

National curriculum or specification coverage

AQA Advanced Level Physics – Specification 7408

3.6.1 Periodic motion

- 3.6.1.2 Simple harmonic motion (SHM)
- 3.6.1.3 Simple harmonic systems
- 3.6.1.4 Forced vibrations and resonance

3.7.2 Gravitational fields

- 3.7.2.1 Newton's law
- 3.7.2.2 Gravitational field strength
- 3.7.2.3 Gravitational potential
- 3.7.2.4 Orbits of planets and satellites

3.7.3 Electric fields

- 3.7.3.1 Coulomb's law
- 3.7.3.2 Electric field strength
- 3.7.3.3 Electric potential

3.7.4 Capacitance

- 3.7.4.1 Capacitance
- 3.7.4.2 Parallel plate capacitor
- 3.7.4.3 Energy stored by a capacitor
- 3.7.4.4 Capacitor charge and discharge

3.7.5 Magnetic fields

- 3.7.5.1 Magnetic flux density
- 3.7.5.2 Moving charges in a magnetic field
- 3.7.5.3 Magnetic flux and flux linkage
- 3.7.5.4 Electromagnetic induction
- 3.7.5.5 Alternating currents
- 3.7.5.6 The operation of a transformer

Date	Exams/ Assessments	Learning Intentions	Core Task / Assessments
31/08/26		3.6.1.2 Simple harmonic motion (SHM) - Analysis of characteristics of simple harmonic motion (SHM). - Graphical representations linking the variations of x, v & a with time. 3.6.1.3 Simple harmonic systems - Study of mass-spring system - Study of simple pendulum - Questions involving other harmonic oscillators (eg liquid in U-tube) but full information will be provided in questions where necessary. - Variation of E_k, E_p, and total energy with both displacement and time. - Effecting of damping on oscillators - Students should recognise the use of the small-angle approximation in the derivation of the time period for examples of approximate SHM. - Required practical 7: Investigation into simple harmonic motion using a mass-spring system and a simple pendulum. 3.6.1.4 Forced vibrations and resonance - Qualitative treatment of free and forced vibrations. - Resonance and the effects of damping on the sharpness of resonance. - Examples of these effects in mechanical systems and situations involving stationary waves.	
07/09/26			
14/09/26			
21/09/26			
28/09/26			
05/10/26		3.7.2.1 Newton's law - Gravity as a universal attractive force acting between all matter. - Students can estimate the gravitational force between a variety of objects. 3.7.2.2 Gravitational field strength - Representation of a gravitational field by gravitational field lines. g as a force per unit mass as defined by $g=F/m$ - Magnitude of g in a radial field, given by $g = (GM)/r^2$	
12/10/26			
19/10/26	Y13		
26/10/26		HALF TERM	

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02/11/26		3.7.2.3 Gravitational potential - Understanding of definition of gravitational potential, including zero value at infinity. - Understanding of gravitational potential difference. - Work done in moving mass, m, given by $W = m \Delta V$ - Equipotential surfaces. - Idea that no work is done when moving along an equipotential surface. V in a radial field given by $V = - (GM)/r$ and the significance of the negative sign. - Graphical representations of variations of g and v.	
09/11/26		3.7.2.4 Orbits of planets and satellites - Orbital period and speed related to radius of circular orbit; derivation of T^2 is proportional to r^3 - Energy considerations for an orbiting satellite. - Total energy of an orbiting satellite. - Escape velocity. - Synchronous orbits. - Use of satellites in low orbits and geostationary orbits, to include plane and radius of geostationary orbit.	
16/11/26		3.7.3.1 Coulomb's law - Force between point charges in a vacuum - Define and use permittivity of free space - Appreciation that air can be treated as a vacuum when calculating force between charges. - For a charged sphere, charge may be considered to be at the centre. - Comparison of magnitude of gravitational and electrostatic forces between subatomic particles.	
23/11/26			
30/11/26			
07/12/26		3.7.3.2 Electric field strength - Representation of electric fields by electric field lines. - Electric field strength, E, defined as force per unit charge. - Calculate magnitude of E in a uniform field. - Derivation from work done moving charge between plates - Trajectory of moving charged particle entering a uniform electric field initially at right angles. - Magnitude of E in a radial field	
		3.7.3.3 Electric potential	

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		- Understanding of definition of absolute electric potential, including zero value at infinity, and of electric potential difference. - Calculate work done in moving charge - Equipotential surfaces. - No work done moving charge along an equipotential surface. - Magnitude of V in a radial field - Graphical representations of variations of E and V with r. - Calculate ΔV from area under an E-r graph.	
14/12/26			
21/12/26	CHRISTMAS HOLIDAY		
28/12/26			
04/01/27		3.7.4.2 Parallel plate capacitor - Define capacitance as $C=Q/V$ - Explain dielectric action in a capacitor - Relative permittivity and dielectric constant. - Students should be able to describe the action of a simple polar molecule that rotates in the presence of an electric field. - Determine the relative permittivity of a dielectric using a parallel-plate capacitor.	
11/01/27			
18/01/27			
25/01/27			
01/02/27		3.7.4.3 Energy stored by a capacitor - Interpretation of the area under a graph of charge against pd to determine the equations. 3.7.4.4 Capacitor charge and discharge - Graphical representation of charging and discharging of capacitors through resistors. Corresponding graphs for Q, V and I against time for charging and discharging. - Interpretation of gradients and areas under graphs where appropriate. - Time constant, $T=RC$ - Calculation of time constants including their determination from graphical data.	
08/02/27	Y13		
15/02/27	HALF TERM		
22/02/27		3.7.5.1 Magnetic flux density - Force on a current-carrying wire in a magnetic field as $F=BIL$ - Define the unit – tesla - Investigate how the force on a wire varies with flux density, current and length of wire using a top pan balance.	
01/03/27			
08/03/27			
15/03/27			
22/03/27		3.7.5.2 Moving charges in a magnetic field	

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		- Force on charged particles moving in a magnetic field as $F=BQv$ - Direction of force on positive and negative charged particles. - Circular path of particles; application in devices such as the cyclotron 3.7.5.3 Magnetic flux and flux linkage - Define magnetic flux and flux linkage. - Calculate flux and flux linkage passing through a rectangular coil rotated in a magnetic field - Required practical 11: Investigate, using a search coil and oscilloscope, the effect on magnetic flux linkage of varying the angle between a search coil and magnetic field direction. 3.7.5.4 Electromagnetic induction - Simple experimental phenomena. - Faraday's and Lenz's laws. - Magnitude of induced emf = rate of change of flux linkage - Applications such as a straight conductor moving in a magnetic field. - emf induced in a coil rotating uniformly in a magnetic field: 3.7.5.5 Alternating currents - Sinusoidal voltages and currents only; root mean square, peak and peak-to-peak values for sinusoidal waveforms only. - Application to the calculation of mains electricity peak and peak-to-peak voltage values. - Use of an oscilloscope as a dc and ac voltmeter, to measure time intervals and frequencies, and to display ac waveforms. - No details of the structure of the instrument are required but familiarity with the operation of the controls is expected. 3.7.5.6 The operation of a transformer - Utilise the transformer equation - Calculate efficiency of a transformer. - Production of eddy currents. - Causes of inefficiencies in a transformer. - Transmission of electrical power at high voltage including calculations of power loss in transmission lines.	
29/03/27	SPRING BREAK		
05/04/27			
12/04/27		Catch up on required practicals if needed.	
19/04/27			

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26/04/27		Exam Retrieval, Revision and Practice. - Paper 1 - Paper 2 - Paper 3	
03/05/27			
10/05/27			
17/05/27			
24/05/27			
31/05/27	HALF TERM		
07/06/27		Exam Season	
14/06/27			
21/06/27			
28/06/27			
05/07/27			
12/07/27			