AL-FARABI KAZAKH NATIONAL UNIVERSITY

_Faculty of_Chemistry and Chemical Technology faculty

Department _Chemistry and Technology of Organic Materials, Polymers and Natural Componds_____

Confirmed
On the Scientific Council Meeting Faculty
Protocol №_10_ from __28 May__ 2013
Dean of the faculty
_____ Ongarbayev

Approved by the University scientific-methodical Council meeting
Protocol №_6_ from _21.__June.__ 2013
Vice-Rector for Academic Affairs
_____ Akhmed-Zaki D.Zh.

"__21___"_____June_____2013

Educational-methodical complex of the discipline

_____ Macromolecules Mechanism Formation
(discipline name)

Speciality Code _ 6M060600 - Chemistry_____
(code, speciality)

Education Form full time _____
(full time, part-time)

Almaty 2013

Educational-methodical complex of the discipline is compiled by Prof. Mun G.A. on the basis of experimental educational program and catalogue of elective disciplines of specialty 6M060600-Chemistry;

Considered and recommended at the chair meeting of Department of chemistry and chemical technology of organic substances, natural compounds and polymers

On "_14_" _____May_____ 2013, Protocol №_40_

Head of the Chair _____prof. Abilov Zh.A.

Recommended at the methodical Council (bureau of the faculty)

On «_23_»___May__ 2013, Protocol №_9_

Chairman_____ Syzdykova L.I.

Al-Farabi Kazakh National University
Chemistry Faculty
Department of Colloidal and Macromolecular Chemistry

Approved by the Academic Council
of Chemistry Faculty
Protocol №_10_ from "28"_May__ 2013
The Dean of Chemical Faculty
_____Ongarbayev E.K.

Macromolecules Mechanism Formation 3 credits
SYLLABUS

Speciality Code 6M060600 -Chemistry
(code, speciality)

INFORMATION about lecturers:

Professor of Department of chemical technology of organic substances, natural compounds Mun G.A.
Working tel.: 393-1912, mobile 87015229001
e-mail: Grigoriy.mun@kaznu.kz
office: 411

In a special lecture course new approaches in the synthesis of hydrophilic thermo-sensitive polymers with linear and network structure, peculiarities of the physical and chemical behaviors of linear temperature sensitive copolymers and hydrogels based on them, the basic laws of the interaction of these stimuli-responsive polymers with surfactants and polycarboxylic acids are described. The prospects of using temperature sensitive polymers in biomedicine and nanotechnology are discussed.

The theoretical knowledge in the field of thermo-sensitive polymers will be assigned during the performance of the following labs:

1. Synthesis of thermo-sensitive copolymers of linear and crosslinked structure with controlled hydrophilic-hydrophobic balance of macrochain. Study of their stimulus-responsive behavior (3 hours).
2. Study of intermacromolecular reactions involving thermo-sensitive copolymers (3 hours).

The purpose of the course is to introduce students with the basic modern achievements in the synthesis and study of physico-chemical behavior of water-soluble and water-swelling thermo-sensitive polymers as well as the prospects for their practical use in biomedicine and nanotechnology.

The tasks of the discipline to familiarize students:
- with the advantages of the new approach in the synthesis of thermo-sensitive polymers, developed at KazNU as compared to the traditional ones;
- with the peculiarities of physical and chemical behavior of water-soluble and water-swelling thermo-sensitive polymers;
- with the basic regularities of interaction of thermo-sensitive polymers with ionic surfactants and polycarboxylic acids;
- with the prospect of using of temperature-sensitive polymers in biomedicine and nanotechnology;

As a result of gaining this course students should know:

- the peculiarities of traditional and new approaches in the synthesis of thermo-sensitive polymers, developed at KazNU;
- the basic regularities of physical and chemical behaviors of water-soluble and water-swellable thermo-sensitive polymers;
- the main features of reactions of interaction thermo-sensitive polymers with ionic surfactants and polycarboxylic acids;
- the prospects of using of temperature sensitive polymers in biomedicine and nanotechnology;

As a result of gaining of this course students should be competent to:

- in the field of synthesis of hydrophilic thermo-sensitive polymers with linear and network structure;
- in the basic laws of physical and chemical behaviors of water-soluble and water-swellable thermo-sensitive polymers;
- in the field of the most important features the reactions of interaction of thermo-sensitive polymers with ionic surfactants and polycarboxylic acids;
- the use of temperature sensitive polymers in biomedicine and nanotechnology;

As a result of the earning this course students will acquire the following skills:

- skills on the synthesis of new hydrophilic thermo-sensitive copolymer of linear and network structure;
- skills on research of behavior and physical and chemical properties of water-soluble and water-swellable thermo-sensitive polymers;
- skills on research the reactions of interaction thermo-sensitive polymers with polycarboxylic acids;

The policy of academic behavior and ethics

Be tolerant and respect other people's opinions. Objection must be formulated in the correct form. Plagiarism and other forms of cheating are not allowed. Prohibited copying and prompting during the delivery of CPM, interim monitoring and examination, copying, solved problems of others, passing the exam for another student. The student, caught in the rigging of any information of the course will receive a final grade «F».

Оценка по буквенной системе	Цифровой эквивалент баллов	%-ное содержание	Оценка по традиционной системе
A	4,0	95-100	Отлично
A-	3,67	90-94	
B+	3,33	85-89	Хорошо
B	3,0	80-84	
B-	2,67	75-79	
C+	2,33	70-74	Удовлетворительно
C	2,0	65-69	
C-	1,67	60-64	
D+	1,33	55-59	
D-	1,0	50-54	
F	0	0-49	Неудовлетворительно
I (Incomplete)	-	-	«Дисциплина не завершена» (*не учитывается при вычислении GPA)*
P (Pass)	-	-	«Зачтено» (*не учитывается при вычислении GPA)*
NP (No Pass)	-	-	«Не зачтено» (*не учитывается при вычислении GPA)*
W (Withdrawal)	-	-	«Отказ от дисциплины» (*не учитывается при вычислении GPA)*
AW (Academic Withdrawal)			Снятие с дисциплины по академическим причинам (*не учитывается при вычислении GPA)*
AU (Audit)	-	-	«Дисциплина прослушана» (*не учитывается при вычислении GPA)*
Атт.		30-60 50-100	Аттестован
Не атт.		0-29 0-49	Не аттестован
R (Retake)	-	-	Повторное изучение дисциплины

The head of department of chemistry and technology of organic compounds, natural substances an polymers, prof. Abilov Zh.A..

Prof., Mun G.A.