When 10 years ago the studies of library and information science were introduced as a new group at the Faculty of Philology at the Belgrade University, the particular attention was given to the development of information science curriculum that would contribute to the general education of librarians. The main idea was that the newly formed group should prepare the future librarians for new challenges in the rapidly changing environment. According to the common practice at the University of Belgrade that one group's curriculum is inflexible and consists of obligatory courses only, four of them were devoted to the information science: Mathematical introduction to information science, Introduction to computer science, Information systems, and Computer applications in linguistics and general humanities. The planned duration of all these courses was two semesters, except for the first one for which one semester was proposed. Here, the content of these courses will be briefly outlined.

**Mathematical introduction to information science** gives the basics of those mathematical disciplines that are relevant to the formalization and processing of natural language, such as:

- Elements of mathematical logic—propositional logic and the predicate calculus;
- Basic concepts from the set theory—operations and relations on sets and on the set elements;
- The notion of alphabets, strings and formal languages and their relation to the natural languages;
- Grammars, their generative power, and characterization of formal languages by grammars;
- Recognizers, or automata and their relation to grammars;
- Mathematical formalisms for the description of natural languages—applications in morphology and syntax.

**Introduction to computer science** covers the topics about the computer architecture, the way computers are functioning, with the survey of the variety of possible applications that should raise the student above the “naive” computer users. Some of the topics are:

- Impact of information technology to the society;
- History of computer development;
- Computer applications in science, business, process control and education;
- Computers architecture and computer types;
- Data representation with emphasis to the various character coding approaches—ISO, UNIMARC, and Unicode coding schemas;
- Computer peripherals—input and output devices, secondary and archive storage;
Computer programming and programming language types, with the emphasize on the string processing languages;
Fundamentals of operating systems and system software;
The program development cycle: problem analysis, specification, projecting, encoding, testing, and documenting;
Application software from office automation software to management decision-support software;
The future of information technology.
The students were supposed to do the practical work in order to familiarize with computers and operating systems, to get to know the basic application software and to learn to write their own simple programs.
While the first two courses were rather general, the third course, Information systems introduced subjects that were of particular interest to the future librarians, such as:
The notion of information and information flow with basic concepts of information theory;
Databases, with special attention to their logical design, query languages, database reports, database administration;
Storage and retrieval of textual information that encompasses the storage techniques, document structuring, content analyzing and indexing;
The overview of available software for the management of textual databases;
Library and documentation information systems;
Office information systems in library environment and multimedia and hypertext applications in libraries, museums, and archives;
Computer networks and distributed databases with applications specific to networks as teleconferencing, videotext, etc.
Among the tasks envisaged for the practical work in the scope of this course were the use of relational databases and SQL, computer cataloguing and usage of computer-based catalogue systems, and use of the local and public computer networks.
The last course, Computer applications in linguistics and philology, concentrates mostly on the natural language organization of most of the information processed by computers, especially that which is managed by libraries and documentation centers:
Text encoding techniques with emphasis on representation of text logical structure and languages for text mark-up, such as SGML;
The sources of textual information in machine-readable form;
Devices for text visualization and software for text formatting;
Formation of machine readable corpora and tools for their processing;
Tools for production of indexes and concordances;
Dictionaries and lexicons in machine-readable form;
Elements of lexical statistics;
The use of computers in various vocabulary research tasks, such as production of frequency dictionaries, stylistic analyses, comparison of vocabulary;
Natural language aspects of computer applications in documentation, such as automatic
text indexing;

- Natural language aspects of communication with textual databases;
- Methods of automatic analysis and synthesis of natural language texts, including the methods of morphological, syntactic and semantic analysis;
- Machine translation;
- Terminological databases as a machine add to human translation.

The anticipated practical work for this course encompassed the text encoding using SGML and TEI guidelines, corpus processing and concordance production with use of various statistical methods.

The implementation of this curriculum, although accepted by University board did not go smoothly. It seems that it was too revolutionary for the Faculty of Philology that was at that moment not used to so many technical aspects of their curricula. The subsequent years, however, proved that the impacts of new technologies were universal and that they went far beyond the library environment, while, in the same time their usage in libraries and documentation centers became unavoidable. Under these circumstances the more accurate implementation of the outlined curriculum began. Further obstacles to its full implementation were, however, posed by the complete lack of the computing facilities at the Faculty of Philology that could be used for students practical work. At the same time, both professors and students are in a constant want of the up-to-date literature from the information science field.

Although the changes in the information technology itself and in its use in all the segments of the society were dramatic in the past decade, we can note, not without satisfaction, that the information science curriculum suggested more than ten years ago has stood up the time challenges. Certainly, there are some adjustments that have to be done on the fly, such as substitution of programming language SNOBOL4, with today more available and appropriate languages, as awk and perl. Some subjects, as Internet and networking have to be given more attention, as their development was predominant in recent years. Also, the exercises in HTML cover today the topic about hypertextual and multimedia documents, while XML substitutes SGML as a language for describing the documents logical structure. The necessity for the more substantial changes in curriculum can be expected in the next few years as students leaving the high school will be sufficiently familiarized with computers as to make some topics from the second course, Introduction to computers science, unnecessary.

When compared to the information science curricula at the other Library and Information science schools, one can observe that in our curriculum particular stress is put, on one hand, on the necessary mathematical background, and, on the other hand, on the natural language aspect of the text processing. In our opinion, the better effects can be achieved if the basic mathematical knowledge is presented coherently in one course, then if it is scattered around several different courses. That knowledge is necessary by all means for all those that will venture to write their own programs or scripts, or to communicate with databases using a query language.

The necessity to include in a computer-based information retrieval, indexing, and classification the natural language modules in order to improve their performance has been widely accepted long since. Internet with its vast chaotic knowledge has made this fact even more obvious. The improvement of information retrieval and indexing on Internet has become the prime goal, especially having in mind that even the best search engines rarely
index more than 20% of all the documents. The opinion prevails that without the development of the natural language modules and their inclusion into the information retrieval and indexing applications this goal can hardly be achieved. Our opinion is that the graduated librarians should be educated not only to follow the rapid changes in this domain, but also to take the active role in the process of natural language modeling that could best serve the needs for information storage, classification, and retrieval. The courses in General linguistics and Serbian language that are included in our Library and Information Science curriculum serve this purpose too.

At the end, it should be added that the information science curriculum is well accepted by our students. They acquire the necessary knowledge without difficulties and start their working career well equipped.