



**YOZGAT BOZOK UNIVERSITY FACULTY OF ARTS AND SCIENCES**  
**CHEMISTRY DEPARTMENT COURSE PLAN**

Course Code	Course Title	Semester	Course Type (C/E)	T+A+L (Time/Week)	Credit	ECTS	Course Language
KİM703	Computer Technologies for Chemists	1-2	E	2+0+0	1	4	Turkish

**COURSE INFORMATION**

<b>Course Catalog Description (Content)</b>	This course teaches the fundamentals of computer programming and demonstrates computer programming and computation methods in Visual Basic and Excel. It also teaches solutions and applications of chemistry problems in Visual Basic and Excel.
<b>The Aim of the Course</b>	To teach the computer programming logic, to teach the knowledge to create a flow diagram, to be able to program in Visual Basic and Excel.
<b>Course Level</b>	Bachelor degree
<b>Course Language</b>	Turkish
<b>Teaching method</b>	(X) Formal ( ) Online ( ) Mixed/Hybrid
<b>Teaching Staff of the Course</b>	Prof. Dr. Mustafa SAÇMACI
<b>Prerequisite Course(s) of the Course</b>	
<b>Learning Outcomes from the Course</b>	<ol style="list-style-type: none"><li>1. Recognizes programming languages.</li><li>2. Learns programming logic.</li><li>3. Have basic knowledge about Visual Basic.</li><li>4. Learns how to program with the help of Visual Basic language.</li><li>5. Learns basic information and basic commands about EXCEL.</li><li>6. Learns basic functions such as creating data and writing formulas in EXCEL.</li></ol>

**COURSE CONTENT**

Week	Theory	Practice/Laboratory
1	Personal computer use	
2	Introduction to programming and Visual Basic language	
3	Visual Basic editor and basic commands and loops	
4	Flow charts and control of program flow	
5	Applications of Visual Basic on PC	
6	Applications of Visual Basic in chemistry	
7	Introduction to EXCEL	
8	Basic commands and functions used in EXCEL	
9	Data creation and formula calculation	
10	Graphing and fitting polynomials	
11	Use of logical functions	
12	Vectors and matrices	
13	Solution of equation sets in EXCEL	
14	Solution methods of various problems in chemistry in EXCEL	
15	Final Exam	

**Course Learning Resources**

1. M. Uysal, "Software Development with Microsoft Visual Basic", 1997, Beta Publishing, Istanbul

2. E.J. Billo, "Excel for Scientists and Engineers Numerical Methods", 2007 John Wiley & Sons, Inc., New Jersey

### ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework	1	%30
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	2	%35
Ratio Of Semester Studies To Semester Success (%)		%40
Ratio of Final to Success (%)	1	%60
Total		%100

### COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Theory	14	2	28
Practice			
Forum/ Discussion Application			
Reading	14	2	28
Internet Scanning, Library Study	14	2	28
Material Design, Application			
Report Preparation			
Presentation Preparation			
Presentation			
Final Exam	1	2	2
Preparation for the Final Exam	3	6	18
Other(s) (Specify: ... ..)			
Total Workload			
Total Workload / 25 (s)			104/25
ECTS Credits of the Course			104/25 $\cong$ 4

Note: The workload of the course will be determined by the instructor on a per-course basis.

### PROGRAM LEARNING OUTPUTS CONTRIBUTION LEVELS

No	Program Learning Outputs	1	2	3	4	5
1	Gains extensive knowledge about the basic chemical properties of matter and uses this knowledge in daily life, industrial scale, and practical chemistry and shares them with the society.				X	
2	Performs experiments, collects data, interprets, evaluates results, defines problems parallel to current technological developments, produces solutions against problems encountered in the laboratory.		X			
3	Calculates and processes chemical information and data.			X		
4	Applies her/his knowledge and understanding of chemistry to the solution of unconventional qualitative and quantitative problems.				X	
5	Defines and comprehends chemical concepts and theories in Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Analytical Chemistry, Biochemistry.				X	
6	Can conduct research in the light of scientific data on any subject in the field of chemistry.					X
7	Writes, presents, discusses scientific material, and presents it orally to a knowledgeable audience.			X		

<b>8</b>	Brings a chemical approach to the solution of environmental problems, makes environmental analyzes and reports.		<b>X</b>		
<b>9</b>	Knows a foreign language at a level to read and understand the basic terms and processes of the chemist profession.			<b>X</b>	
<b>10</b>	Can use computer software and information and communication technologies at the level required by the field.				<b>X</b>
<b>11</b>	Adapts and transfers the knowledge gained in the field to secondary education.			<b>X</b>	
<b>12</b>	Apart from the field of chemistry, she/he gains knowledge in different branches of science that she feels close to.				<b>X</b>
<b>13</b>	Carries out a study independently, makes group work and gains the awareness of taking responsibility.				<b>X</b>
<b>14</b>	They can develop a positive attitude towards lifelong learning and constantly renew their professional knowledge and skills.				<b>X</b>
<b>15</b>	Have sufficient awareness of the universality of social rights, social justice, quality culture and protection of cultural values, environmental protection, occupational health and safety.			<b>X</b>	

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