

CURRICULUM DOCUMENTATION FOR IB DIPLOMA BATCH MAY 2011

Subject – Mathematical Studies

July – August 2009

Topic	July, August - Introduction to the graphic display calculator, Functions Number and algebra
No. of hours	Introduction to the graphic display calculator - 3 hours Functions Number and algebra - 14 hours
Content	<p>Introduction to the graphic display calculator:-</p> <p>Arithmetic calculations, use of the GDC to graph a variety of functions.</p> <p>Appropriate choice of “window”; use of “zoom” and “trace” (or equivalent) to locate points to a given accuracy. Explanations of commonly used buttons. Entering data in lists.</p> <p>Functions :-</p> <p>Natural numbers, standard form, rounding off, calculations to proper significant digits, arithmetic progression, geometric progression, sequences</p>
Reference and handouts	<p>Books – Mathematical Studies SL by Robert Haese and Mal Coad, CD - www.crocodile-clips.com, Autograph</p> <p>Question papers – IB CD for last five years papers</p> <p>Websites : www.occ.ibo.org, www.freeexampapers.com ,geogebra.com,www.worldmapper.org,www.mathdl.org</p>

TOK aspects	Discussion on advancement of calculating skills and instruments
Teaching aids	Video, power point presentation
Assessment	MT1

September- October 2009

Topic	September, October - Sets, logic and probability
No. of hours	Sets, logic and probability – 20 Hours
Content	<p>Sets, logic and probability:- Basic knowledge of set theory, union, intersection, compliment, venn diagrams, sample space, complementary events , equivalence, conjunction, disjunction, truth tables, equally likely events,laws of probability,</p> <p style="text-align: right;">- 20 Hour</p>
Reference and handouts	<p>Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling</p> <p>CD - www.crocodile-clips.com</p> <p>Question papers – IB CD for last five years papers</p> <p>Websites : www.occ.ibo.org, www.freeexampapers.com,</p>

TOK aspects	Use of card, dice, coin in explaining probability How probability can be used for practical purpose
Teaching aids	Video, power point presentation
Assessment	MT1

November- December 2009

Topic	November- December - Geometry
No. of hours	Geometry - 20 hours
Content	<p>Geometry:- Coordinates in two dimensions: points; lines; midpoints. Distances between points. Equation of a line in two dimensions: the forms, $y = mx + c$ and $ax + by + d = 0$. Gradient; intercepts. Points of intersection of lines; parallel lines; perpendicular lines.</p> <p style="text-align: right;">- 20 hours</p>
Reference and handouts	<p>Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling</p> <p>CD - www.crocodile-clips.com</p> <p>Question papers – IB CD for last five years papers</p> <p>Websites : www.occ.ibo.org, www.freeexampapers.com,</p>

TOK aspects	Geometry of golden ratio in humans and nature
Teaching aids	Video, power point presentation
Assessment	TE1

January- February 2010

Topic	January, February - Trigonometry
No. of hours	Trigonometry - 28 hours
Content	Trigonometry :- Right-angled trigonometry. Construction of labelled diagrams from verbal statements. Geometry of three-dimensional shapes: cuboid; prism; pyramid; cylinder; sphere; hemisphere; cone. Lengths of lines joining vertices with vertices, vertices with midpoints and midpoints with midpoints; sizes of angles between two lines and between lines and planes
Reference and handouts	Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling CD - www.crocodile-clips.com Question papers – IB CD for last five years papers Websites : www.occ.ibo.org , www.freexampapers.com ,

TOK aspects	Use of trigonometry in architecture
Teaching aids	Video, power point presentation
Assessment	MT2

March- April 2010

Topic	March, April - Functions
No. of hours	Functions – 24 hours
Content	<p>Functions - Concept of a function as a mapping. Domain and range. Mapping diagrams. Linear functions and their graphs, for example, The graph of the quadratic function: $f(x)=ax^2+bx+c$. Properties of symmetry; vertex; intercepts. The exponential expression, Graphs and properties of exponential functions. Growth and decay; basic concepts of asymptotic Graphs and properties of the sine and cosine functions: Use of a GDC to sketch and analyse some simple, unfamiliar functions. Use of a GDC to solve equations involving simple combinations of some simple, unfamiliar functions.</p> <p>Planning of Project</p>
Reference and handouts	<p>Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling</p> <p>CD - www.crocodile-clips.com</p> <p>Question papers – IB CD for last five years papers</p> <p>Websites : www.occ.ibo.org, www.freexam papers.com,</p>

TOK aspects	Computer stimulations can be used to describe different aspects
Teaching aids	Video, power point presentation
Assessment	MT2

May- 2010

Revision

Data collection and first draft of project

August 2010

Topic	August - statistics and probability
No. of hours	Statistics and probability – 8 hours
Content	<p>Statistics and probability – binomial distribution, poisson distribution, its mean and variance, standardization of normal variables</p> <p>Discussion of mathematical project draft and corrections</p>
Reference and handouts	<p>Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling</p> <p>CD - www.crocodile-clips.com</p> <p>Question papers – IB CD for last five years papers</p> <p>Websites : www.occ.ibo.org, www.freexampapers.com,</p>

TOK aspects	Use of statistics in estimating problems of population, education, immunization in Africa
Teaching aids	Video, power point presentation

Assessment	TE2
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September- October 2010

Topic	September - Introductory differential calculus
No. of hours	Introductory differential calculus - 24 hours
Content	<p>Gradient of the line through two points, P and Q, that lie on the graph of a function.</p> <p>Behaviour of the gradient of the line through two points, P and Q, on the graph of a function as Q approaches P. Tangent to a curve. Gradients of curves for given values of x. Values of x where $f'(x)$ is given. Equation of the tangent at a given point.</p> <p>Increasing and decreasing functions. Values of x where the gradient of a curve is 0 (zero): solution of $f'(x) = 0$. Local maximum and minimum points.</p> <p>Final draft of project</p>
Reference and handouts	<p>Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling</p> <p>CD - www.crocodile-clips.com</p> <p>Question papers – IB CD for last five years papers</p>

	Websites : www.ocw.ibo.org , www.freeexampapers.com ,
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TOK aspects	Internationalism in mathematics
Teaching aids	Video, power point presentation
Assessment	MT3

November- December 2010

Topic	November- December - Financial mathematics
No. of hours	Financial mathematics - 10 hours
Content	Currency conversions. Simple interest: use of the formula 100 $I = Crn$ where C = capital, r = % rate, n = number of time periods, I = interest. Compound interest: use of the formula Depreciation. The value of r can be positive or negative. Construction and use of tables: loan and repayment schemes; investment and saving schemes; inflation.
Reference and handouts	Books – Mathematical Studies by Robert Haese and Mal Coad, Mathematics for IB Diploma By Neill and Quadling CD - www.crocodile-clips.com

	<p>Question papers – IB CD for last five years papers</p> <p>Websites : www.occ.ibo.org, www.freeexampapers.com,</p>
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TOK aspects	Study of various finance schemes of car dealers
Teaching aids	Video, power point presentation
Assessment	MT3