[A-3]COURSE SYLLABUS

1. Course Description (Approximately 100 words)

Processes and devices of chemical technology: General information on processes and devices of chemical production in chemical industry enterprises. Hydromechanical processes: Hydrostatic pressure, the differential equation for the liquid balanced condition. Actual fluid movement modes: Turbulent and laminar regimen, ideal compression model. Hydraulic resistance: Local resistance. Liquids and gases: Hydraulic machines, types of pumps.Thermodynamic basis of gas compression: Isothermal and adiabatic processes. Separation of liquid homogeneous systems: Stox's equation. Filtering: Filter mode, filtering continuity. Centrifugal drowning: Hydrocyclones. Ultrafiltration: purity rate, cleaning methods. Heat Exchanging Processes: Heat transfer, heat balance. Metabolic process: types of modification processes, balance rules. Extraction of liquids: basic methods of extraction. Crystallization: Equilibrium and velocity of crystallization. Crystallizers: mixing, continuous vacuum crystallizer.

2. Course Goals and Objectives (Approximately 100 words)

The aim of the course "Processes and devices of chemical technology" is to create the following skills:
- trends in the development of processes and equipment of chemical technology;
- designs of process equipment;
- classification of processes and devices of chemical technology, their differences, advantages and disadvantages;
- production methods of technological processes in the manufacturing industry;
- create material and thermal balances of devices;
- carrying out hydraulic calculations on the instruments;
- determination of optimal dimensions and their optimal design due to the technological consumption of devices;
- accurate determination of the geometric proportions of the calculated parameters of the elements of the device;

3. Textbook (Title, Author, Publisher, Year of Publication, etc.)

1. Kimyoviy texnologiya asosiy jarayon va qurilmalari. Yusupbekov N.R., Nurmuhammedov H.S., Zakirov S.G. Fan va texnologiya, 2015, 848 b.

2. Методы расчета процессов и аппаратов химической технологии (примеры и задачи). П.Г. Романков, В.Ф. Фролов. ХИМИЗДАТ, 2009, 496 с.

3. Chemical Technology and Pollution Control.Martin B. Hocking. Elsevier-Academic Press. 3rd Edition, 830p.

4. Reference

1. Учебно-методическое пособие к выполнению курсовой работы по предмету «Процессы и аппараты химической технологии».Мухитдинов Д.П., Авазов Ю.Ш. ТГТУ, 2015, 70 с.

5. Course Requirements and Grades

Course prerequisites:
Students should have the knowledge of “Higher mathematics”, “Physics”, “Drawing”, “Theoretical mechanics”.
Grading System:
Homework 15%
Design Project 15%
Mid-term Exams 35%
Final Comprehensive Examination 35%
Total 100%
5=86-100%
4=71-85%

6. Course Calendar

Week	Main Content
1	Kimyoviy texnologiyaning jarayonlari va qurilmalari
2	Gidromexanik jarayonlar
3	Haqiqiy suyuqliklarning harakat rejimlari.Gidravlik qarshiliklar
4	Mavhum qaynash qatlamining turlari va gidrodinamikasi
5	Suyuqlik va gazlarni uzatish.Gaz siqishning termodinamik asoslari.
6	Suyuqlik muhitlarida aralashtirish, suyuqlikli turli jinsli tizimlarni ajratish
7	Fil’trlash.Markazdan qochma kuch ta’sirida cho’ktirish
8	Ul’trafil’trlash
9	Issiqlik almashinish jarayonlari.Issiqlik o’tishi
10	Isitish, sovitish va kondensatsiyalash.Issiqlik almashinish uskunalari
11	Issiqlik almashinish uskunalarini hisoblash
12	Bug’latish. Modda almashinish jarayonlari
13	Absorbtsiya jarayoni.Suyuqliklarni haydash
14	Quritish jarayoni.Suyuqliklarni ekstraktsiyalash