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**SPECIFICS OF AN ACADEMIC ENGLISH COURSE
DEVELOPMENT AT THE FACULTY OF ELECTRONIC
ENGINEERING IN NIŠ AND THE FACULTY OF ELECTRICAL
ENGINEERING IN BELGRADE**

Abstract

This paper presents the outline of the English language course development at the Faculty of Electronic Engineering, University of Niš and the Faculty of Electrical Engineering, University of Belgrade. Our courses are being taught at academic studies as compulsory subjects. This paper will show that the courses are designed according to the actual, precisely defined needs of the students, future professionals, and according to the latest developments in ESP theory and practice.

Key words: English for Electronics and Information Technologies, content, course design, needs assessment

*INTRODUCTORY REMARKS CONCERNING ENGLISH FOR
ELECTRONICS AND INFORMATION TECHNOLOGIES*

English for Electronics and Information Technologies belongs to the group of English language variety of English for Science and Technology. Based on Hutchinson and Waters' classification (1987), English for Occupational Purposes (EOP) and English for Academic Purposes (EAP) stemmed from three major English for Specific Purposes (ESP) ar-

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eas: English for Science and Technology (EST), English for Business and Economics (EBE), and English for Social Sciences (ESS). Another taxonomy placed EOP and EAP as direct branches derived from ESP: a) English for Occupational Purposes with courses for professional, vocational, and pre-work purposes, and b) English for Academic Purposes with courses in study programs mainly for the areas of Science and Technology, Law, Medicine, and Business (Dudley-Evans & St John, 1998). Furthermore, EAP and ESP can be seen as two separate types of curricula, the former as a broad term for courses in pre-academic programs and the latter limited to courses in professional fields of study.

However, Dudley-Evans and St. John (1998) pointed out that such a classification does not show the much present overlapping between General English (GE) and English for Specific Purposes. This thesis corresponds with the claim of Hutchinson and Waters (1987) that general English courses usually precede specific ones. Students need a solid basis prior to commencing demanding job tasks in a foreign language. Therefore, it is advisable to start training in English for Occupational Purposes at the pre/intermediate level, once the students have acquired basic command of general English.

DESIGNING THE COURSE AND TEACHING MATERIAL

English for Occupational Purposes courses are designed to meet the job-specific and academic needs of the students (Dudley-Evans & St. John, 1998; Hutchinson & Waters, 1987). In designing the course, teachers need to consult the specialists in the field where English will be used. This fact makes these courses *learner-centred*. This is the core characteristic of English for Occupational Purposes (Hutchinson & Waters, 1987). Designing the course primarily relates to finding or creating appropriate teaching material. The material is identified as teacher-generated or learner-generated. Teachers have at their disposal the possibility of using ready-made textbooks, adapting available material, or becoming material designers. The most successful material in English for Occupational Purposes turns out to be the one which stems from the workplace or which is generated by learners. Thus, success in these courses largely depends on the open communication among teachers, students, faculty management and appropriate companies dealing with the field in question.

Syllabus and course design of English for Occupational Purposes is a never-ending, open process of constant change and improvement that is to meet the current, ongoing trends in the profession in question. In that process, the study of the whole curriculum of the target science, that is profession, an in-depth needs assessment, cooperation with other subject teachers and administration as well as extensive informal discussion with the students regarding needs and interests are mandatory, if the course is to be purposeful.

Electronic engineers say that on the graph presenting the current trend in the development of electronics, the curve is still moving upward fast and the point of saturation is not yet even to be glimpsed. Due to the unprecedented speed of development, most often there is no time for translation into other languages. Scientists themselves admit that there is a need for a specific kind of translation. The field requires a single lingua franca and that is English. New concepts that are continually arising need a complex, intricate explanation, not a single word substitute. In such a situation, when new vistas of knowledge are opened literally every day, the description, study and teaching of its language are particularly demanding.

Syllabus and course design of English for Electronics is a never-ending, open process of constant change and improvement. In that process, the study of the whole curriculum of Electronics, an in-depth needs assessment, cooperation with other subject teachers and administration, as well as extensive informal discussion with the students regarding needs and interests is mandatory if the course is to be purposeful.

At the faculties of Electronic Engineering, University of Niš and University of Belgrade, English is taught as the only foreign language. In Niš it is taught as English Language 1, in the first term of year 3, and English Language 2, in the first term of year 4. Both subjects are compulsory. In order to complete the course successfully all students are required to be on the intermediate level of proficiency, prepared to move towards higher levels. In Belgrade the situation is somewhat different. Namely, students are offered six courses, but only two courses are obligatory. In addition to this, within the Department of Software Engineering, there are two additional courses, which are offered only to students from that department. As regards the level of knowledge, the situation is identical to the one we find in Niš. Namely, in order to complete the course successfully all students are required to be on the intermediate level of proficiency, and be prepared to move towards higher levels.

*KNOWLEDGE-BUILDING METHOD OF
INSTRUCTION IN ENGLISH FOR ELECTRONICS AND
INFORMATION TECHNOLOGIES*

The knowledge-building process in English for Electronics and Information Technologies program goes beyond a mere focus on communication, discourse or a narrow view point in regard to the primacy of grammatical structures in teaching English language to science and technology graduate students. Rather, this method is based on the scientific method or research and it focuses on teaching English in such a way so as to better communicate scientific knowledge to other professionals.

In the knowledge-building method of instruction, 'content and context' are relevant and important aspects in communicating with other professionals and research into scientific and technical forms of knowledge. Of course, the 'meaning' of the content is also expressed in grammar, syntax and related language points, but the essential meaning of the content is based on the scientific knowledge it contains. Therefore, knowledge-building language program focuses on teaching and learning new scientific knowledge and the thinking process involved in communicating the content to professionals in similar research fields. It is not only based on teaching English language to students, but more importantly, it teaches content that is specific to communicating scientific knowledge to other professionals in similar research fields.

The staff and the students of the Faculty of Electronic Engineering, University of Niš and of the Faculty of Electrical Engineering, University of Belgrade, agree that a good command of both General English and English for Electronics and Information Technologies are prerequisites for the overall scientific advancement and finding and keeping a good job. Since an intermediate level of English language proficiency is obligatory for successful completion of the course, General English is not seen as something which needs elaborate further practice.

The goals of this course are to further familiarise students with terminology used in all fields comprising the field of Electronics and Information Technologies, i.e. information technologies, mathematics, computer science, telecommunications, power engineering, electronics, microelectronics, etc, to teach them grammatical structures specific for their field of study, structure and organisation of different kinds of written and oral presentation. Students should acquire communication skills, argumentation and counter-argumentation in scientific discussion. They should also be able to communicate effectively in job related situations, establish and maintain relationships with members of the target community.

Communicative situations are involved, since they give a different dimension to language learning. Introduction of simulation games and problem solving techniques seems appropriate and of interest to the students. The four skills approach is also used, as well as tasks aimed at activities which enable students to deal with situations related to their future employment.

English for Electronics and Information Technologies is a knowledge-based course which utilises a 'learning-centred' approach. Primary focuses are students' competence and practical use of English conversational and writing skills as they are applied in academic, professional and other related environments. It is a task based course because English conversation and writing exercises are used in completing a practical task or goal. Moreover, this course has a strong emphasis on innovative and effective methods in teaching English. It aims to assist students in achieving their professional scientific career goals in the global market of science and technology.

COURSE DEVELOPMENT PROCESS

Synoptically, the course development process consists of the following phases, based on Graves' (1996) suggestions:

1. Needs assessment,
2. Determination of goals and objectives,
3. Content conceptualisation,
4. Selection and development of materials and activities,
5. Organisation of content and activities,
6. Assessment and evaluation.

Needs Assessment

It is an acknowledged fact that one of the greatest contributions of ESP to language teaching has been its emphasis on careful and extensive needs analysis for course design. Needs analysis involves 'present situation analysis' (PSA) and 'target situation analysis' (TSA). PSA aims at finding out the students' English language proficiency level and their existing language requirements at the beginning of a language program. This is a learner-centred analysis. TSA is concerned with language requirements regarding the target situation. Both analyses are complementary.

Although General English is a sort of prerequisite for successful completion of our courses, certain data obtained in the course of our analysis show somewhat different situation. Namely, the needs analysis shows very low level of writing and speaking skills. Students come with almost no awareness of, for example, paragraph or text organisation, specifics of scientific discourse, types of written or oral presentation, which are absolutely mandatory for precise and successful communication of scientific knowledge.

Determination of Goals and Objectives

Graves (1996, 17) defines goals in language learning as "general statements of the overall, long term purpose of the course". Thus, they are related to communicating specific knowledge, acquisition of a job, communication with members of the target language community. They should therefore also aim at the development of a positive attitude towards language and culture.

Objectives are defined as "the specific ways in which the goals will be achieved" (Graves 1996, 17). They may refer "to activities, skills, language type or a combination of them all" (Harmer 1991, 269).

Based on the needs analysis, the overall curriculum for the Electronics and Information Technologies courses, the goals and objectives of the English for Electronics and Information Technologies were identified.

Goals of the course are to further broaden students' command of specific Electronics and IT terminology as well as to teach them grammar structures pertaining to their field of study. Needless to say, structure and organisation of different kinds of written and oral presentation are also included. More specifically, students should acquire communication skills, e.g. argumentation and contra-argumentation in a scientific discussion. They should also be able to communicate effectively in job related situations, establish and maintain relationships with members of the target community.

Objectives are divided in conjunction with the five skills (translation being the fifth one).

Listening:

1. To understand native speakers and professionals, speaking about their job,

2. To understand experts talking about aspects of computing science.

Speaking:

1. To communicate about scientific topics,

2. To give a professional scientific oral presentation,

3. To discuss scientific issues, and the related ethical, social, and psychological topics.

Reading:

1. To understand a wide variety of scientific texts.

Writing:

1. To write descriptions and explanations of components and processes,

2. To familiarise with various scientific text types,

3. To write study and work related letters.

Translation:

1. Students are taught basic principles of translating scientific texts,

2. They should be able to translate from English to Serbian and vice versa texts on Electronics and Information Technologies,

3. Students are encouraged to use Serbian equivalents whenever they are acknowledged as adequate, but also to produce their own suggestions for translation.

Further specific objectives include the following – that students:

1. Practice and improve upon oral communication skills through both individual and team based presentations,

2. Improve writing skills by writing first drafts of papers and revising them after consultation,

3. Improve research skills, in particular by utilising primary sources available on the Web,

4. Develop group based work skill through participation in problem based Learning,

5. Develop skills in 'logic' and 'rhetoric',

6. use 'brainstorming' sessions in team-style problem solving methods,
7. improve composition and editing skills in writing reports, articles and MSc or PhD theses,
8. Improve understanding of the philosophy of science and the scientific Method,
9. Develop English language skills in science and technology in order to further professional career development in the global market.

Content Conceptualisation

Broadly speaking, this phase can be divided into the following stages:

1. planning the course,
2. teaching the course,
3. modifying/re-planning the course,
4. re-teaching the course.

During the whole process, decision-making and assessment is continuously taking place, so that modifications can be applied. Proliferation of new teaching methods, new concepts and models provide the teacher with many options to choose from.

Not all grammatical issues are so frequent in English for Electronics and Information Technologies. For example, there is a tendency for more passives and more nominal groups to occur, so the teacher should pay more attention to the teaching of these grammatical phenomena.

The grammatical structure inventory produced for the English for Electronics and Information Technologies course took the following form:

1. Derivatives,
2. Prefixes and suffixes,
3. Comparisons,
4. Cause and effect sentences,
5. Put the verbs in the correct tense (emphasis on passive voice),
6. Substitution tables (make up sentences using the table and selecting the correct grammatical form),
7. Gap filling with words from the text,
8. Make up your own sentences, using the constructions given,
9. Synonyms/opposites,
10. Join the phrases to form sentences.

To introduce the functional and communicative notion in the procedure described above, the following inventory was developed:

1. Decide what the underlined pronouns refer to,
2. Decide on the correct sequence of the following statements,
3. Re-write the paragraph, using the notes given to you,
4. Use linking words to form a logical connection and paragraph structure.

Communicative situations were involved, since they gave a different dimension to language learning. Introduction of simulation games and problem solving techniques seemed appropriate and of interest to the students. The four skills approach was also used, as well as tasks and activities. More specifically, tasks aimed at activities, which would enable students to deal with situations related to their future employment.

Selection and Development of Materials and Activities

The sources of course materials are various and diverse. The necessary criterion

for choosing the actual material are:

1. effectiveness in achieving the course purpose,
2. the relevance of the material for the current trends in science.

The concrete materials that are being used at the faculties of Electronic Engineering in Niš and in Belgrade are English language textbooks, scientific textbooks, journals, magazines, and related Web material.

The necessary activities have to be not only up to the point, but also interesting and versatile in order to be motivating. Proliferation of new teaching methods, new concepts and models provide the teacher with many options to choose from. During the course students are encouraged and asked to participate fully. That implies not only class activities, but also doing research on the relevant topics and delivering it in the form of either written or oral presentation. There are also discussion classes when the students need to employ their conversational skills, use appropriate types of argumentation, persuasion, etc. Reading, writing, conversational and listening skills are taught as integrated functions of the individual's expressions of their thinking processes and related problem resolution skills in developing a professional career in the research areas.

The course is centred upon these thematic areas: equipment, machines, materials; measurements and mathematics; process and procedures; principles of written and spoken communication in English for Electronics and Information Technologies.

Special attention and time in the syllabus design is given to teaching and practicing written and spoken communications. It is taught according to the rationale and principles as presented by Stojković (2005). Namely, English language instruction today is often one of the crucial aspects of preparing students for their vocation in a highly competitive international professional environment. Teaching principles of written and spoken communications at faculty level is an especially relevant syllabus segment and is done with the ultimate purpose of better communicating professional knowledge to other professionals but also nonspecialists. Every professional will be involved in some aspect of communications which usually involve gathering, analysing, and distributing of scientific and/or technical information efficiently and accurately for specific audiences.

The fundamental purpose of professional discourse is not mere presentation of information and thought, but rather its actual communication. The content that the author wants to convey is inseparable from the form they employ. Depending on the exact profile of the target science/occupation, specific vocabulary, style, and organisational structure of presentation need to be taught.

Teaching students to design effective presentations implies training them insightful and well-trained thinking strategies that can produce clarity in communication without oversimplifying scientific or vocational issues. The results are substantive, not merely cosmetic: improving the quality of presentation actually improves the quality of thought and vice versa.

Organisation of Content and Activities

Sources for the selection of teaching material in this field are numerous. The criteria for its choice are the efficacy in the achievement of the course goals and the relevance of those materials for the current trends in Electronics and Information Technologies.

The actual teaching resources are textbooks for teaching and learning English in the relevant fields of the most renowned UK publishers of EFL textbooks. They are: *English for Electronics*, *English for Computer Science*, *English for Machine Engineering*, all of which are published by Oxford University Press. There is also the textbook Stojković, Nadežda, 2005. *Written and Spoken Communications in English for Science and Technology*. Elektronski fakultet, Niš. Then, lots of materials are designed using current scientific journals, books or Internet sites.

Teaching activities need not only be directly linked to the goal, but also interesting. The proliferation of teaching methods allows for numerous possibilities to motivate students. The teaching methodology is based on the principles that determine the course of learning, in this case, it is the so-called 'learning-centred' methodology. The premises of this methodology are that the learning of a foreign, or second language is a developmental, active process that is not determined only by linguistic skills. Learning is also an emotional activity, its nature largely be accidental, non-systematic. This means that a lot of active and conscious efforts on the part of the teacher are needed for the course to be successful and for the students to experience the whole teaching/learning process as learning an ontological skill. Therefore, this methodology is not significantly different from that of teaching General English. This one only has different teaching content. The actual methods used are most often a combination of several currently mostly recognised EFL teaching methods.

Two principles underlie the concept of sequencing material: building and recycling. Building can follow the process of the simple to

the more complex, from concrete to more open-ended, etc, while recycling means that students deal with taught materials in a new way (Graves, 1996).

Assessment and evaluation

Nunan (1990) states that in language teaching, assessment is related to determination of student's proficiency whereas evaluation to the process of collecting and interpreting information about an educational program. In other words, assessment shows what the learners know and can do in English, whereas evaluation reflects students' reasons for failing or succeeding and ways of improving their learning.

English language at the Faculty of Electronic Engineering in Niš is tested through two final exams. Both exams are comprised of written and spoken part. The written part is in the form of a test, with questions directly linked to the material presented during lectures and practice classes. The successful completion of the written test is the precondition for the oral exam, which consists of two parts. The first one is reading and translating randomly chosen texts from the textbooks, and afterwards there is a conversation part when a student is asked to speak on a topic relevant to her specific area of expertise. Finally, there is a free-flow conversation on student's interests, plans for the future, professional plans and wishes, impressions about the course, etc. In both written and spoken part of the exam students are asked to follow the principles of written and spoken presentations as taught during the courses.

English language courses (1 to 6) at the Faculty of Electrical Engineering in Belgrade are tested through two final exams. All exams include both written and spoken parts, the written part being in the form of a test with questions connected with the material presented during lectures and practice classes. Of course, the satisfactory completion of the written test is the precondition for the interview, i.e. oral exam. The oral exam is conducted in stages described in Stojković (2005): reading/translating technical texts from different textbooks and Internet sources, after which a student is usually asked to deliver a Power Point Presentation on one specific topic. Needless to say, in both written and spoken part of the exam students are kindly asked to adhere to the principles of written and spoken presentations found in the representative literature (see Stojković 2005).

CONCLUSION

English for Electronics and Information Technologies as taught at the faculties of Electronic Engineering, University of Niš and of the University of Belgrade is a knowledge-based course. Primary focuses are students' competence and practical use of English conversational and

writing skills as they are applied in professional and other related environments. It is a task based course because English conversation and writing exercises are used in completing a practical task or goal. Moreover, this course has a strong emphasis on innovative and effective methods in teaching English. It aims to assist students in achieving their professional career goals in the global market.

In order to improve our students performance and enhance their future participation in the global market we have tried to establish a knowledge-building method of instruction in the domain of English for Electronics, Electrical Engineering and Information Technology. Having analysed the course development process (including: needs assessment, content conceptualisation, selection and development of teaching materials), we implemented our findings to the existing ESP teaching material used in teaching process. We have shown that our students exhibited somewhat better overall performance after the implementation of the results of our research.

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СПЕЦИФИЧНОСТИ РАЗВОЈА КУРСА ЗА АКАДЕМСКИ ЕНГЛЕСКИ НА ЕЛЕКТРОНСКОМ ФАКУЛТЕТУ У НИШУ И ЕЛЕКТРОТЕХНИЧКОМ ФАКУЛТЕТУ У БЕОГРАДУ

Резиме

У овом раду је приказан развој курса енглеског језика за академске потребе које аутори примењују од почетка болоњске реформе на Електронском факултету у Нишу и Електротехничком факултету у Београду. Описани су курсеви који се изучавају као обавезни предмети на поменута два факултета. Аутори су узели у обзир најновија достигнућа из области енглеског за специфичне

сврхе, затим анализирали постојеће уџбенике, а затим имплементирали своје налазе у процесу наставе. Постигнути су значајни резултати у вези са општим перформансом студената који у светлу оваквих промена академског енглеског могу да стичу још практичнија знања која су им неопходна, а нарочито из области енглеског за електронику, електротехнику и информационе технологије.

Кључне речи: енглески за електронику и информационе технологије, садржај, концептуализација предмета, процена потреба.