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**REFORMING THE STUDY PROGRAMS AND CURRICULA AT
THE STS. CYRIL AND METHODIUS UNIVERSITY IN SKOPJE
FROM THE PERSPECTIVE OF THE PROVISIONS
OF THE BOLOGNA DECLARATION**

A Case Study (January 2003)

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Table of Contents:

I.	<u>Background</u>	2
1.	<u>Trends and challenges facing the Ss. Cyril and Methodius University</u>	3
	<u>1.1. University's size and structure</u>	3
II.	<u>Curricula Status in view of the Provisions of The Bologna Declaration</u>	5
1.	<u>Curricula reform and development</u>	6
	<u>1.1. Higher education degrees' structure and their duration</u>	8
	<u>1.2. Credit system</u>	9
	<u>1.3. Institutional quality of culture, accreditation and recognition of qualifications</u>	18
2.	<u>Envisaged developments</u>	19
III.	<u>Conclusions</u>	21

I. Background

Ss. Cyril and Methodius University in Skopje (further in the text UKIM) is the first Macedonian state university founded by the Law of the Assembly of the National Republic of Macedonia in January 26, 1949, as a scientific and educational institution of the National Republic of Macedonia. Nowadays, its activities are regulated by the Law on Higher Education as well as by the University Statute.

Ss. Cyril and Methodius University in Skopje represents a higher education institution comprising 24 faculties, 10 scientific institutes and 6 accompanying members.

UKIM is an autonomous, scientific and higher educational university cherishing and developing its own traditional and national features such as the Macedonian language, the history, the literature and culture of the Macedonian people, the cultural values of the ethnic communities in the Republic of Macedonia etc. UKIM also organizes and develops the scholar, research and applicative activities, produces highly-qualified and research staff at the undergraduate, postgraduate and doctoral studies. Thus, UKIM assists in the realization of the strategic routes of the development of the country and in its participation and affirmation within the international frames.

The teaching, educational, scientific, research, artistic and occupational activities of the University during its entire developmental period have been permanently constructed, broadened and improved.

The constant modernization of the teaching and educational activities has enabled an increase of the efficiency and productivity of the studying, and also a creation of the qualitative highly-qualified personnel trained to commit themselves to the processes of labour and to all flows of the social life as well.

The University carries out its scientific and research activities through the work of the research institutes and faculties i.e., through the serious commitment of the scholars in the realization of the scientific researches in all fields.

The artistic faculties have been carrying out developed activities in the domain of music, drama and fine arts, and culture in Macedonia.

As a result of the increased needs for use of the achievements of the information technology in the teaching and research process of the University i.e., for following and application of the contemporary trends in the information technology, the University Computer Network has been successfully functioning. The Network represents an adequate response to the challenges of the increased needs for modernization of the teaching and research process by creation of technical preconditions for constant realization of the contemporary teaching process in accordance with the world standards as well as creation of a technical basis for future implementation of the University information system.

The teaching, scientific and artistic personnel of the University represent a fundament for successful realization of the University overall activities. It is also a very significant precondition for the whole production and overall technical, technological, social and cultural development of the Republic of Macedonia.

The University international cooperation is effected through inter-country, inter-university and inter-faculty agreements for educational, scholar and cultural cooperation. The University has so far signed 70 inter-university agreements on cooperation with universities from many countries in Europe and throughout the world. The Ss. Cyril and Methodius is a member of the European Association of Universities (CRE), the International Association of Universities (IAU) and is also a signatory of the Magna Charta, etc.

The International Seminar on Macedonian Language, Literature and Culture and its Summer School attended by numerous professors and students from foreign universities as well as the work of the Macedonian language departments located at many foreign university centres, has an important role within the frames of the University activities.

1. Trends and challenges facing the Ss. Cyril and Methodius University

UKIM has been thoroughly contributing to the realization of the sustainable development and improvement of the society fulfilling its mission focussed on education, training and research. The University carries out its mission through sustaining, strengthening and developing of:

1. academic freedom, freedom of speech and diversity rights;
1. access equality;
2. openness and transparency;
3. faculties and students as main participants;
4. promotion of the participation and role of the woman;
5. promotion of the knowledge by researches in the natural and classical studies and arts, and results' dissemination;
6. relevantly based long-term orientation;
7. order and stability;
8. strengthening of the cooperation in the sphere of the labour and analysis and anticipation of the social needs;
9. introduction of the diversity for larger equality of the opportunities;
10. innovative educational approaches: critic opinion and creativity.

1.1. University's size and structure

The present structure of the Ss. Cyril and Methodius University in Skopje can be illustrated with the following figures: over 36,000 students from Republic of Macedonia as well as 700 foreign students are enrolled at all faculties; around 2,300 teaching and scientific staff and associates are engaged in the teaching, educational and scientific process at the faculties and around 300 at the institutes.

In its up-to present development over 90,000 acquired their Bachelor degree, 5,000 candidates obtained their master's degree while over 2,000 became doctors of science. In accordance with the Law on Higher Education (articles 33 and 38), the higher educational institutions – an university, a faculty, an occupational college are founded by the Assembly of Republic of Macedonia on the basis of a project prepared by the Government of Republic of Macedonia and judgement of the Board of Accreditation. The research institutes are founded by decision of the Government of Republic of Macedonia that also gives approval to their statutes carried by the boards of the research institutes.

The organizational structure of the faculties (institutes, departments, centres etc.) is stipulated by the faculties' statutes carried by the teaching and scholar boards and approved by the University Senate. Statutes come in force by their publishing in the University Gazette.

UKIM carries out and organizes its mission through the following long-term strategic goals:

- to create and develop science by application of the European scholar criteria and standards in all scientific fields: social, classical, natural sciences and mathematics, medical, bio-technical, technical scholar fields and arts;
- to organize studies, to transfer knowledge and to produce highly-qualified and scholar personnel at undergraduate, postgraduate and doctoral studies for the needs of all spheres of the social development – the economy and social activities i.e. the private and public sector, the national institutions, the education, the art, the culture etc;
- to provide development of the institutions of special national interest for affirmation of the Macedonian language, history, literature and culture (the International seminar on Macedonian language, literature and culture, the Institute of national history, the Institute of Macedonian language, the Institute of folklore);
- to provide organization of interdisciplinary and multidisciplinary studies for producing new type of profiles of staff;
- to provide equal approach to the higher education based on the intellectual competence guaranteeing social equity.

UKIM aims to be a national university developing study programmes in all scientific fields – social, technical, natural sciences and mathematics, medical, bio-technical sciences and arts.

UKIM by joining the Bologna Process committed itself to fulfill the requirements expressed in the Bologna Declaration: degree structures and curricula, credit systems (accumulation and transfer of study credits), recognition of degrees, promotion of mobility, quality assurance and accreditation, “European dimension”, lifelong learning, role of higher education institutions and students, attractiveness of the European Higher Education Area (EHEA).

UKIM is the only university in Macedonia where besides the traditional university disciplines (medicine, philosophy, philology, law, economy, technical, natural sciences and mathematics, agriculture, forestry); separate study programmes are organized only within the frames of this University as a part of the overall higher educational system in Macedonia. The teaching is performed in Macedonian language while for the study groups for the Albanian language and literature and the Turkish language and literature at the “Blaze Koneke” Faculty of Philology and study groups for pre-school and school teachers at the “St. Kliment Ohridski” Faculty of Pedagogy in Skopje; it is performed in Albanian and Turkish language. Despite teaching at separate study programmes at postgraduate studies performed in English, UKIM will develop opportunities for introduction of teaching at undergraduate studies in one of the world languages (English). The continuous determination of UKIM is to establish new study programmes for producing new profiles of staff for the needs of economy,

public sector and culture with separate emphasis on promotion of multidisciplinary and interdisciplinary studies within the frames of UKIM as well as in the contents of the international university cooperation.

II. Curricula Status in view of the Provisions of The Bologna Declaration

The UKIM Work Programme anticipates activities for further modernization of teaching and educational process and within its frames a review of the study programmes and curricula, the existing departments, study groups, the norms and standards for performance of qualitative and efficient teaching, the study regime etc. In this respect, the University has launched activities for realizing these goals although during the process of determination of the new concepts of contemporary solutions the question of yet not-established new system of financing the higher educational activities represented a serious obstacle. In spite this fact, few faculties have already launched a phase of preparation and proposal of new curricula and study programmes. Thus, the questions for review of the existing, termination, temporary stop and establishment of new departments and study groups has been actualized.

The UKIM Work Programme determines the following goals:

- **modernization of study and subjects' programmes**
- **introduction of credit transfer system** in the studies within the frames of further Europeanization and internalization of the higher education implying flexibility and dynamics in functioning, broadening and dynamics of the qualified profiling, compatibility with the developed educational systems for providing validity and acknowledgement of diplomas, and in that respect, promotion of postgraduate and doctoral studies.
- **placement of the student and his needs in the centre of the educational process**, which means a turning point as an orientation for the transformation of the educational process from offering mainly positivistic knowledge into a process of permanent learning, introduction of new technology for knowledge acquirement – how to acquire knowledge as an individual need of the student, as an approach stimulating constant will of the student for learning during the studies and his entire working experience, as a process of developing creative elements of the student – a person to whom education, a flexible education adjusted to his needs, personal abilities and ambitions, is devoted.
- establishment of **qualitative academic standards by incorporation of culture of quality and instruments for its assessment** at systematic and institutional level as well;
- development of **system of finance** that apart from **the basic state finance** includes **discovering stable sources of finance** that are of particular public interest for education and science as well as discovering **other sources of finance**;
- promotion of principles for **academic freedom and institutional autonomy** as basic presumptions for the overall academic life and functioning and development of the higher educational and scientific university institutions;

- building a university organizational structure with features of a **responsible, firm and coherent whole constantly affirming and strengthening its role, place and meaning**, its authority and name in its country as well as in the international community.

1. Curricula reform and development

Based on the UKIM Statute, the University Board on its 26th session held in April 16, 1997, adopted **Criteria for establishment of study groups and departments and curricula modernization of the UKIM faculties.**

Two significant principles were the starting point for the Criteria for establishment of study groups and departments – the **need i.e., the justification** for establishment of new departments and study groups and the compatibility to the contemporary European tendencies of **the curricula model and structure.**

The basic elements for the need i.e., justification for establishment of new departments derives from the following principles:

- ◆ **Deficiency of certain profile highly-qualified personnel** – implies an existence of expressed need for certain type of profile for the needs of the manufacturing and social activities in Republic of Macedonia. Apart from the state many other institutions and subjects can participate in the determination of the necessary profiles of staff taking into consideration the labour market and the needs of citizens for obtaining highly-qualified education. Separate economy subjects for staff necessary for their own development can express the deficiency as well.
- ◆ **Particular personnel needs for the educational system** – implies that the education of profiles of trained staff for the needs of the elementary and secondary education in Macedonia, should be an expression of the new processes and changes of educational system and should derive from the needs for this type of staff determined by authorized institutions in the Republic.
- ◆ **Providing presumptions for departments' functioning** – implies the necessity of spatial, personnel and material conditions, equipment, literature etc. for carrying out contemporary and qualitative teaching and educational activity at each department.
- ◆ **Flexibility and dynamics in the departments' functioning** – means when new studies and departments are established according to determined needs in a certain period, the temporary stop i.e., reactivation of separate departments or their eventual termination should be considered.
- ◆ **International cooperation and exchange in the teaching and educational process** – means that the establishment of certain departments can derive from agreements for mutual cooperation between the faculties, the University or the Republic with institutions i.e., countries from Europe and throughout the world for profiling various profiles of staff from mutual interest.

The contemporary model and structure of the curriculum for certain departments and study groups should be based on European models and standards and it should provide an open, flexible and efficient education from the aspect of the contemporary

trends for internationalization i.e., Europeanization of the higher education, international comparability and mutual diploma recognition.

In order to pursue these goals the following principles shall be taken into consideration during the preparation of the curricula model and structure:

- **Modular curriculum** – that means surpassing the existing model of curricula with fixed subjects and constructing a structure of curricula comprising obligatory, elective and facultative teaching disciplines. Such curricula should provide the choice of teaching disciplines for separate teaching profiles to be concord to the profile's demands where generally educational and generally specialized, narrow-specialized, and practical and applicative subjects shall come to the fore.
- **Compatibility to the developed educational systems** – implies employment of the experiences of developed higher educational systems for the curricula correspondence to such curricula for education of qualified profiles in respect of the type and application of the teaching disciplines. The compatibility provides an increase of the degree of expert education, mutual recognition of diplomas, and generally, making presumptions for participation of the graduated staff at the European as well as the world labour market. In cooperation with the faculties, the University shall create mechanisms for determination of curricula compatibility to the proper developed higher educational systems.
- **Interdisciplinary and multidisciplinary approach** – implies participation of large number of faculties in determination and realization of curricula for profiling new types of qualified staff within the frames of the University as well as in the international cooperation. By rule the carrier of these studies should be the faculty participating with largest number of teaching disciplines.

The projects for establishment of new study groups and departments, the preparation of curricula and their modernization at the UKIM faculties, should be inevitably in accordance with all elements contained in these criteria.

UKIM faculties are in charge of teaching, curricula and programmes i.e., according to the present terminology determined by the Law – *study and subject programmes* (curricula). Teaching and scientific boards carry the study and subject programmes. The Rector's Board approves the study programmes. The subject programmes are prepared and proposed by the subject professors who have complete academic freedom and responsibility for their performance.

UKIM participates in carrying the study programmes by reviewing them, that is carried by a separate Commission for teaching and scientific matters authorized to give remarks, proposals and suggestions while the Rector's Boards gives approval. UKIM has legal obligation to publish publicly the study programmes straightforwardly before the public announcement for entry of students in the first year. It means that the carrying of the study programmes is performed at the central level (study programmes can not be organized without consent of the Rector's Board). UKIM does not have any authority in preparation and carrying the subject programmes, which means that the faculties are completely in charge of this matter.

The academic studies of the UKIM faculties are organized in studies, departments and study groups. At separate faculties within the frames of their studies, departments and study groups there are specialties defined in the study programmes. Students during their entry opt for the study profile. The profiling by rule begins with the entry itself.

This section describes the current status of the study programmes' organization emphasizing that UKIM faculties presently have intensive activities for curricula change and modernization, a construction of new, contemporary organizational structure of studies, departments and study groups with visible modernization technology of the teaching process.

1.1. Higher education degrees' structure and their duration

The UKIM study programmes are organized at undergraduate and postgraduate studies.

Undergraduate studies at larger number of faculties last 8 semesters or 4 years while at separate faculties i.e., studies they last 10 semesters or 5 years (for example technical studies), and 12 semesters or 6 years (for example medical studies). Upon successful completion of the studies the title Bachelor of Science in the proper field is obtained.

The main goal of the UKIM undergraduate studies of the university education – Bachelor of Science level is to secure broad knowledge about the proper field, to acquire capabilities and to develop critic, objective, creative and constructive approach in order to prepare the student to be included and to apply his knowledge in new problems relying on wide principles and approaches.

Within the frames of the new legislation, processes for introduction of study programmes lasting less than 4 years i.e., 4 semesters or 2 years, and 6 semesters or 3 years under the auspices of the undergraduate studies of the existing faculties without establishing new institutions, have commenced. Such study programmes shall create a new qualified staff within the frames of the undergraduate education which profiling is in the phase of analyzing and defining. Thus, at UKIM since the academic 2002/03 the realization of the Project for organization of studies for senior dentist technicians and senior dentist nurses at the Faculty of Dentistry has begun.

Apart from the undergraduate studies UKIM organizes study programmes at **postgraduate studies – specialist studies** lasting 2 semesters and **M.A. studies** lasting 3 or 4 semesters. Upon successful completion of these studies and defense of the specialist i.e., master's thesis, the title specialist or master of art in the proper qualified i.e., scientific field is obtained.

The **doctor's degree** at UKIM is acquired by registering, preparation and defense of doctoral dissertation in specific scientific field. The doctor's degrees are gained in all scholar fields. However, there are still not organized genuine doctoral studies but mentors lead up the candidates.

The study programmes' structure of the UKIM faculties derives from principles defined by the document *Criteria for establishment of study groups and departments and curricula modernization of the UKIM faculties*. One of these principles is the **modular curriculum** – which means surpassing the existing model of curricula with fixed subjects and constructing a structure of curricula comprising obligatory, elective and facultative teaching disciplines. Such curricula should secure a choice of teaching disciplines for separate teaching profiles to be concord to the profile's demands where the generally educational and generally specialized, narrow-specialized, practically applicative subjects shall come to the fore.

1.2. Credit system

Within the frames of the further Europeanization and internationalization of the higher education in Republic of Macedonia, UKIM has commenced a process of introduction of the so called **credit system in the study regime** at the University's higher educational institutions adequate to the European credit transfer system.

Realizing the Programme for modernization of the teaching and educational activities at the University's higher educational institutions, the UKIM Rector's Board at its session held in November 29, 2001, adopted the basic documents for introduction and coming to live of the credit system in the study regime:

- Book of rules for the uniform bases of the credit system and transfer from one to another higher educational institution within the frames of the Ss. Cyril and Methodius University in Skopje
- Book of rules for the uniform study rules at the Ss. Cyril and Methodius University in Skopje

By introduction of the credit transfer system (further in the text CTS), UKIM pursues to achieve the following goals:

- ❖ increased mobility of students at institutional and national level;
- ❖ precise insight in the work scope and expression of the burden of the student during the process of studying;
- ❖ developing and functioning of mechanisms for permanent pursuit of the student's progress according to his learning results;
- ❖ objectivity in evaluation and acknowledgment of learning results;
- ❖ realization of compatibility of study programmes at institutional and national level;
- ❖ establishment of international mobility of students and realization of compatibility of study programmes at international level according to the European credit transfer system principles;
- ❖ continuous transfer of the student's achievements from one to another institution;
- ❖ increased individualization during the studying;
- ❖ creation of bases for realization of the concept for lifelong learning.

CTS shall be applied in the realization of study and subject programmes for:

- ❖ undergraduate studies,
- ❖ postgraduate (specialist and M.A.) studies
- ❖ doctoral studies

Faculties and research institutes accredited for carrying higher educational activity for postgraduate and doctoral studies (further in the text scientific institutions) shall apply CTS.

The credit (C) is a relative numeric value allocated in the subject programmes describing the quantity of work of the student regarding the entire quantum of work needed to end one academic year at the faculty i.e. the scientific institution.

The number of credits for specific subject programmes is defined according to the lectures' attendance, realized consultations, successfully carried drills, successfully carried practical work, work out of a seminar paper, fieldwork, independent homework, learning in a library, mentorship of other students, carried or realized projects etc. The number of credits is defined for each subject programme separately.

The faculties i.e., the scientific institutions define the number of credits of the study and subject programmes as an annex to their statutes. The difference of the number of credits for the subject programmes can be most 2 credits defined on the basis of the number of classes and drills as well as other activities determined by the Book of rules and according to the burden of the student.

Credits can be assigned for different types of student's activities: successfully carried qualified practice, work out or realization of a project, participation to a symposium etc. The faculty i.e., the scientific institution determines the activities for which credits are allocated.

CTS credits can only be allocated to those students who satisfy the exam conditions and who successfully end the subject programmes.

The faculty i.e., the scientific institution determines the envisaged conditions for successful completion of the subject programmes of the students.

A student in order to gain a specific qualified preliminary should obtain a number of credits according to the following values: *one semester – 30 credits*.

The faculties i.e., the scientific institutions, if according to the studies' distinction, can not apply this standard (CTS), may determine larger credit's fond in compliance with the credit's proportion defined by the previous paragraph.

The criteria for credits for the elective and facultative subjects are the same as the ones for the obligatory subjects.

Within the UKIM frames there are many options for the proportion between the obligatory, elective (in the field) and optionally elective and facultative subjects in the subject programmes. Thus, this proportion can be as follows:

- obligatory subjects' credits..... to 60% of the total fond
- field elective subjects' credits.....to 30% of the total fond
- optionally elective subjects' credits... to 10% of the total fond
- facultative subjects' credits0% of the total fond

According to the study programmes' distinction, the proportion can be determined differently:

- obligatory subjects' credits..... to 60% of the total fond
- field elective subjects' credits.....to 20% of the total fond
- optionally elective subjects' credits... to 15% of the total fond
- facultative subjects' credits5% of the total fond

Or

- obligatory subjects' credits..... to 40% of the total fond
- field elective subjects' credits.....to 40% of the total fond
- optionally elective subjects' credits... to 15% of the total fond
- facultative subjects' credits5% of the total fond.

The faculty i.e., the scientific institution defines a different proportion between the subjects from the proportion determined in the previous paragraph of this article.

The faculty i.e., the scientific institution defines the condition and criteria for carrying the study programme. Such conditions and criteria should enable directing of a student to subjects that should be firstly passed in order to register other subjects he wants to exam.

The student has a right to divide the exams in different exam terms or to postpone them until he is ready for the exam i.e., exams.

The student advances during his studies through the number of realized credits.

The student can register a number of subjects that can have minimum 21 credits but no more than 40 credits per semester.

In continuation, as an illustration, we are presenting the new study programmes of the Faculty of Pharmacy in Skopje as one of the first faculties that has contemporary study programmes according to the credit transfer system of studying.

Study Programmes of the Faculty of Pharmacy

First semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFDP05	mathematics (2+3)	75	5,5	written and/or oral exam
FFDP07	biophysics (4+4)	120	9	written exam
FFIH01	general chemistry (2+2)	60	4	written and/or oral exam
FFIFH07	bases of molecular biology with gene-tics (3+3)	90	6,5	written exam
FFIF03	general botany (1+1)	30	3	written exam
	defense (2+1)	45	-	oral exam
	physical training and sport (0+2)	-30	2	
	TOTAL:	375	30	

Second semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFDP06	applied statistics (1+2)	45	3,5	written exam
FFIH02	inorganic chemistry for pharmacists (4+2)	90	7	written and/or oral exam
FFID04	pharmaceutical botany (2+2)	60	4	written exam
FFIH03	analytical chemistry 1 (2+4)	90	7	written exam
FFDP02	history of pharmacy (2+0)	30	3	written exam
	foreign language (2+2)	60	3,5	written and/or oral exam
	physical training and sport (0+2)	-30	2	
	TOTAL:	375	30	

Third semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFIH04	analytical chemistry 2 (2+5)	105	7	written exam
FFIH05	bases of organic chemistry (4+4)	120	8	written exam
FFDP08	physical chemistry for pharmacists (3+3)	90	6	written and/or oral exam
FFDP09	anatomy (1+2)	45	3,5	written exam
	foreign language (2+2)	60	3,5	written and/or oral exam
	physical training and sport (0+2)	-30	2	
	TOTAL:	420	30	

Fourth semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFIFH01	pharmaceutical chemistry 1 (2+2+1)	75	5,5	written exam
FFIH06	bio-organic chemistry 2 (4+4)	120	8	written exam
FFIH07	instrumental pharmaceutical analyses (3+3)	90	6	written exam
FFDP19	physiology (4+4)	120	8,5	written and/or oral exam
	physical training and sport (0+2)	-30	2	
	TOTAL:	405	30	

Fifth semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFDP 11	pathophysiology (3+1)with pathology (1+0)	60 15	5,5	written and/or oral exam
FFDP12	microbiology with parasitology (3+3)	90	6,5	written exam
FFDP13	general biochemistry (2+2)	60	4	written and/or oral exam
FFIFH02	medicine design and metabolism	105	7,5	written exam
FFIF02	phytochemistry (3+3)	90	6,5	written exam
	TOTAL:	420	30	

Sixth semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFIFH03	pharmaceutical chemistry 2 (4+4+1)	135	10	written exam
FFIF01	pharmacognosy (4+4+1)	135	10	written exam
FFIFT01	pharmaceutical technology 1 (2+4)	90	7	written exam
FFIPB04	hygiene (2+0)	30	3	written and/or oral exam
	TOTAL:	390	30	

Seventh semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFIFT02	pharmaceutical technology 2 (4+6)	150	10,5	written exam
FFIPB03	clinical biochemistry (3+4)	105	7	written exam
FFDP14	pharmacology 1 (4+3)	105	7	written and/or oral exam
FFIFH06	immunology with immunochemistry	75	5,5	written exam
	TOTAL:	435	30	

Eighth semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFIFT04	pharmaceutical technology 3 (3+5)	120	8,5	written exam
FFIFH04	pharmaco-computer science (2+2+1)	75	5,5	written exam
FFIFT04	bio-pharmacy (3+3)	90	6,5	written exam
FFIPB01	food and nutrition (3+3)	90	6,5	written exam
	elective subject from the A-	30	3	

	group			
	TOTAL:	405	30	

Ninth Semester

Subject code	Subject:	Classes (25+2)	C	Final grade
FFIPB02	toxicology (4+4)	120	8,5	written exam
FFIFH05	medicine analytics (3+5)	120	8,5	oral exam
FFIFT05	social pharmacy (2+0+1)	45	4	written exam
-	elective subject 1 (from the B group) (2+0+1)	45	4,5	
-	elective subject 2 (from the B group) (2+0+1)	45	4,5	
	TOTAL:	375	30	

Tenth semester

Subject code	Subject:	Classes (25+2)	C	Final grade
	qualified practice	300	20	
	diploma thesis	50	10	
	TOTAL:	350	30	

Elective subjects:

A-group

1. FFDP15, pharmacoeconomy
2. FFDP04, pharmacoepidemiology
3. FFDP03, public health

B-group

4. FFDP01, clinical pharmacy
5. FFIF05, phytotherapy
6. FFIF06, biotechnology
7. FFIFH08. pharmacogenetics
8. FFIPB05, study of food products
9. FFIF07, ecology
10. FFIFT06, cosmetology

Conditional credits

CONDITONS	examination periods		examination periods
<i>from the 1st semester</i>		<i>for the 2nd semester</i>	
<i>-general chemistry ⇒</i>	<i>February</i>	<i>-inorganic chemistry</i>	<i>June and September</i>
<i>-general botany ⇒</i>	<i>February</i>	<i>-pharmaceu-tical botany</i>	<i>June and September</i>
<i>- mathematics ⇒</i>	<i>February</i>	<i>-applied statistics</i>	<i>June and September</i>

-general chemistry ⇒	February	-analytical chemistry	June and September
none ⇒		-history of pharmacy	June and September
none ⇒		-foreign language (credit test)	June and September

	For the 3rd semester	examination periods
- inorganic chemistry ⇒	bases of organic chemistry	February
- analytical chemistry 1 ⇒	analytical chemistry 2	February
none ⇒	physical chemistry for pharmacists	February
none ⇒	anatomy	February
credit test from the 2 nd semester ⇒	foreign language	February

	For the 4th semester	examination periods
- bases of organic chemistry ⇒	-bio-organic chemistry	June and September
- physical chemistry for pharmacists ⇒ + <i>applied statistics</i> ⇒	-instrumental pharmaceutical analyses	June and September
- anatomy ⇒ + <i>biophysics</i> ⇒	- physiology	June and September
- inorganic chemistry ⇒	-pharmaceutical chemistry 1	June and September

	For the 5th semester	examination periods
none ⇒	- medicine design and metabolism	February
- bio-organic chemistry ⇒ - instrumental pharmaceutical analyses ⇒ + <i>pharmaceutical botany</i> ⇒	- phytochemistry	February
- physiology ⇒	-pathophysiology with pathology	February
- <i>bases of molecular biology</i> ⇒	- microbiology with parasitology	February
- bio-organic chemistry ⇒ - <i>bases of molecular biology</i> ⇒	-general bio-chemistry	February

	For the 6th semester	examination periods
- pathophysiology with pathology ⇒ - microbiology with parasitology ⇒ - <i>pharmaceutical chemistry 1</i> ⇒ + <i>bio-organic chemistry</i> ⇒	-pharmaceutical chemistry 2	June and September
- phytochemistry ⇒	- pharmacognosy	June and September
- physical chemistry ⇒	-pharmaceutical technology 1	June and September
none ⇒	- hygiene	

	For the 7th semester	examination periods
- pharmaceutical technology 1 ⇒	-pharmaceutical technology 2	February
- general biochemistry ⇒	-clinical biochemistry	February
- pharmaceutical chemistry 2 ⇒ + <i>pathophysiology with pathology</i> ⇒	- pharmacology	February
- <i>microbiology with parasitology</i> ⇒ + <i>pathophysiology with pathology</i> ⇒	-immunology with immunochemistry	

	For the 8th semester	examination periods
- pharmaceutical technology 2 ⇒	-pharmaceutical technology 3	June and September
- <i>pharmaceutical chemistry 2</i> ⇒	-pharmaco-computer science	June and September
- pharmaceutical technology 2 ⇒	- biopharmacy	June and September
- <i>general biochemistry</i> ⇒	- food and nutrition	June and September

Elective subjects:

- pharmacoecconomy, pharmacoepidemiology, public health

	For the 9th semester	examination periods
- clinical bioche-	- toxicology	February

mistry 2 ⇒ - pharmacology ⇒		
- pharmaceutical technology 3 ⇒ - <i>pharmaceutical che-mistry</i> 2 ⇒ + <i>instrumental pharmaceutical ana-lyses</i> 2 ⇒ <i>analytical chemistry</i> ⇒	- medicine analytics	February
- none ⇒	- social pharmacy	

	<i>elective:</i>	
biopharmacy ⇒	- clinical pharmacy	
- pharmacognosy ⇒	- phytotherapy	
- microbiology ⇒	- biotechnology	
- phytochemistry ⇒		
- immunology with immunochemistry ⇒	pharmacogenetics	
- food and nutrition ⇒	food products study	
- none ⇒	ecology	
- pharmaceutical technology ⇒	cosmetology	

Upon successful completion of the Faculty of Pharmacy studies in accordance with the international standards, the graduated students obtain the title *master of pharmacy*.

UKIM has continuously been taking care for promotion of **postgraduate and doctoral studies and their concord to CTS principles**. Thus, numerous activities for development and organization of postgraduate studies in order to be incorporated in the system of modern and productive studies have been undertaken, such as:

- re-examination and concord of the study and subject programmes of the postgraduate studies in accordance with the CTS, is in progress;
- a new legislation in a function of organizing postgraduate and doctoral studies as well as separate studies with international character at the University level using the personnel, technical and technological capacities within the frames of the University, economy and wider, is being created;
- activities of the higher educational and scientific institutions for re-examination of the placement, organization, place and role of these studies from the aspect of the elevation of level for creation of scientific and specialized personnel for strengthening the University personnel basis as well as the needs for the contemporary technical, technological, economy and social development;
- the criteria, conditions and procedure for organizing postgraduate studies and entry of candidates in a function of establishing higher mutual standards leading to further promotion of this significant activity of the University, are being reexamined;

- mutual studies with universities and institutions from developed European and world university centres have been initiated.

1.3. Institutional quality of culture, accreditation and recognition of qualifications

Pursuing the efforts for curriculum modernization, recognition of degrees and periods of studies by introduction of the Diploma Supplement, UKIM tends to establish curricula institutional and national compatibility. This Diploma Supplement follows the model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the Diploma Supplement is to provide sufficient independent data for improvement of the international ‘transparency’ and fair academic and qualified recognition of qualifications (diplomas, degrees, certificates etc.). Therefore, it is designed to provide a description of the nature, level, context, contents and status of the studies successfully pursued and completed by the individual - holder of the original qualification to which this supplement is appended. The supplement is free from any value judgements, equivalent statements or suggestions about recognition. It consists of eight sections where information relevant for establishing institutional and national compatibility to the UKIM study programmes is given.

The faculties i.e., the scientific institutions during the preparation of their study and subject programmes should provide their institutional and national compatibility and make conditions for transfer of the students from one to another study programme within the frames of the faculty i.e., the scientific institution of the University; then, they should provide conditions for transfer from one to another faculty i.e., the scientific institution out of the University in case when there are faculties i.e. scientific institutions producing same or similar profile of qualified personnel as well as transfer of students to the faculties abroad.

The compatibility from the previous paragraph does not represent identity but coordination of study and subject programmes between two institutions producing same or similar profile of qualified personnel.

In order to elevate the institutional quality of culture, the accreditation of UKIM and the international recognition of the acquired qualification within the frames of the improvement of the study programmes of undergraduate studies, UKIM is open for entry of foreign candidates. UKIM develops separate programmes for attraction of a larger number of foreign students, and in that respect, it will establish a separate fund for *stimulation of foreign students for learning the Macedonian studies* that will mean larger distinction of UKIM.

UKIM documents provide personnel and students mobility (horizontal and vertical). Students can transfer from one to another study programmes within the frames of a same faculty i.e., scientific institution while the transfer criteria are determined by the institution depending on the compatibility of the study programmes.

The students can also transfer from one to another faculty i.e., scientific institution within UKIM frames as well as other universities in the Republic of Macedonia. The

institutions define the transfer criteria depending on the compatibility of the study programmes.

Institutions sign mutual contract for cooperation defining the conditions and consent for transfer of students from one to another institution.

Faculties i.e., scientific institutions cooperating with higher educational institutions in the country and abroad in accordance with the regulations of the Books of rules for CTS introduction, can determine separate regulations for CTS application.

During the student's transfer from one to another faculty i.e., scientific institution, the student can be released from exams i.e., attendance to lectures of separate subjects if institutions between which the transfer is being carried, have a contract for mutual cooperation, or with a permission of the institution where the transfer is carried on the basis of previous insight in the contents and number of credits for the appropriate subjects – exams obtained by the student at the institution where he is coming from.

The student, during his studies, has a right to enroll new subjects of instruction that are not obligatory for acquiring a certain degree of qualification. He has also right to enroll new subjects of instruction at another faculty. This provision also concerns the students who already graduated.

2. Envisaged developments

For the further course of reforming UKIM study programmes and curricula, it is necessary to realize the following projects in the forthcoming period:

- The UKIM higher educational and accredited scientific institutions should concord their documents with the provisions from the *Book of rules for the uniform bases of the credit system and transfer from one to another higher educational institution within the frames of the Ss. Cyril and Methodius University in Skopje*, within 3 years period. Thus, latest until the beginning of the academic 2004/05-year, the only way to establish uniform regulations for studying according to the fundamentals of the credit system and transfer from one to another higher educational i.e., scientific institution of the University, will be established.
- The Book of rules for the uniform study rules at the Ss. Cyril and Methodius University in Skopje has come to force while the UKIM higher educational and accredited scientific institutions should concord their internal documents with the provisions of this Book of rules. Its application will begin after decisions of each faculty and scientific institutes respectively, but latest until the beginning of the academic 2004/2005-year.
- UKIM is in a phase of working out mechanisms of quality assessment of the faculties' teaching and educational activities, study programmes and academic staff.
- Within the frames of the further Europeanization and internationalization of the higher education, and also as a part of the modernization of the teaching and educational activities, UKIM introduces the so called credit system in the studying procedure which means flexibility and dynamics in

the functioning in order to provide validity and diploma recognition as well as recognition of parts of studying (exams, semesters) providing a *mobile student*, and also a dynamic and flexible system of studying.

- The procedure for grouping of the teaching disciplines into obligatory, elective and facultative by determining their proportion as well as one-semester, two-semester and multi-semester subjects have been launched.
- The types and number of departments, studies and study groups according to the standards for staff profiling and efficiency in carrying the curriculum with flexible approach in respect of the departments, studies and study groups, will be determined.
- Statutory legislation that will increase the extent of teaching staff's and students' engagement in a function of enlarging the efficiency and quality of studying, will be made.
- The University will participate in the projects for providing quality in the higher education such as: Diploma Supplement and transfer of exams and subjects of instruction – Erasmus, Socrates (TEMPUS through participation in JEPS and Compact measures, PHARE – Multicountry programme through the realization of the global projects, UNESCO etc.
- The opportunities for optimal profiling of new types of highly qualified staff by organizing interdisciplinary and multidisciplinary studies within the University frames as well in the contents of the international university cooperation will be anticipated.
- The intensive activities for establishing *European studies* at UKIM for the first time organized as undergraduate interdisciplinary studies are in progress. In realization of the teaching and educational process of the European studies in accordance with the accepted project within the frames of the TEMPUS programme the Ss. Cyril and Methodius University in Skopje, the Faculty of Economics, the Faculty of Law, the Faculty of Philosophy, the “Blaze Koneski” Faculty of Philology, the Institute of Sociological, Political and Juridical Research and St. “Kliment Ohridski” University in Bitola will participate.
- Since the academic 2002/03 year the functioning of interdisciplinary postgraduate studies of *foreign languages and international commerce* at the Faculty of Philology, the Faculty of Economics and the Faculty of Law representing a contemporary model of University postgraduate interdisciplinary studies under the auspices of the TEMPUS Programme, has begun.
- The new legal solutions stimulate the organization of interdisciplinary and multidisciplinary studies at UKIM level for producing new profiles of staff. The process of regulation of this type of studies has commenced, and the bringing of decision for the way of organizing, managing and carrying the higher educational activity for the interdisciplinary and multidisciplinary studies at the level of the universities in the Republic of Macedonia, is in course. This decision regulates series of open questions: the types and duration of these studies, the subjects that organize them, finance, the types and competence of the bodies, the way of carrying the instruction, the way of engagement and election of teaching and scientific staff and associates, the studying regulations etc. Upon bringing of this document, the UKIM Rector's Board should also bring a separate decision for organizing of the studies containing: the justification for organizing

study and subject programmes, the gained title, the regulations of studying, the financial plan, the number of enrolled students, the competence of the studies' bodies, the co-finance, the status of teaching and scientific staff and associates, the carrying of qualified, administrative and technical matters of the studies and other elements of significance for organizing these kind of studies. At the UKIM level, the fields where interdisciplinary and multidisciplinary studies will be organized should also be determined.

III. Conclusions

The attempt to approach the style of the European universities is one of the most significant UKIM activities. In that direction, significant endeavours have been undertaken in order to improve the faculties' curricula. The last two years passed in the spirit of "preparation" of all these problems at the faculties. The process of curricula concord is in progress in order to become compatible with the European ones. Somewhere, the curricula accreditation has been finished while somewhere it is still in course. Thus, in future, UKIM students will be able to study like their European colleagues.

The UKIM Rector's Board has brought the Book of rules for the uniform bases of the credit system and transfer from one to another higher educational institution within the frames of the Ss. Cyril and Methodius University in Skopje and the Book of rules for the uniform study rules at the Ss. Cyril and Methodius University in Skopje, as fundamentals for CTS introduction.

UKIM has introduced Diploma Supplement following the model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the Diploma Supplement is to provide sufficient independent data for improvement of the international 'transparency' and fair academic and qualified recognition of qualifications (diplomas, degrees, certificates etc.). Therefore, it is designed to provide a description of the nature, level, context, contents and status of the studies successfully pursued and completed by the individual - holder of the original qualification to which this supplement is appended.

The process of curricula modernization will continue in the following directions:

- providing mechanisms for quality assessment of the teaching and educational activities of the faculties, the curricula and the academic staff;
- introduction of the credit transfer system in the studying procedure implying flexibility and dynamics in the functioning in order to provide validity and diploma recognition as well as recognition of parts of studying (exams, semesters) providing *a mobile student*, and also a dynamic and flexible system of studying;
- consistent respect of the criteria for grouping the teaching disciplines into obligatory, elective and facultative by determining their proportion as well as determining of one-semesteral, two-semesteral and multi-semesteral subjects;
- determining the types and number of departments, studies and study groups according to the standards for staff profiling and efficiency in carrying the curriculum with flexible approach in respect of the departments, studies and study groups;

- observing the legislation for the engagement of the teaching staff and students in function of increasing the efficiency and quality of studying;
- determining programmes for profiling new types of highly qualified personnel by organizing interdisciplinary and multidisciplinary studies within UKIM frames as well as within the contents of the international university cooperation.

The entire process of curricula modernization, the improvement of the postgraduate and doctoral studies i.e., their growing into genuine regular studies as a higher extent of continuance or upgrade of undergraduate studies, will be carried coordinately with further legislation improvement. It means creation of conditions for construction of new system of doctoral studies from the present individual studies coordinated by mentor into teaching for candidates with clearly nominated elements of the research fields, determined duration of studies as well as determined timing procedure for the preparation of the dissertation.

Directly related question of curricula modernization is the increase of quality and efficiency of studying. This task has been carried by UKIM by:

- ❑ improvement of the equipment for carrying the teaching, the educational and the scientific work;
- ❑ increase of the UKIM personnel potential especially associates;
- ❑ modernization of the way of realization of the teaching and exams with persistent respect of the regulation for continuous evaluation;
- ❑ stimulation of talented students for making conditions for flexibility in studying with opportunities for simultaneous studying of talented students at few faculties;
- ❑ opportunity for acquiring credits at other appropriate faculties within the frames of the universities in the Republic of Macedonia.

The Ss. Cyril and Methodius University is deeply involved in the reforms of the higher educational activity, and it is strongly determined to become a part of the European area of knowledge. The entire transformation of the University to be realized in the given period due to the emphasized need for carrying dynamics of changes compatible with the dynamics of changes in South-East European countries and their approach to developed countries in the world, is of great significance. The higher education is a component and inseparable element of the development of all countries including Republic of Macedonia. Therefore, UKIM moves towards accelerated transformation of its entire posture and establishing a quality appropriate to the needs of the country and transparent and compatible within international frames. Surpassing relapses of the past and implementation of the internationally acknowledged norms and standards is an imperative in the University development in the following period. Only in this way the University will entirely fulfill its function at national and international level as well.

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