</b>	<b>90 252</b>
Administrative costs	47 513
Creation of reserves and provisions	744
Other operating expenses	744
Extraordinary income (costs)	11
<b>Gross profit before tax</b>	<b>41 251</b>
Tax	11 074
<b>Net profit</b>	<b>30 176</b>

Source: ČNB – Bankovní dohled, 2003

Source: SYNEK, Miloslav a kol. Podniková ekonomika. 4. přepracované a doplněné vydání. Praha: C. H. Beck, 2006. ISBN 80-7179-892-4.

## 6.9.2 Figures and graphs

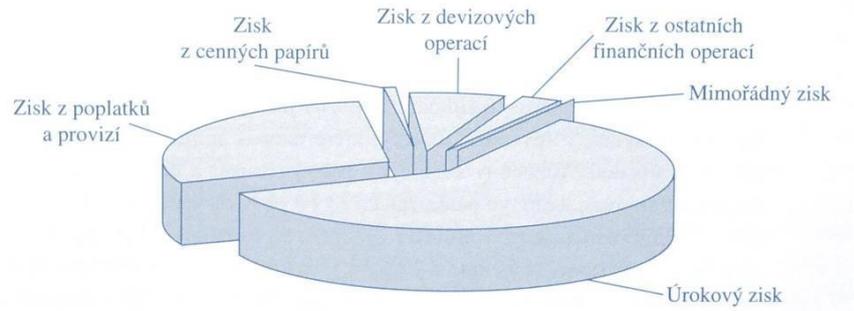
Most commonly, various models, diagrams, sketches, graphs, time series, drawings, photographs, etc. are graphically represented. All these objects are inserted with a uniform title – Figure or Figure. Unlike tables, graphs often need explanatory captions that explain their meanings. There are various types of graphs, each type is suitable for a different type of data. The basic types of graphs include column graphs, line graphs, pie charts, area graphs, and scatter plots.

Text editors enable to insert figures in different formats. It is advisable to choose a format that does not affect the quality of the figure when compressed, but whose size does not overload the data volume of the document. If a figure is wider than the page, it is inserted horizontally with its head to the left, with a caption on the right.

### Example 36: Figure

The most important part of banks' earnings comes from a margin between the paid and received interests. Recently, there has been a trend in developed countries to raise the share of non-interest earnings on the overall bank's earnings. The structure of Czech banks' profit is shown in Figure 19 – 3.

**Figure. 19 – 3: Structure of profit of Czech banks for the year 2003**



Source: ČNB – Bankovní dohled, 2003.

Source: SYNEK, Miloslav a kol. Podniková ekonomika. 4. přepracované a doplněné vydání. Praha: C. H. Beck, 2006. ISBN 80-7179-892-4.

### 6.9.3 Equations and formulas

Microsoft Office Word 2010 has a special function for inserting mathematical formulas and equations. It is situated in *Insert*, section *Symbols*, *Equation* button.

**Figure 21: Function „Equations“**



Source: MICROSOFT CORP. Microsoft Office Word 2010 [software]. [access 14 May 2012]. Available at: <http://office.microsoft.com/cs-cz/word/>

## 6.10 Page numbering

For faster orientation in the text through its content, pages shall be numbered. Pages are most often numbered in the footer area, in the middle or at the outer edge, using Arabic numerals, continuously from the beginning of the text part (from the first page of the introduction) until the end of the work (except for the attachments). Cover pages and content page are not numbered. This means that only the pages of the chapters which are a part of the content are numbered. Unnumbered pages are not included in the extent of the work. Therefore, if a minimum extent of the work is set, it means the pages from the introduction to the conclusion.

### 6.10.1 Applications in Microsoft Office Word 2010

In Microsoft Office Word, correct numbering is carried out using *Section break*, which enables to set numbering of each section independently from number one, with only some sections showing the numbering.

A separate section is inserted via *Page layout*, in the section *Page setup*, where *Ends* button is located, as shown in the following figure.

Partition setting within one document can be carried out independently. It is possible to adjust numbering of pages or its displaying.

The format of page numbering, which enables separate numbering of each partition (starting from 1) is set when the footer is set in *Insert*, section *Header and Footer*, *Page number* button, where *Format – Page numbering, ...* is selected.

In dialog box, in *Page numbering*, instead of the first option, *Continue*, the second option *Start from: 1* is selected.

In order to enable to display page numbering in some partitions but not in other ones, it is necessary to deselect the default setting of linking header and footer of all partitions. This is carried out in *Design*, which is only displayed in modification of footer, in section *Navigation*, using *Create link* button.

After the above modifications, header and footer can be changed separately in each section.

Page numbers can only be displayed in selected partitions.

### **General advice on writing a professional text:**

- Maintain a single style
- Strive for brevity
- Do not use unnecessary borrowed words if there is a commonly used Czech synonym
- Use synonyms (Czech Republic, Czechia, Czech state)
- Use sentences of different length and structure
- Avoid too complex or complicated sentences
- Avoid colloquial phrases
- All abbreviations shall be listed in the List of abbreviations.

## 7 Submitting and defence of work

Before final submission of work, it is recommended to carry out a final revision. In the case of works of minor importance and extent, proofreading can be carried out by the author; in the case of theses, it is advisable to invite an independent consultant to proofread the text and carry out revision. The revision of work is made mainly in terms of its content, grammar, and form. Content revision consists in checking the correctness, completeness, and timeliness of the information contained. It also includes correctness of calculations, accuracy of definitions, timeliness of resources used, etc. Correction of grammar and spelling mistakes is referred to as proofreading. To ensuring formal correctness of work, formal proofreading is carried out.

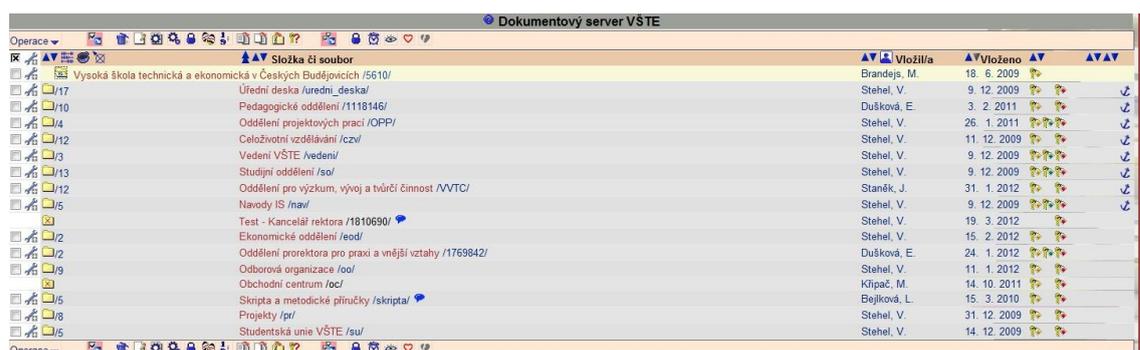
### 7.1 Submitting of work

The deadline, number of copies, and other conditions are determined individually according to the type of work. Specific rules for submitting seminar works and thesis at the ITB are described in detail in the following chapters, in the Study and Examination Rules and ITB internal standards. For all works, there are rules defined. Printed forms shall be submitted on one side of A4 format. Electronic forms are submitted in a format of some of the following programmes: Microsoft Office Word (\*.doc, \*.docx, \*.rtf), OpenOffice (\*.odf) or Adobe Reader (\*.pdf). Electronic version shall not be protected by a password, encrypted or unreadable.

#### 7.1.1 Seminar works

Submitting of seminar works shall be carried out according to individual teachers' requirements. The most frequent method of submitting is in an electronic form via the Information system. In the Information system, use *Documents* in the main menu, subsequently use *My current study materials* in *Agenda*.

Figure 22: IS document server



Source: INSTITUTE OF TECHNOLOGY AND BUSINESS. ITB IS document server [online]. © 2010 [cited 2012-05-15]. Available at: <https://is.vstecb.cz/auth/do/>

After finding the relevant subject, the file containing the text of the seminar work is uploaded in the file *Delivery file*.

### 7.1.2 Thesis

Theses are submitted both electronically and in printed form.

In printed form, theses are submitted in two hardcover copies to the assistant for pedagogical activities of a relevant ITB faculty, no later than 50 days before the planned defence. In electronic form, theses are submitted no later than 50 days before the planned defence via the Information system (<http://is.vstecb.cz/>), *Student, State final examination and Final Thesis archive, Manipulation with Final Thesis archive*. After checking the compliance of the topic and the objective of the work submitted with the approved topic and objective in the IS, the assistant for pedagogical activities of a relevant ITB faculty shall make the ITB archive accessible for the students so that they could complete the required information. Final thesis archive (in the form of a file in the Information system) is created and an announcement about it is displayed. The announcement shall be confirmed by *Click here*. By choosing *Manipulation with final thesis archive*, student will get into the archive folder, working with it as with the document server. For repeated visits to the final thesis archive, this folder will remain created and does not need to be recreated as described above.

In the personal archive, the students shall:

- Upload the annotation and keywords in the language of the thesis and English language,
- Choose the language of the thesis and confirm that the printed version is identical with the electronic version,
- Upload the thesis in the format \*.doc or \*.docx including its attachments,
- Upload graphical part of the thesis in the format \*.pdf.

IS creates a file format \*.pdf a \*.txt on the basis of the information uploaded.

Figure 23: Inserting information about thesis in the information system

**Anotace, klíčová slova a jazyk práce**

**Anotace česky:**  
Vyplňte česky/slovensky anotaci k závěrečné práci. Pokud studujete víceoborové studium, kdy alespoň jeden obor je v češtině/slovenštině, pak jste povinni vyplnit anotaci česky/slovensky bez ohledu na jazyk práce. Vkládáte holý neformátovaný text.

**Anotace anglicky:**  
Vyplňte anglicky anotaci k závěrečné práci. Vkládáte pouze holý neformátovaný text. Pro úplné vyplnění se požaduje vložit alespoň 100 znaků. Anotaci anglicky musíte vyplnit.

**Klíčová slova:**  
Vyplňte klíčová slova, odděluje čárkou a mezerou. Vkládáte česká/slovenská i anglická klíčová slova. Vkládáte pouze holý neformátovaný text. Pro úplné vyplnění se požaduje vložit alespoň 30 znaků. Klíčová slova musíte vyplnit.

**Jazyk práce:**  
Uvedte jazyk, ve kterém je psána závěrečná práce.  
cze čeština ▼

**Potvrzení shodnosti elektronické a případné tištěné varianty závěrečné práce:**  
V případě, že je odevzdávána tištěná i elektronická verze práce, je pro oponování rozhodující elektronická verze práce. Potvrzení shodnosti je nutné pro úplné vyplnění archivu.  
 Potvrzuji, že pokud odevzdávám tištěnou i elektronickou verzi práce, jsou shodné.  
Pozn.: Zaškrtněte i v případě, že odevzdáváte pouze elektronickou verzi.

Source: INSTITUTE OF TECHNOLOGY AND BUSINESS. ITB information system [online]. © 2010 [cited on 2012-05-15]. Available at: <https://is.vstecb.cz/>

After clicking on *Archive for uploading files with final thesis*, the thesis can be uploaded. In the personal archive, the student uploads and stores all parts of the thesis, including its attachments. If the thesis includes more files, all of them must be named. The thesis is submitted by clicking on *Upload file from computer*. According to the school internal standards, the Microsoft Office Word format is necessary. Assistant for pedagogical activities of a relevant faculty accepts the electronic version of the Bachelor's Thesis and approves it, thus making it accessible in the IS archive, where it is also freely accessible to the public. At

this moment, the possibility to change anything in the IS archive ceases.

More detailed information to the individual steps in submitting theses at ITB can be found in the ITB Internal Standard No. 1/2016.

## **7.2 Thesis defence**

The course of defence and evaluation of thesis is described in the ITB Internal Standard No. 1/2016.

### **7.2.1 Thesis evaluation**

Thesis supervisor and opponent evaluate the thesis on the basis of the criteria given below. The scale is from A to F (the same as state final examination). Thesis evaluation form is available in the school information system. The evaluation form shall be filled in by the supervisor and opponent, stored in the archive, printed, signed and handed over to a relevant department.

Thesis supervisor evaluates the work and fills in the evaluation based on the following criteria:

1. Achieving the objective of work
2. Structure and formal requirements of thesis  
(Level of graphical processing of drawings)
3. Methodology of work based on the content
4. Level of linguistic processing and professional terminology
5. Work with literature  
(Did the author use sufficient number of literary resources?  
Did the author use professional resources relevant to the topic?  
Did the author follow the citation standards?)

Opponent fills in evaluation based on the following criteria:

1. Achieving the objective of the work
2. Logical structure of work, selected methodology
3. Work with professional language, correct use of terminology, definition of terms
4. Professional contribution of the work in the field
5. Applicability in practice

Suggested grading is not a simple arithmetic mean of the evaluation of the criteria mentioned above. It is based on the weight of the aforementioned criteria determined by the assessor. The final grade is awarded by the Committee after thesis defence.

The Committee evaluates the work based on the following criteria: Presentation of work – formal aspect (presentation, clarity, oral presentation) and content (clarity, consistency, ability to focus on essential information and to present the work within a time limit); the ability to react to questions; argumentation, defence of results; persuasiveness and overall impression (based on quality thesis in printed or electronic form).

### 7.2.2 **Formal aspect of defence**

For the defence of seminar works and theses, it is necessary to prepare a presentation in Microsoft Office PowerPoint (or in Prezi). Presentations shall be legible, clear, brief, and graphically well processed. Its content shall be in line with the content of the relevant work or thesis and with its oral presentation at the defence.

Legibility is ensured by using suitable colours, font and font size. The colours should be simple, natural, and contrasting enough. The author shall also consider the clarity of all objects inserted; generally, it is recommended to use graphs instead of tables and charts. Information on the graphic materials shall be rather brief and short, as a continuous oral presentation is expected to be given by the speaker.

The speaker should speak clearly, comprehensibly, unambiguously, and use standard language. The thesis is defended in the same language in which it is written.

Thesis defence does not mean reading. However, unexperienced speakers are recommended to prepare a written syllabus in advance that will be followed at defence. Such syllabus shall contain all terms that need to be mentioned and explained. It is not recommended to prepare a continuous text to follow. A speaker can learn the introduction and final sentence by heart, which helps them be more confident when presenting. The framework may (but does not have to) be in writing. It shall contain only the key points and it shall indicate the direction the presentation will take. Presenting without any syllabus is recommended only for experienced speakers, because there is a risk of unwanted deviation from the topic or excessive focus and repeating the same ideas or speech cycling.

In the defence of thesis or a seminar work, certain requirements are placed on the oral presentation of the speaker. The oral presentation shall be well thought out, well-prepared, linguistically and terminologically appropriate. The speaker shall be confident, calm, focused, and sure about the correctness of the content presented. Presentation of thesis defence usually takes 10 minutes.

In the oral presentation, besides the content, there are other factors that may influence the overall expression the speaker makes. It is appropriate clothes, language selected, non-verbal communication (body language), eye contact with the audience, etc.

### 7.2.3 Defence content

Like the whole work or thesis, its presentation shall also have certain logical structure. The structure below can be adjusted in accordance with the extent of the work and time required for its defence; the key elements shall, however, remain. Usually, the following structure is used:

- Introductory slide,
- Motivation and reasons for choosing the topic,
- Objective of work,
- Defined hypotheses or research questions,
- Methodology used,
- Achieved results and contribution of the work,
- Brief summary,
- Responses to supervisor's, opponent's and committee's questions

The basis of the defence is existing knowledge which is appropriately connected with new findings. Information is presented in logical units while taking into account the necessity to focus on the basic ideas without excessive deviations from the topic and changing ideas without any logical connection.

Stylistic aspect must be in line with the main objective, which is a comprehensible presentation of information to the audience. For this reason, it is necessary to select suitable and appropriate language. Presented text must be arranged into logical units according to the context. Presentation shall also consider the audience, which has not read the written form of the work, and it is thus necessary to present the content, main questions, methodology and contribution. During the thesis defence, the printed version of the work is available to the audience.

#### **7.2.4 Thesis defence time**

The maximum time allowed for the presentation of the main ideas of the thesis at its defence is ten minutes (therefore, a shorter presentation is recommended so that there is more time for discussion). This allowed time should not be exceeded.

Exceeding the time limit can be perceived negatively by the committee, as it may indicate that the student is not able to manage time and present the most important ideas and conclusions of their work within the allowed time limit. The optimal time is about seven minutes. On the other hand, the presentation shall not be significantly shorter than the set time limit. This could indicate that the content of work is poor and does not contain sufficient information.

Specific course of thesis defence is determined by the evaluation committee which announces the basic rules to the students prior to defence. During the presentation, the committee may interrupt the student and comment on their performance or ask additional questions, and the students shall be prepared for this. If the committee intervenes in the presentation, the student shall be able to react to this and shorten a less important part of the presentation in order to not exceed the time limit and at the same time, not skip any key facts.

Defence of seminar work, if required, is similar to the defence of theses. Its time limit is specified in the course syllabus and determined by the requirements of the teacher.

It is recommended to try the presentation before defending the work. The most suitable is verification of the presentation including all particulars. Such a general preparation for the defence enables to eliminate some errors and mistakes, e. g. unsuitable structure, typing errors in computer presentation, etc., and also allows verifying the compliance with the time limit. Ideally, it is recommended to present in front of the audience which could comment on the course of the presentation and help with keeping appropriate pace of the presentation.

#### **7.2.5 Most common mistakes**

During the preparation and presentation of the defence, especially the following mistakes shall be avoided:

- The author does not follow the standard structure of the presentation and skips some important parts;
- The author exceeds the time limit allowed;
- The author skips important parts and focuses too much on details;
- The author does not use multimedia aids for presenting their work;

- Presentation in Microsoft Office PowerPoint is too large and goes beyond the syllabus of the oral presentation;
- The author only reads the information contained in the presentation and does not provide additional information;
- The author literally reads the text of the oral presentation from a prepared written text;
- The author has not prepared adequate answers to the questions asked by the thesis opponent and supervisor.

## List of resources

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CURRIE, P., 1998. Staying Out of Trouble: Apparent Plagiarism and Academic Survival. *Journal of Second Language Writing*. 7(1), 1-18.

ČESAL, J. et al., 2007. *Vědecké psaní a prezentace*. Praha: Professional Publishing. ISBN 978-80-86946-30-6.

ČESKO. Zákon č. 111/1998 Sb. ze dne 22. dubna 1998 o vysokých školách a o změně a doplnění dalších zákonů (zákon o vysokých školách), ve znění pozdějších změn a doplňků. In: Sbírká zákonů České republiky. 1998, částka 39, s. 5388 – 5419. Dostupný také z: <http://www.msmt.cz/vzdelavani/zakon-c-111-1998-sb-o-vysokych-skolach>

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ČESKÝ STATISTICKÝ ÚŘAD. *Dokončená bytová výstavba v relaci s vybranými statistickými charakteristikami území správních obvodů obcí s rozšířenou působností Jihočeského kraje* [online]. © 2010 [cit. 2010-01-09 až 2010-01-10]. Dostupné z: [http://www.czso.cz/xc/edicniplan.nsf/t/E1003ED504/\\$File/13-313808a6.pdf](http://www.czso.cz/xc/edicniplan.nsf/t/E1003ED504/$File/13-313808a6.pdf)

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Methodology of Writing Professional Works

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