



<b>COURSE: PHYSICS II</b>		
<b>DEGREE: ENGINEERING PHYSICS</b>	<b>YEAR: 1st</b>	<b>TERM: 2nd</b>

<b>WEEKLY PROGRAMMING</b>								
WEEK	SESSION	DESCRIPTION	GROUPS		LABORATORY	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURE	SEMINAR	4.SB01 4.SB02 4.SB03	DESCRIPTION	CLASS HOURS	HOMEWORK HOURS Maximum 7 H
1	1	<b>Basic concepts of Thermodynamics.</b> Thermodynamic system and thermodynamic properties. Temperature. Equilibrium. Quasi-static and reversible processes. Work and heat. Equation of state. The ideal gas.	X			- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
1	2			X		- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
2	3	<b>The first Law of Thermodynamics.</b> Heat and thermal energy. Joule's experiment. Internal energy. The first Law of Thermodynamics. Heat capacity and specific heat. Heat transfer processes.	X			- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
2	4			X		- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
3	5	<b>The second Law of Thermodynamics. Entropy.</b> Heat engines and refrigerators. The second Law of Thermodynamics. Reversible and irreversible processes. The Carnot cycle. Inequality of Clausius. Entropy.	X			- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	6
3	6			X		- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
4	7	<b>Coulomb's Law. The Electric Field.</b> Electric charge. Coulomb's Law. Superposition principle. Definition of the electric field. Electric field of point charges. Charge densities. Electric field due to charge distributions.	X			- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
4	8			X		- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
5	9	<b>Electric Potential.</b> Electric potential definition. Electric potential produced by different charge distributions. Relationship between electric field lines and equipotential curves and surfaces. Electrostatic energy.	X			- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	6

5	10			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
6	11	<b>Gauss's Law.</b> Electric flux. Gauss's Law for the electric field. Examples.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
6	12			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
7	13	<b>Conductors.</b> Properties of conductors in electrostatic equilibrium. Electric shielding and screening.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
7	14			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
8	15	<b>Capacitors. Dielectrics.</b> Capacitors. Definition of capacitance. Series and parallel association. Energy stored in a capacitor. Dielectrics. Dielectric constant and electric susceptibility.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
8	16			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
9	17	<b>Electric current.</b> Electric current. Ohm's law. Electric conductivity and resistance. Kirchoff's laws. Power dissipated by a conductor. Joule's law. Electromotive force.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	4
9	18			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
10	19	<b>Magnetic Forces and Magnetic Fields.</b> Definition of magnetic field. Lorentz's force on a charged particle. Motion of a charged particle on a magnetic field. Applications. Current element. Magnetic force on currents. Torque on a dipole and current loop. Magnetic moment.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5
10	20			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
11	21	<b>Magnetostatics of vacuum.</b> Sources of the magnetic field. Biot-Savart's Law. Magnetic flux. Ampère's Law.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	6
11	22			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
12	23	<b>Electromagnetic induction.</b> Faraday's Law of induction. Lenz's Law. Applications. Mutual inductance and self-inductance. Energy stored in a magnetic field.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	6
12	24			X			- Solve the proposed exercises. - Participation in discussions and activities.	1.66	
13	25	<b>Magnetic materials.</b> Magnetization. Diamagnetism, paramagnetism and ferromagnetism. Magnetic susceptibility and permeability. Magnetic circuits. Dynamos and Transformers.	X				- Reading in advance of the corresponding book chapters. - Study and personal work on the lecture.	1.66	5

5	26	Thermodynamics. (*)			X	<ul style="list-style-type: none"> <li>- Reading of the guideline document.</li> <li>- Data acquisition.</li> <li>- Analysis of results.</li> <li>- Preparation of the report.</li> </ul>	1.66	3
6	27	Electric and magnetic phenomena. (*)			X	<ul style="list-style-type: none"> <li>- Reading of the guideline document.</li> <li>- Data acquisition.</li> <li>- Analysis of results.</li> <li>- Preparation of the report.</li> </ul>	1.66	3
7	28	Electric and magnetic phenomena. (*)			X	<ul style="list-style-type: none"> <li>- Reading of the guideline document.</li> <li>- Data acquisition.</li> <li>- Analysis of results.</li> <li>- Preparation of the report.</li> </ul>	1.66	3
8	29	Electric and magnetic phenomena. (*)			X	<ul style="list-style-type: none"> <li>- Reading of the guideline document.</li> <li>- Data acquisition.</li> <li>- Analysis of results.</li> <li>- Preparation of the report.</li> </ul>	1.66	3
<b>SUBTOTAL</b>							<b>48.33</b>	<b>+ 80 = 128</b>
14		Tutorials, Handing in, etc					2	2
15-17		Assessment					3	15
<b>TOTAL</b>								<b>150</b>

**(\*) The schedule of laboratory sessions is tentative and will be confirmed by the course coordinator.**