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LECTURES ON THE COURSE: FUNDAMENTAL PROCESSES

AND DEVICES
OF CHEMICAL TECHNOLOGY



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The manual contains brief lecture notes covering theoretical foundations
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The manual is intended for students of the faculty of chemistry and chemical
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INTRODUCTION

Changes in the condition of substances happening under these or those conditions are called processes. In the environment surrounding us the phenomena called natural processes are observed. For example, evaporation of water from the surface of reservoirs, heating and cooling of the Earth's surface under the influence of various factors, driving of water in the rivers, ice melting, removal of moisture from various materials or substances and many others. Studying of natural processes is a subject of physics, chemistry, mechanics and other natural sciences.

On the basis of the data obtained as a result of studying of natural processes and the analysis of achievements of science and technology scientists develop and realize numerous commercial processes for the purpose of processing of natural products (raw materials) in order to produce products and consumer goods. Such processes are called *production*, or *technological* processes.

The modern engineering chemistry studies production of various substances: products of petroleum refining, mineral coal and natural gas, organic and mineral substances, polymeric and other materials. However, despite a huge variety of chemicals, their production is connected with carrying out of a number of the same processes – such as movement of liquids and gases, heating and cooling, concentrating of solutions of solid substances, separation of gas or steam and liquid mixtures, drying, chemical interaction, etc. These processes are characterized by the common laws of hydromechanics, physics, physical chemistry, chemical kinetics, mechanics of solid bodies.

The devices of various designs used for the same purpose in various branches of engineering chemistry are also characterized by similarity.

107	C	132	C	158	A		
108	B	133	B	159	B		
109	C	134	D	160	C		
110	C	135	B	161	C, F		
111	A, D	136	A	162	B, E		
112	A, E	137	C, F	163	D, E		
113	C, D	138	C, F	164	B, E		
114	B, E	139	B, E	165	C, F		
115	B, F	140	B, F	166	A, E		
116	A, C	141	D, F	167	A, E		
117	C, F	142	A, C	168	D, F		
118	D, F	143	B, E	169	C, F, H		
119	A, D, H	144	A, B	170	A, C, E		
120	A, B, C	145	A, D, F	171	B, D, F		
121	A, B, C	146	A, D, F	172	C, E, F		
122	B, C, D	147	C, D, E	173	B, C, E		
123	A, B, D	148	A, C, E	174	B, E, H		
124	C, E, G	149	A, C, G	175	A, C, G		
125	A, C, G	150	B, D, F	176	A, C, G		
126	A, D, F	151	A, C, G				
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