COURSE: Physics II		
DEGREE: Electrical Engineering	YEAR: 1º	TERM: 2º

CRONOGRAMA ASIGNATURA								
WEEK	**SE-SIÓN**	**DESCRIPTION**	**GROUPS (mark X)**		**SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)**	**Indicate YES/NO If the session needs 2 teachers (*)**	**WEEKLY PROGRAMMING FOR STUDENT**	
			LECTURES	**SEMINARS**			**DESCRIPTION**	**CLASS HOURS**	**HOMEWORK HOURS (Max. 7h week)**
1	1	A brief course introduction. **T1. Electrostatic I** - Electric charge. - Coulomb's Law. System units. - Motion of a charged particle in an electric field. - Concept of electric field.	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
1	2			X			- Do the suggested exercises. - Participate in the discussions. - Expose the suggested works.	1,66	
2	3	**T1. (cont)** - Concept of electric field. Superposition principle. Electric field of a point charge. Electric field lines. Electric dipole. Electric dipole moment. The electric dipole in an external field. Work and Potential Energy. Energy related to a point charge distribution Definition of Potential. Potential difference.	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
2	4	Midterm exams or homework deadline (*)		X			- Do the suggested exercises. - Participate in the discussions.	1,66	

								- Expose the suggested works.		
3	5	**T1. (cont)** Continuous charge distributions - Charge Density - electric field and potential due to continuous charge distributions. -	X					Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
3	6			X				- Do the suggested exercises. - Participate in the discussions. - Expose the suggested works.	1,66	
4	7	**T2. electrostatic II** - Concept of Flow. Electric field flux. – Gauss's Law - Application of Gauss's law to calculate electric fields ..	X					Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
4	8	Midterm exams or homework deadline (*)		X				- Do the suggested exercises. - Participate in the discussions. - Expose the suggested works.	1,66	
5	9	**T3. Conductors. Electric current** Electrical nature of matter. - Insulators, conductors and semiconductors. – charge Carriers. Conductors in electrostatic equilibrium. Intensity and current density. Ohm's Law. Resistivity and resistance. Power dissipation in a conductor.	X					Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	6
5	10			X				- Do the suggested exercises. - Participate in the discussions. - Expose the suggested works.	1,66	
6	11	**T5. Capacitors. Dielectrics.** -Capacitor capacitance. Capacitances calculation - Energy stored in a capacitor. - Capacitors with dielectrics. Dielectric constant. - Microscopic Theory of dielectrics. Polarization of matter. Dielectric breakdown	X					Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	6
6	12	Midterm exams or homework deadline (*)		X				- Do the suggested exercises. - Participate in the discussions. - Expose the suggested works.	1,66	
7	13	REVIEW	X					Read the suggested topics	1,66	5

		- Revision of the electrostatics concepts. RC circuit. Transient loading - unloading.					-Individual work on the concepts shown in the lectures. It includes the search of bibliography		
7	14			X			- Do the suggested exercises. - Participate in the discussions. - Expose the suggested works.	1,66	
8	15	**T5 Magnetostatic I.** - Introduction to the magnetism. - Definition of magnetic field. Lorentz force on a charged particle -. Motion of a charged particle in a magnetic field. - Magnetic force on current elements. - Magnetic dipole moment. -Torques on current loops and magnets..	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
8	16	Midterm exams or homework deadline (*)		X			- Realización de ejercicios propuestos. - Participación en discusiones y desarrollo de problemas. - Realización de prueba de conocimiento	1,66	
9	17	**T5 (cont)** - Electric currents as sources of magnetic fiel. Biot and Savart law. - Applications with current elements. - Magnetic force on currents -The magnetic force between currents. Case of two parallel conductor wires. -Atomic magnetic moments. Magnetization -Magnetism in matter	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
9	18			X			- Realización de ejercicios propuestos. - Participación en discusiones y desarrollo de problemas.	1,66	
10	19	**T6. Magnetostatic II.** - Magnetic flux. - Ampère's Law. Application to the calculation of magnetic field due to simple distributions of electric currents -Magnetism in matter	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
10	20	Midterm exams or homework deadline (*)		X			- Realización de ejercicios propuestos.	1,66	

			X		X				
							- Participación en discusiones y desarrollo de problemas. - Realización de prueba de conocimiento		
11	21	**T7. Faraday's law of induction** - Faraday's law. Lenz's Law. --Examples: motional electromotive force and electromotive force due to a time –varying magnetic field -Self-inductance. Energy in a magnetic field Maxwell's equations	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
11	22			X			- Realización de ejercicios propuestos. - Participación en discusiones y desarrollo de problemas.	1,66	
12	23	**REVIEW.** - Revision of the magnetic field related concepts. Magnetism in materials Introduction to electric circuits: Circuits LR, LC and LCR. Oscilations.	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
12	24	Midterm exams or homework deadline (*)		X			- Realización de ejercicios propuestos. - Participación en discusiones y desarrollo de problemas. - Realización de prueba de conocimiento	1,66	
13	25	**T8 - Wave Motion.** - Oscillators and waves. - Wave motion. Types of waves. -Mathemathical description of waves: wave function. Wave propagation speed -Wave equation -Harmonic waves. Standing waves	X				Read the suggested topics -Individual work on the concepts shown in the lectures. It includes the search of bibliography	1,66	5
13	26	Lab (Instrumentation) (**)		X	LAB 4.SB014.SB024.SB03		-Read the suggested topics -Pick data in the laboratory -Elaborate a report	1,66	3
14	27	Lab (Electricity and Magnetism) (**)		X	LAB 4.SB014.SB024.SB		-Read the suggested topics -Pick data in the laboratory -Elaborate a report	1,66	3

					03				
14	28	Lab (Electricity and Magnetism) (**)		X	LAB 4.SB014. SB024.SB 03		-Read the suggested topics -Pick data in the laboratory -Elaborate a report	1,66	3
	29	Lab (Electricity and Magnetism) (**)		X	LAB 4.SB014. SB024.SB 03		-Read the suggested topics -Pick data in the laboratory -Elaborate a report	1,66	3
SUBTOTAL								**48.33**	**+ 79 = 128**
15		Tutorials, handing in, etc						2	2
16- 18		Assessment						3	15
TOTAL									**150**

(*) The number of midterm- tests are provisional. Both number and dates will be confirmed well in advance by the course coordinator.
(**)The timing of laboratory practice is provisional and will be confirmed by the course coordinator in good time.