





	<p><b>6. Office hours</b>      <b>10hr/week</b>  <b>7. Course code</b></p>
<p><b>10-</b>water is so important for life that we cannot imagine life without it. The evolution of life itself took place in the water. In the evolution of all kinds of life, water has played an important role. The amount of water found in the living beings is 65 per cent and 65 to 99 percent in plants. This clearly shows the need and utility of water. Water which is a precious gift of the nature has several uses. Water is very essential for the development. It is a matter of great concern for all of us. Besides coordinating the demand and supply of the water, there is a need to keep the balance among different sources of water. Hence conservation of water resources is an essential requirement.</p>	
<p><b>11. Course objective:</b>  <b>Goals of the course or Goals of studying water resources:</b></p> <p>The main goals of studying water resources can be summarizing as follow: After studying this lesson, the student will be able to</p> <ol style="list-style-type: none"> <li>1- Know different sources of water;</li> <li>2- Explain the meaning of water budget;</li> <li>3- Explain the uneven distribution of water;</li> <li>4- Know the utility of water;</li> <li>5- Understand the utility and distribution of different sources of irrigation;</li> <li>6- Locate important river valley projects on the map;</li> <li>7- Explain the need of the water management;</li> <li>8- Explain the impact of flood and draught on the life of the people;</li> <li>9- Explain the meaning of watershed development;</li> <li>10- Explain the methods of conservation of water resources</li> <li>11-drawing hydrograph.</li> <li>12-Water harvesting and management.</li> </ol>	
<p><b>12. Student's obligation:</b>  The student must have an important role:</p> <ol style="list-style-type: none"> <li>1- The students must contribute in the scientific discussions in the class or teaching hall.</li> <li>2- The students must know the importance of quizzes, homework, reports and exams.</li> <li>3- It is necessary to contribute the student in presentation a scientific subject.</li> </ol>	
<p><b>13. Forms of teaching:</b>  There are different forms of teaching:</p> <ol style="list-style-type: none"> <li>1-Datashow and power point.</li> <li>2- White board.</li> </ol>	



	1st week or meeting (3) h
<p><b>2-Quantity and quality of water resources in Kurdistan Region.</b></p> <p><b>2-Comparison between TDS , EC and, TSS and pH for water samples taken from springs , rivers and wells.</b></p>	<p>Dr.Akram Othman</p> <p>2<sup>nd</sup> and 3<sup>rd</sup> meeting (4) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>2<sup>nd</sup> and 3<sup>rd</sup> week or meeting (6) h</p>
<p><b>3-The problems of water in south Kurdistan.</b></p> <p><b>3-Visting to Efraz Project for Studing practical steps of water purification and Jar test in Efraz project lab.</b></p>	<p>Dr.Akram Othman</p> <p>4<sup>th</sup> week (2) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>4<sup>th</sup> meeting (3) h.</p>
<p><b>4-Uses of water resources.</b></p> <p><b>4-Vsiting to College of Education, Dept. of Physics for Radon determination and its relation with water resources.</b></p>	<p>Dr.Akram Othman</p> <p>5<sup>th</sup> meeting (2) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>5<sup>th</sup> meeting (3) h.</p>
<p><b>5-and 6- Classifications of water resources for different purpose especially agricultural purpose.</b></p> <p><b>Vesting to Bardarash abd Akre for two purposes:</b></p> <p><b>a- Practical water harvesting for one of MSc students in our department.</b></p> <p><b>b- Vesting to see practically Artesian well.</b></p>	<p>Dr. Akram Othman</p> <p>6<sup>th</sup> and 7<sup>th</sup> meeting (4) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>5<sup>th</sup> and 6<sup>th</sup> meeting (6) h.</p>

<p><b>7-Water harvesting.</b></p> <p><b>7- Vesting to college of science for some chemical analysis of waters.</b></p>	<p>Dr. Akram Othman</p> <p>7<sup>th</sup> meeting (2) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>7<sup>th</sup> meeting (7) h.</p>
<p><b>8- and 9- Types of springs and drawing hydrographs.</b></p> <p><b>9- Vesting to sulphate or hot springs in Smaquli Jali village.</b></p> <p><b>Sampling the water from hot springs then and analysing it.</b></p>	<p>Dr.Akram Othman</p> <p>8<sup>th</sup> and 9<sup>th</sup> (4) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>8<sup>th</sup> and 9<sup>th</sup> meeting (6) h</p>
<p><b>10-Definition of hydrograph and factors affecting it.</b></p> <p><b>10- Radar analysis for some of practical results.</b></p>	<p>Dr.Akram Othman</p> <p>10<sup>th</sup> meeting (2) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>10<sup>th</sup> meeting (3) h</p>
<p><b>11-and 12 - Drawing hydrographs and discussing them.</b></p> <p>.</p> <p><b>11-Determining ionic strength.</b></p> <p><b>12- Practical exam.</b></p>	<p>Dr.Akram Othman</p> <p>11<sup>th</sup> and 12<sup>th</sup> meeting (4) h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>11<sup>th</sup> meeting (3) h</p> <p>Kahzin Sarbaz Rajab</p> <p>12<sup>th</sup> meeting (3) h</p>

<p><b>13- Dams in Kurdistan region.</b></p> <p><b>Advantage and disadvantage of dams</b></p> <p><b>13- Vesting to one of the dams I n Kurdistan region.</b></p>	<p>Dr.Akram Othman</p> <p>13<sup>th</sup> meeting (2)h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>13<sup>th</sup> meeting (3) h .</p>
<p>14 and 15- The problems of water resources in Iraq and Kurdistan region and methods for solving them.</p> <p>14 and 15-Sdrawing the relation between ionic strength and electrical conductivity for different water resources.</p>	<p>Dr.Akram Othman</p> <p>14<sup>th</sup> and 15<sup>th</sup> (4)h.</p> <p>Kahzin Sarbaz Rajab</p> <p>Aveen Sabir Karem</p> <p>13<sup>th</sup> and 15<sup>th</sup> meeting (6) h</p>
<p><b>18 Extra notes:</b></p> <p>Nothing</p>	
<p><b>1. Peer review: Approved by Prof. Dr. Yahya Ahmad Shekha.</b></p>	