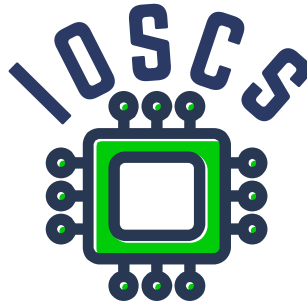


Project: Innovative Open Source Courses for Computer Science

Open Source tools for text processing Syllabus

**Jiří Rybička
Mendel University in Brno**

29. 1. 2020



This material teaching was written as one of the outputs of the project “Innovative Open Source Courses for Computer Science”, funded by the Erasmus+ grant no. 2019-1-PL01-KA203-065564. The project is coordinated by West Pomeranian University of Technology in Szczecin (Poland) and is implemented in partnership with Mendel University in Brno (Czech Republic) and University of Žilina (Slovak Republic). The project implementation timeline is September 2019 to December 2022.

Project information

Project was implemented under the Erasmus+.

Project name: “**Innovative Open Source courses for Computer Science curriculum**”

Project nr: 2019-1-PL01-KA203-065564

Key Action: **KA2 – Cooperation for innovation and the exchange of good practices**

Action Type: **KA203 – Strategic Partnerships for higher education**

Consortium

ZACHODNIOPOMORSKI UNIWERSYTET TECHNOLOGICZNY W SZCZECINIE

MENDELOVA UNIVERZITA V BRNE

ZILINSKA UNIVERZITA V ZILINE

Erasmus+ Disclaimer

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Copyright Notice

This content was created by the IOSCS consortium: 2019–2022. The content is Copyrighted and distributed under Creative Commons Attribution-ShareAlike 4.0 International License (CC BY-SA 4.0).

COURSE DESCRIPTION

Field of study: computer science

Level: first cycle

Course name: Open Source tools for text processing

ECTS credits: 5

Instruction forms: lecture, laboratory

Instruction hours: 24, 24

Type, extent and method of teaching activities: 2 – 0 – 2 (lectures–exercises–labs) hours weekly, presence study.

Prerequisites: none

Module/course unit objective: Studying the course student will get basic knowledge of text processing and technology based on open source tools, typographical and language principles and global approach to documents and its structure.

Course content divided into various forms of instruction (with number of hours):

Week	Lecture (2h per week)	Laboratory (2h per week)
1	DOCUMENT AND METHOD OF ITS PROCESSING 1.1 Document elements–principle 1.2 Identification of elements in the document 1.3 Typographic design of a document–representation of elements 1.4 Technology–realization of typographic design 1.5 T _E X-based technology principle 1.6 Technology principle based on open office systems	<ul style="list-style-type: none">• T_EX system, basic principles• Distribution, installation• Editors, first document, compilation, error log
2	BASIC DOCUMENT PARAMETERS 2.1 Book font, font type selection 2.2 Basic font, size of basic font 2.3 Electronic/printed document, page size (dimensions) 2.4 Technology–definition of macro commands	<ul style="list-style-type: none">• Sources of fonts, overview, examples• Parameters of basic font, choice of basic font• Macro definition with parameters, L^AT_EX approach, T_EX approach
3	SPECIAL CHARACTERS, LOCALE 3.1 Document encoding 3.2 Setting the locale (language-dependent texts, hyphenation) 3.3 Set hyphenation algorithm parameters 3.4 Special (national) characters and their solutions 3.5 Technology–length units, specific typographic systems	<ul style="list-style-type: none">• UTF-8 encoding, special characters, inserting codes• Hyphenation patterns• Understanding length units, evaluation of lengths, measurement

<p>4</p>	<p>PARAGRAPH TYPESETTING, ALGORITHMS, PARAMETERS 4.1 Base text—paragraph parameters (indents × indentation, alignment) 4.2 Paragraph elements other than basic text—parameters (quotes, enumerations) 4.3 Technology—lengths, length registers, length operations</p>	<ul style="list-style-type: none"> • Paragraph parameters, base text with various parameters • Special paragraphs – unordered lists, ordered lists, quotes • Length registers, additive and multiplication operations
<p>5</p>	<p>MIXED TYPESETTING 5.1 Emphasizing 5.2 Use of additional font 5.3 Use of different typefaces (except for emphasize) 5.4 Font color and its use (technology—colors, models, definitions)</p>	<ul style="list-style-type: none"> • Font parameters • Different typefaces in one document, choice of compatible typefaces • Working with colors (definition of user colors, color models)
<p>6</p>	<p>DOCUMENT DIVISION 6.1 Subtitle systems 6.2 Initials 6.3 Table of contents 6.4 Technology—numbering (counters, references)</p>	<ul style="list-style-type: none"> • Predefined subtitles, user defined one • Technology of initials • Counters and references
<p>7</p>	<p>PAGES 7.1 Paragraph and page break 7.2 Page headers and footers 7.3 Footnotes 7.4 Marginal notes 7.5 Page design of special pages (title, editorial record, imprint)</p>	<ul style="list-style-type: none"> • Paragraph parameters for optimal page break • Inserting footnotes, inserting marginal notes • Page design with various typefaces and font modifiers
<p>8</p>	<p>MATHEMATICAL AND SIMILAR EXPRESSIONS 8.1 Expression elements 8.2 Text math and displayed math 8.3 Inserting expressions into a document, cross-references</p>	<ul style="list-style-type: none"> • Overview of math elements (exponents, indices, fractions...) • Math environments and its functions • Expressions with sums, limits, matrices
<p>9</p>	<p>TABLES 9.1 Table types 9.2 Alignment methods of table content 9.3 Inserting tables into document—floating/non-floating objects, labels</p>	<ul style="list-style-type: none"> • The tabbing and tabular environments • Alignment of numeric data in tables • Practicing of various types of tables
<p>10</p>	<p>IMAGE MATERIAL AND GRAPHICS 10.1 Image types—by pixel quality, by source 10.2 Graphic items in the document 10.3 Technology—possibilities of drawing graphic elements by system tools 10.4 Required properties of graphic elements imported from the other sources 10.5 Image labels, binding to table labels, floating/non-floating objects</p>	<ul style="list-style-type: none"> • Preparation of graphics – raster format, vector format • Possibilities of vector format, including of PDF files • The picture environment • Environments for tables and figures

11	DOCUMENT 11.1 Page arrangement 11.2 Table of contents, indices, cross-references 11.3 Arrangement pages for printing, binding, processing of printed document	<ul style="list-style-type: none"> • Design of page elements: running heads, margin paragraphs, folio • Technology of Table of contents, list of tables, list of figures • Pages arrangement, more pages on the paper sheet
12	DESIGN AND REALIZATION OF OWN DOCUMENT 12.1 Practice typographic design and technical implementation of the whole document	<ul style="list-style-type: none"> • Typographical aspects • Determination of document elements • Technology processing (styles, macros)

Student workload – forms of activity: individual work with computer with the T_EX-based system, solving typographical and technological problems of document design and preparation

Teaching methods/tools: lectures and laboratories, computer laboratory with T_EX-based system and connection to the internet.

Evaluation methods: evaluation is based on two components – the continuous evaluation during the semester and final exam. They are appreciated as follows.

Continuous examination:

- at the end of 12th week of semester – practical test on technological tools in T_EX-based system; max. 50 points
- Special activities – max. 10 points

To enroll for an exam the student must have at least 30.0 points.

Final Exam:

theoretical questions/tasks; max. 40 points, min. 10 points

Final evaluation: Successful completion presume to obtain at least 61 points, including at least 10 points for theoretical problems.

Mark	Points
A	93–100
B	85–92
C	77–84
D	69–76
E	61–68

Planned learning outcomes: After completing the course the student:

- knows the basic concepts and approach to the document design,
- can determine all of the document elements,
- has the ability to use of technology based on T_EX system,
- has the ability to design of typographical parameters.

Bibliography:

- FELICI, J. (2011) The Complete Manual of Typography. 2nd Edition. Adobe Press. ISBN 978-0321773265.

- GOSENS, M., MITTELBACH, F., SAMARIN, A. *The L^AT_EX Companion*. Addison-Wesley Publishing company. ISBN 0-201-54199-8.
- LAMPORT, L. (1994) *L^AT_EX: A Document Preparation System*, 2nd Edition. Addison-Wesley Professional. ISBN 978-0201529838.