BMC curriculum
2024/25-es tanév őszi félév

Week	Date	lecture topic	Title	Lecturer	Seminar		
					covered topics	Teacher1	Teacher2
1	9, Sept	1,2	Introduction, requirements. (Briefly - Standards of length, mass, time. Significant figures. Prefixes. Conversion of units. OVI), Trigonometry, coordinate systems, radians, geometry, Vectors and scalars, directions	PF	Math review 1 finishing with functions and graphing	ZF	HP
	12, Sept	3,4	Equation solving, Functions and graphing, exponents, scientific notation, logarithms, exponentials	HP			
2	16, Sept	5,6	Motion in one dimension, displacement, velocity, acceleration, motion diagrams. Freely falling objects.	BZS	Math review 2 exponentials, logarithms + lect 5-6	SzGT	KT
	19, Sept	7,8	Vectors and their properties. Components of vectors. Displacement, velocity and acceleration in two dimensions.	VZ			
3	23, Sept	9,10	Motion in two dimensions. Projectile motion.	PGY	lect 7-10	HP	PF
	26, Sept	11,12	The laws of motion. Newton's First, Second and Third Law.	SzJ			
4	30, Sept	13-14	Applications of Newton's Laws. Forces of friction.	PGy	lect 11-14	VZ	BZs
	3,Oct	15-16	Energy. Work. Kinetic energy and the work-energy theorem. Gravitational potential energy.	PF			
	SCT 1 covering topics 1-10						
5	7, Oct	17-18	Spring potential energy. System and energy conservation. Power. Work done by varying forces.	PGY	lect 15-18	ZF	BZs
	10, Oct	19-20	Momentum and impulse. Conservation of momentum.Collisions. Elastic and inelastic collisions.	HP			
6	14, Oct	21-22	Angular speed and angular acceleration. Rotational motion under constant angular acceleration.	ML	lect 19-22	SzGT	PF
	17, Oct	23-24	Centripetal acceleration. Newtonian gravitation. Kepler's laws.	ML			
7	21, Oct	25-26	Torque and the two conditions for equilibrium. The center of gravity.	SZJ	lect 23-24	SzJ	PF
	24, Oct	27-28	Rotational kinetic energy. Angular momentum.	SZJ			
	SCT2 covering topics 11-22.						
8	28, Oct	29-30	States of matter. Deformation of solids. The Youngs's, shear and bulk modulus. Density and pressure. Variation of pressure with depth. Pressure measurements.	DBA	lect 25-28	SZJ	KT
	31, Oct	31-32	Buoyant forces and Archimedes's principle. Fluids in motion. Equation of continuity and Bernoulli's equation.	PF			
9	4, Nov	33-34	Viscous fluid flow. Poiseuille's law, Circulation, blood pressure measurement, transport phenomena, diffusion, osmosis	SzöÁ	lect 29-32	HP	DBA
	7, Nov	35-36	Temperature and the zeroth law of thermodynamics. Thermometers and temperature scales. Thermal expansion of solids and fluids. Macroscopic description of an ideal gas. The kinetic theory of gases.	SzGT			
10	11, Nov	37-38	Energy in thermal processes. Heat and internal energy.	ML	lect 33-36	BZs	SzöÁ
	14, Nov	39-40	Specific heat. Calorimetry. Latent heat and phase change.	ML			
	SCT 3 topics 23-32.						
11	18, Nov	41-42	The first law of thermodynamics.The second law of thermodynamics. Entropy. Refrigerators and heat pumps.	VZ	lect 37-40	ZF	DBA
	21, Nov	43-44	Elastic potential energy. Hook's law. Simple harmonic motion. Motion of a pendulum.	KT			
12	25, Nov	45-46	Waves. Frequency, amplitude and wavelength. Interference of waves. Reflection of waves	PGy	lect 41-44	KT	SzGT
	28, Nov	47-48	Sound. Energy and intensity of sound waves. Doppler effect	KT			
13	2, Dec	49-50	Ultrasound. Shock waves, standing waves. The ear and the principles of hearing.	ZF	lect 45-48	NE	DBA
	5, Dec	51-52	Overview and summary of all topics	PF			
	SCT4 covering topics 33-44.						
14	9, Dec	53-54	Interactive lectures and seminars and preparation for the ESE.	VZ		PF	SzGT
	12, Dec	55-56		VZ			

Physics lecture:

Monday, 12:00-14:00 (LC 0.14)
Thursday, 9:00-11:00 (LC 0.14)