



2026/2027 SYLLABUS DISTRIBUTION

SUBJECT (COMPUTER SCIENCE 9618)

GRADE (12)

Term 1

- Chapter 13, which includes
 - 13.1 User - Defined Data Types
 - 13.2 File Organization & Access
 - 13.3: Floating Point, Numbers, Representation and manipulation
- Chapter 14, which includes
 - 14.1: Protocols
 - 14.2: Circuit Switching, packet Switching
- Chapter 19, Which includes
 - 19.1 Algorithms
 - 19.2 Recursion
- Chapter 18 Artificial Intelligence
- Chapter 17 Security
- Chapter 15.1 Processor, Parallel Processing & VM
- 15.2 Boolean Algebra & Logic Circuits



2026/2027 SYLLABUS DISTRIBUTION

SUBJECT: BIOLOGY (9700)

GRADE: 12

Term 1

12. Energy and Respiration

13. Photosynthesis

14. Homeostasis

15. Control and Coordination



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SUBJECT: Chemistry **GRADE: 12 (CIE)**

Term 1

Topic 23: Chemical energetics

Topic 27: Group 2

Topic 24: Electrochemistry

Topic 25: Equilibria

Topic 26: Reaction Kinetics

Topic 28: Chemistry of transition metals

Topic 29: Introduction to Organic chemistry

Topic 30: Hydrocarbons



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SUBJECT: PHYSICS GRADE: 12 (CIE)

Term 1

Topics	Chapters
T12: Motion in a circle	Chapter 16: Circular Motion
T13: Gravitational fields	Chapter 17: Gravitational fields
T14: Temperature - T15: Ideal gases - T16: Thermodynamics	Chapter 19: Thermal physics Chapter 20: Ideal gases
T17: Oscillations	Chapter 18: Oscillations
T18: Electric fields	Chapter 21: Uniform electric fields Chapter 22: Coulomb's law
T19: Capacitance	Chapter 23: Capacitance
T20: Magnetic fields	Chapter 24: Magnetic fields and electromagnetism Chapter 25: Motion of charged particles Chapter 26: Electromagnetic Induction
T21: Alternating currents	Chapter 27: Alternating currents
T22: Quantum physics	Chapter 28.1 - 28.5: Quantum physics
P5: Planning, Analysis and Evaluation	Practical Paper 6

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Term 1 2026-27
MATHEMATICS, MECHANICS – GRADE 12

	Topics (Chapters)	Learning Objectives
4.1	Forces and equilibrium (Chapters #2, 3 and 4)	Identify the forces acting in a given situation, e.g. by drawing a force diagram.
		Understand the vector nature of force, and find and use components and resultants; calculations are always required, not approximate solutions by scale drawing.
		Use the principle that, when a particle is in equilibrium, the vector sum of the forces acting is zero, or equivalently, that the sum of the components in any direction is zero; solutions by resolving are usually expected, but equivalent methods (e.g. triangle of forces, Lami's Theorem, where suitable) are also acceptable; these other methods are not required knowledge, and will not be referred to in questions.
		Understand that a contact force between two surfaces can be represented by two components, the normal component and the frictional component.
		Use the model of a 'smooth' contact, and understand the limitations of this model.
		Understand the concepts of limiting friction and limiting equilibrium, recall the definition of coefficient of friction, and use the relationship $F = \mu R$ or $F \leq \mu R$, as appropriate; terminology such as 'about to slip' may be used to mean 'in limiting equilibrium' in questions.
		Use Newton's third law, e.g. the force exerted by a particle on the ground is equal and opposite to the force exerted by the ground on the particle.
4.2	Kinematics of motion in a straight line (Chapters #1 and 6)	Understand the concepts of distance and speed as scalar quantities, and of displacement, velocity and acceleration as vector quantities; restricted to motion in one dimension only; the term 'deceleration' may sometimes be used in the context of decreasing speed.
		Sketch and interpret displacement–time graphs and velocity–time graphs, and in particular appreciate that: - The area under a velocity–time graph represents displacement - The gradient of a displacement–time graph represents velocity - The gradient of a velocity–time graph represents acceleration.
		Use differentiation and integration with respect to time to solve simple problems concerning displacement, velocity and acceleration; calculus required is restricted to techniques from the content for Paper 1: Pure Mathematics 1.
		use appropriate formulae for motion with constant acceleration in a straight line; questions may involve setting up more than one equation, using information about the motion of different particles.

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Term 1 2026-27
MATHEMATICS, PURE MATHEMATICS 3 – GRADE 12



	Topics (Chapters)	Learning Objectives
3.1	Algebra (Chapters #1 &7)	Understand the meaning of $ x $, sketch the graph of $y = ax + b $ and use relations such as $ a = b \Leftrightarrow a^2 = b^2$ and $ x - a < b \Leftrightarrow a - b < x < a + b$ when solving equations and inequalities, e.g. $ 3x - 2 = 2x + 7 $, $2x + 5 < x + 1 $; graphs of $y = f(x) $ and $y = f(x)$ for non-linear functions f are not included;
		Divide a polynomial, of degree not exceeding 4, by a linear or quadratic polynomial, and identify the quotient and remainder (which may be zero)
		Use the factor theorem and the remainder theorem, e.g. to find factors and remainders, solve polynomial equations or evaluate unknown coefficients, including factors of the form $(ax + b)$ in which the coefficient of x is not unity, and including calculation of remainders
		Recall an appropriate form for expressing rational functions in partial fractions, and carry out the decomposition, in cases where the denominator is no more complicated than: $(ax + b)(cx + d)(ex + f)$ $(ax + b)(cx + d)^2$ $(ax + b)(cx^2 + d)$ excluding cases where the degree of the numerator exceeds that of the denominator
		Use the expansion of $(1 + x)^n$, where n is a rational number and $ x < 1$; finding a general term in an expansion is not included; adapting the standard series to expand e.g. $\left(2 - \frac{1}{2}x\right)^{-1}$ is included, and determining the set of values of x for which the expansion is valid in such cases is also included
3.2	Logarithmic and exponential functions (Chapter #2)	Understand the relationship between logarithms and indices, and use the laws of logarithms (excluding change of base)
		Understand the definition and properties of e^x and $\ln x$, including their relationship as inverse functions and their graphs; including knowledge of the graph of $y = e^{kx}$ for both positive and negative values of k
		Use logarithms to solve equations and inequalities in which the unknown appears in indices, e.g. $2^x < 5$, $3 \times 2^{3x-1} < 5$, $3^{x+1} = 4^{2x-1}$
		Use logarithms to transform a given relationship to linear form, and hence determine unknown constants by considering the gradient and/or intercept, e.g. $y = kx^n$ gives $\ln y = \ln k + n \ln x$ which is linear in $\ln x$ and $\ln y$; $y = k(a^x)$ gives $\ln y = \ln k + x \ln a$ which is linear in x and $\ln y$
3.3	Trigonometry (Chapter #3)	Understand the relationship of the secant, cosecant and cotangent functions to cosine, sine and tangent, and use properties and graphs of all six trigonometric functions for angles of any magnitude
		Use trigonometrical identities for the simplification and exact evaluation of expressions, e.g. simplifying $\cos(x - 30^\circ) - 3\sin(x - 60^\circ)$, and in the course of solving equations, e.g. solving $\tan \theta + \cot \theta = 4$, $2 \sec^2 \theta - \tan \theta = 5$, $3 \cos \theta + 2 \sin \theta = 1$ and select an identity or identities appropriate to the context, showing familiarity in particular with the use of: $\sec^2 \theta \equiv 1 + \tan^2 \theta$ and

		$\operatorname{cosec}^2 \theta \equiv 1 + \cot^2 \theta$ – the expansions of $\sin(A \pm B)$, $\cos(A \pm B)$ and $\tan(A \pm B)$ – the formulae for $\sin 2A$, $\cos 2A$ and $\tan 2A$ the expression of $a \sin \theta + b \cos \theta$ in the forms $R \sin(\theta \pm \alpha)$ and $R \cos(\theta \pm \alpha)$,
3.4	Differentiation (Chapter #4)	Use the derivatives of e^x , $\ln x$, $\sin x$, $\cos x$, $\tan x$, $\tan^{-1}x$, together with constant multiples, sums, differences and composites; derivatives of $\sin^{-1}x$ and $\cos^{-1}x$ not required
		Differentiate products and quotients, e.g. $\frac{2x-4}{3x+2}$, $x^2 \ln x$, xe^{1-x^2}
		find and use the first derivative of a function which is defined parametrically or implicitly, e.g. $x = t - e^{2t}$, $y = t + e^{2t}$, e.g. $x^2 + y^2 = xy + 7$, including use in problems involving tangents and normals
3.5	Integration (Chapter #5)	Extend the idea of ‘reverse differentiation’ to include the integration of e^{ax+b} , $\frac{1}{ax+b}$, $\sin(ax+b)$, $\cos(ax+b)$, $\sec^2(ax+b)$ and $\frac{1}{x^2+a^2}$; including examples such as $\frac{1}{2+3x^2}$
		Use trigonometrical relationships in carrying out integration, e.g. use of double-angle formulae to integrate $\sin^2 x$ or $\cos^2(2x)$
		Integrate rational functions by means of decomposition into partial fractions; restricted to types of partial fractions as specified in topic 3.1 above
		Recognise an integrand of the form $\frac{kf'(x)}{f(x)}$ and integrate such functions, e.g. integration of $\frac{x}{x^2+1}$, $\tan x$
		Recognise when an integrand can usefully be regarded as a product, and use integration by parts, e.g. integration of $x \sin 2x$, $x^2 e^{-x}$, $\ln x$, $x \tan^{-1} x$
3.6	Numerical solution of equations (Chapter #6)	Use a given substitution to simplify and evaluate either a definite or an indefinite integral, e.g. to integrate $\sin^2 2x \cos x$ using the substitution $u = \sin x$
		Locate approximately a root of an equation, by means of graphical considerations and/or searching for a sign change, e.g. finding a pair of consecutive integers between which a root lies.
		Understand the idea of, and use the notation for, a sequence of approximations which converges to a root of an equation Understand how a given simple iterative formula of the form $x_{n+1} = F(x_n)$ relates to the equation being solved, and use a given iteration, or an

		iteration based on a given rearrangement of an equation, to determine a root to a prescribed degree of accuracy; knowledge of the condition for convergence is not included, but an understanding that an iteration may fail to converge is expected
3.7	Vectors (Chapter #7)	use standard notations for vectors, i.e. $\begin{pmatrix} x \\ y \end{pmatrix}$, $xi + yj$, $\begin{pmatrix} x \\ y \\ z \end{pmatrix}$, $xi + yj + zk$, $\overline{AB}$, $\mathbf{a}$
		Carry out addition and subtraction of vectors and multiplication of a vector by a scalar, and interpret these operations in geometrical terms, e.g. 'OABC is a parallelogram' is equivalent to $\overrightarrow{OB} = \overrightarrow{OA} + \overrightarrow{OC}$; the general form of the ratio theorem is not included, but understanding that the mid-point of AB has position vector $\frac{1}{2}(\overrightarrow{OA} + \overrightarrow{OB})$ is expected
		calculate the magnitude of a vector, and use unit vectors, displacement vectors and position vectors, in 2 or 3 dimensions
		Understand the significance of all the symbols used when the equation of a straight line is expressed in the form $\mathbf{r} = \mathbf{a} + t\mathbf{b}$, and find the equation of a line, given sufficient information e.g. finding the equation of a line given the position vector of a point on the line and a direction vector, or the position vectors of two points on the line
		Determine whether two lines are parallel, intersect or are skew, and find the point of intersection of two lines when it exists; calculation of the shortest distance between two skew lines is not required; finding the equation of the common perpendicular to two skew lines is also not required
		Use formulae to calculate the scalar product of two vectors, and use scalar products in problems involving lines and points; e.g. finding the angle between two lines, and finding the foot of the perpendicular from a point to a line; questions may involve 3D objects such as cuboids, tetrahedra (pyramids), etc.; knowledge of the vector product is not required