Unit 7, Dartmouth Buildings, Fort Fareham Industrial Estate,
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Edexcel Physics – Course outline

Experiment = EX **Lecture = L** **Assessment = A**

Code	Name	Activity

Section 1 – Motion and Forces

Module 1 - Speed and Distance-Time Graphs

1.1	Scalars and Vectors	L
1.1a	Scalars and Vectors	A
1.2	Speed	L
1.2a	Speed	A
1.3	Distance-Time Graphs	L
1.3a	Distance-Time Graphs	A
1.3b	Distance-Time Graphs	A
1.4	Measuring Speed	L
1.4a	Measuring Speed	A

Module 2 - Acceleration and Velocity-Time Graphs

2.1	Acceleration	L
2.1a	Acceleration	A
2.2	$v^2 - u^2 = 2as$	L
2.2a	$v^2 - u^2 = 2as$	A
2.3	Velocity-Time Graphs and Acceleration	L
2.3a	Velocity-Time Graphs and Acceleration	A
2.4	Velocity-Time Graphs and Distance Travelled	L
2.4a	Velocity-Time Graphs and Distance Travelled	A

Module 3 - Newton's Laws of Motion

3.1	Newton's 1st Law of Motion	L
3.1a	Newton's 1st Law of Motion	A
3.2	Newton's 2nd Law of Motion	L
3.2a	Newton's 2nd Law of Motion	A
3.3	Gravity and Weight	L
3.3a	Gravity and Weight	A
3.4.1	Measuring Force and Acceleration	Ex
3.4.2	Force and Acceleration Experiment	Ex
3.4.3	Mass and Acceleration Experiment	Ex
3.4a	Investigating the Relationship Between Force, Mass and Acceleration	A

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3.4b	Investigating the Relationship Between Force, Mass and Acceleration	A
3.5	Newton's 3rd Law of Motion	L
3.5a	Newton's 3rd Law of Motion	A
3.6	Circular Motion	L
3.6a	Circular Motion	A
3.7	Inertia	L
3.7a	Inertia	A

Module 4 - Momentum

4.1	Calculating Momentum	L
4.1a	Calculating Momentum	A
4.2	Newton's 2nd Law of Motion and Momentum	L
4.2a	Newton's 2nd Law of Motion and Momentum	A
4.3	Conservation of Momentum in Collisions	L
4.3a	Conservation of Momentum in Collisions	A

Module 5 - Stopping Distances

5.1	Reaction Time and Thinking Distance	L
5.1a	Reaction Time and Thinking Distance	A
5.2	Braking Distance	L
5.2a	Braking Distance	A
5.3	Stopping Distance	L
5.3a	Stopping Distance	A
5.4	Braking Distance and KE	L
5.4a	Braking Distance and KE	A

Section 2 – Conservation of Energy

Module 1 - Conservation of Energy

1.1	Gravitational Potential Energy	L
1.1a	Gravitational Potential Energy	A
1.2	Kinetic Energy	L
1.2a	Kinetic Energy	A
1.3	Energy Transfers	L
1.3a	Energy Transfers	A
1.4	Energy Conservation, Dissipation and Efficiency	L
1.4a	Energy Conservation, Dissipation and Efficiency	A
1.5.1	Non-Renewable Energy Resources	L
1.5.2	Renewable Energy Resources	L
1.5a	Energy Resources	A

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Section 3 – Waves, Light and the EM Spectrum

Module 1 - Properties of Waves

1.1.1	Transverse and Longitudinal Waves	L
1.1.2	Wavelength and Amplitude	L
1.1.3	Period and Frequency	L
1.1.4	$v = f\lambda$	L
1.1a	Waves	A
1.2	Change of Medium	L
1.2a	Change of Medium	A
1.3	Measuring the Speed of Waves	L
1.3a	Measuring the Speed of Waves	A
1.4.1	Measuring v, f and λ for a Wave on a Wire	Ex
1.4.2	Measuring v, f and λ for a Wave on Water	Ex
1.4a	Measuring Frequency, Speed and Wavelength	A
1.4b	Measuring Frequency, Speed and Wavelength	A
1.5.1	Waves at a Boundary	L
1.5.2	Reflection (Ray Diagrams)	L
1.5.3	Refraction (Ray Diagrams)	L
1.5a	Waves at a Boundary	A
1.6	Investigating Reflection and Refraction	Ex
1.6a	Investigating Reflection and Refraction	A
1.6b	Investigating Reflection and Refraction	A

Module 2 - Mechanical and EM Waves

2.1.1	Propagation and Detection of Sound Waves	L
2.1.2	Properties and Uses of Ultrasound	L
2.1.3	Seismic Waves	L
2.1.4	Echo Sounding	L
2.1a	Mechanical Waves	A
2.2.1	The Electromagnetic Spectrum	L
2.2.2	The Uses and Applications of E.M. Waves	L
2.2a	The Electromagnetic Spectrum	A
2.3.1	Investigating the Emission of IR	Ex
2.3.2	Investigating the Absorption of IR	Ex
2.3a	Investigating the Absorption and Emission of IR	A
2.3b	Investigating the Absorption and Emission of IR	A
2.4	The Emission of IR and Temperature	L
2.4a	The Emission of IR and Temperature	A
2.5	Thermal Equilibrium and IR	L

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2.5a	Thermal Equilibrium and IR	A
2.6.1	Effects of Wavelength and Speed on E.M. Waves	L
2.6.2	Radio Waves	L
2.6a	Effects of Wavelength and Speed on E.M. Waves and Radio Waves	A
2.7.1	Waves From Atoms and Nuclei	L
2.7.2	The Hazards of EM Radiation	L
2.7a	The Hazards of EM Radiation	A

Module 3 - Lenses and Light

3.1.1	Convex Lenses	L
3.1.2	Concave Lenses	L
3.1a	Lenses	A
3.2.1	Wavelength and Colour	L
3.2.2	Specular and Diffuse Reflection	L
3.2.3	The Colours of Opaque Objects	L
3.2.4	Filters	L
3.2a	Visible Light	A

Section 4 – Radioactivity

Module 1 - Atoms and Radioactivity

1.1.1	Atomic Structure	L
1.1.2	Mass Number, Atomic Number and Isotopes	L
1.1.3	The Development of the Model of the Atom	L
1.1a	The Atom	A
1.2.1	Radioactive Decay and Activity	L
1.2.2	Natures and Properties of Nuclear Radiations	L
1.2.3	Nuclear Equations	L
1.2.4	Half-lives	L
1.2a	Radioactive Decay	A

Module 2 - Hazards and Uses of Radioactive Emissions

2.1	Radioactive Contamination	L
2.1a	Radioactive Contamination	A
2.2.1	Background Radiation	L
2.2.2	Uses of Radioactivity	L
2.2.3	Hazards of Radioactivity	L
2.2a	Hazards and Uses of Radioactivity	A
2.3.1	Nuclear Fission	L
2.3.2	Nuclear Fusion	L
2.3a	Nuclear Fission and Fusion	A

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Section 5 – Radioactivity

Module 1 - Space Physics

1.1.1	Gravitational Field Strength	L
1.1.2	The Structure and Location of the Solar System	L
1.1.3	Natural and Artificial Satellites	L
1.1.4	The Life Cycle of a Star	L
1.1	Solar System, Stars and Satellites	A
1.2.1	Red-shift	L
1.2.2	Steady-State and Big Bang Theories	L
1.2.3	New Ideas	L
1.2a	Red-Shift and the Big Bang	A

Section 6 – Energy – Forces Doing Work

Module 1 - Types of Energy

1.1	Energy Transfers and Work	L
1.1a	Energy Transfers and Work	A
1.1b	Energy Transfers and Work	A
1.2	Gravitational Potential Energy	L
1.2a	Gravitational Potential Energy	A
1.3	Kinetic Energy	L
1.3a	Kinetic Energy	A
1.4	Power	L
1.4a	Power	A
1.5	Energy Dissipation and Efficiency	L
1.5a	Energy Dissipation and Efficiency	A

Section 7 – Forces and Their Effects

Module 1 - Forces as Vectors (Physics and HT only)

1.1	Introduction to Forces	L
1.1a	Introduction to Forces	A
1.2	Resultant Forces (Collinear)	L
1.2a	Resultant Forces (Collinear)	A
1.2b	Resultant Forces (Collinear)	A
1.3	Resultant Forces (Non-collinear)	L

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1.3a	Resultant Forces (Non-collinear)	A
1.3b	Resultant Forces (Non-collinear)	A
1.4	Resolution of Forces	L
1.4a	Resolution of Forces	A

Module 2 - Moments, Levers and Gears (Physics only)

2.1.1	Moments	L
2.1.2	The Principle of Moments	L
2.1a	Calculating Moments and the Principle of Moments	A
2.2	Levers and Gears	L
2.2a	Levers and Gears	A

Section 8 – Electricity and Circuits

Module 1 - Electrical Quantities

1.1.1	Standard Circuit Diagram Symbols	L
1.1.2	Electrical Charge and Current	L
1.1.3	Energy, Charge and Potential Difference	L
1.1.4	Current, Resistance and Potential Difference	L
1.1.5	Applications of Thermistors and LDRs	L
1.1a	Circuit Quantities	A
1.2.1	Finding Resistance (General Principles)	Ex
1.2.2	Finding Resistance (Resistance vs Length)	Ex
1.2.3	Finding Resistance (Combinations)	Ex
1.2a	Finding Resistance	A
1.2b	Finding Resistance	A

Module 2 - Circuits

2.1.1	V-I Characteristic (Resistor)	Ex
2.1.2	V-I Characteristic (Filament Lamp)	Ex
2.1.3	V-I Characteristic (Diode)	Ex
2.1a	V-I Characteristics	A
2.1b	V-I Characteristics	A
2.2.1	Series Circuits	L
2.2.2	Parallel Circuits	L
2.2a	Series and Parallel Circuits	A

Module 3 - Domestic Uses, Safety and Static Electricity

3.1.1	Direct and Alternating PD	L
3.1.2	Mains Electricity	L

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3.1a	Domestic Circuits	A
3.2.1	Electric Power	L
3.2.2	Electrical Energy Transfers	L
3.2.3	The National Grid	L
3.2a	Electrical Energy and Power	A
3.3.1	Static Electricity	L
3.3.2	Electric Fields	L
3.3a	Static Electricity and Electric Fields	A

Section 9 – Magnetism and Electromagnetism

Module 1 - Magnetic Forces and Fields

1.1.1	Permanent and Induced Magnetism	L
1.1.2	Magnetic Fields	L
1.1a	Magnetic Fields	A
1.2.1	The Magnetic Fields Around Wires	L
1.2.2	The Magnetic Fields Around Solenoids	L
1.2a	Electromagnetism	A
1.3.1	Fleming's Left Hand Rule	L
1.3.2	F = BIL	L
1.3.3	The Electric Motor	L
1.3a	The Electric Motor	A

Module 2 - Induced Potential and Transformers

2.1.1	The Size of an Induced Potential	L
2.1.2	The Direction of an Induced Potential	L
2.1.3	Uses of the Generator Effect: Alternators	L
2.1.4	Uses of the Generator Effect: Dynamos	L
2.1.5	Microphones	L
2.1.6	Loudspeakers	L
2.1a	Induced Potential and the Generator Effect	A
2.2.1	Structure and Action of a Transformer	L
2.2.2	Turns Ratio Equation	L
2.2a	Transformers and the Turns Ratio Equation	A
2.3.1	Step-up and Step-down Transformers	L
2.3.2	Input and Output Currents	L
2.3a	Transformers	A

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Section 10 – Particle Model

Module 1 - The Particle Model

1.1.1	Calculating density	L
1.1.2	The Particle Model and Density	L
1.1.3	Changes of State	L
1.1a	Density and State	A
1.2	Determining Density	Ex
1.2a	Determining Density	A
1.2b	Determining Density	A
1.3.1	Internal Energy	L
1.3.2	Thermal Energy and Specific Heat Capacity	L
1.3.3	Specific Latent Heat	L
1.3a	Energy of Particles	A
1.4	Thermal Insulation	L
1.4a	Thermal Insulation	A
1.5.1	Thermal Properties of Water	Ex
1.5.2	Thermal Properties of Water	Ex
1.5a	Thermal Properties of Water	A
1.5b	Thermal Properties of Water	A

Module 2 - Pressure in Gases

2.1.1	Particle Motion in Gases	L
2.1.2	Kelvin Scale and Absolute Zero	L
2.1a	Particle Motion in Gases and the Kelvin Scale	A
2.2.1	Pressure in Gases	L
2.2.2	pV = Constant	L
2.2a	pV = Constant	A
2.3	Increasing the Pressure of a Gas	L
2.3a	Increasing the Pressure of a Gas	A

Section 11 – Forces and Matter

Module 1 - Stretching Springs

1.1	Stretching and Bending	L
1.1a	Stretching and Bending	A
1.2	F = ke (Theory)	L

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1.2a	F = ke (Theory)	A
1.3	Work Done in Stretching a Spring	L
1.3a	Work Done in Stretching a Spring	A
1.4.1	F = ke Experiment (Doing the Experiment)	Ex
1.4.2	F = ke Experiment (Analysing the Results)	Ex
1.4.3	F = ke Experiment (Calculating Work Done)	Ex
1.4a	F = ke Experiment	A
1.4b	F = ke Experiment	A

Module 2 - Pressure

2.1	P = F/A	L
2.1a	P = F/A	A
2.2	Atmospheric Pressure	L
2.2a	Atmospheric Pressure	A
2.3	P = hρg	L
2.3a	P = hρg	A
2.4	Upthrust in Fluids	L
2.4a	Upthrust in Fluids	A