**MATHEMATICS GENERAL COURSE: SUMMARY OF CHANGES**

**Robert Yen, June 2012**

**PRELIMINARY COURSE**

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| **FINANCIAL MATHEMATICS**  **Earning and managing money:** Household bills moved to HSC course MG1  **Investing money:** Deleted: compound interest graph  **Taxation:** GST (but not VAT) | **MEASUREMENT**  **Units of measurement and applications**   * Assumed knowledge: metric units, measurement error, limits of accuracy * Concentration and percentage error moved to HSC course MG2   **Applications of perimeter, area and volume**   * New: Perimeter of composite shapes * Nets of solids, sketching solids moved to HSC course MG1 * Surface area of prisms, volumes of pyramids, cones, spheres moved to HSC course MG2   **Similar figures and trigonometry:** nearest degree only, minutes for HSC course MG2 |
| **DATA AND STATISTICS**  **Data collection and sampling**   * Assumed knowledge: Frequency histogram/polygon, stem-and-leaf plots * New: Categorical data divided into nominal vs ordinal data * Capture-recapture technique moved to HSC course MG2   **Displaying and interpreting single data sets**   * Deciles, quartiles and percentiles   **Summary statistics:** Population SD only | **PROBABILITY**   * Assumed knowledge: language of chance, ordering events, sample space   **ALGEBRA AND MODELLING**  **Algebraic manipulation**   * New: Multiplying and dividing algebraic fractions * Solving equations following substitution into formula moved to HSC course MG1 and 2   **Interpreting linear relationships**   * Linear variation moved to HSC course MG2, Line of fit moved to HSC course MG1 and 2 * Deleted: Piecewise linear functions |
| **FOCUS STUDIES = 1/3 OF COURSE (NEW)** | |
| **MATHEMATICS AND COMMUNICATION**  **Mobile phone plans**   * Different plans, reading bills * Costs, including calls, SMS and downloading data * Typical usage, graphs and tables of phone usage costs (step graphs)   **Digital download and file storage**   * Megabyte, gigabyte, terabyte: memory size and conversions * Upload and download speed and time * Downloading music and video (statistics) | **MATHEMATICS AND DRIVING**  **Costs of purchase and insurance**   * Motor insurance and theft statistics * Costs of purchase, including stamp duty * Reducing balance loans   **Running costs and depreciation**   * Fuel consumption and costs * Straight-line and declining-balance depreciation moved from HSC course   **Safety**   * Speed, distance, time and stopping distance * Blood alcohol content (BAC): formulas * Accident statistics |

**HSC COURSE**

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| **MATHEMATICS GENERAL 1** | **MATHEMATICS GENERAL 2** |
| **FINANCIAL MATHEMATICS**  **Credit cards** | **FINANCIAL MATHEMATICS**  **Credit and borrowing**  **Annuities and loan repayments**   * Deleted: Annuity formulas (tables only) * Depreciation moved to Driving focus study in Preliminary course |
| **DATA AND STATISTICS**  **Distributions**   * Shape of a distribution * Standard deviation   **Interpreting sets of data**   * incl radar charts, two-way tables   **NEW: Working with statistics**   * Common misconceptions * Sampling in probability | **DATA AND STATISTICS**  **Interpreting sets of data**   * New: Outliers: formal definition * New: Pivot tables   **The normal distribution**   * Correlation moved to Body Measurements focus study * Deleted: median regression line   **NEW: Sampling and populations**   * Sample mean vs population mean * Capture-recapture technique * Generating random numbers |
| **MEASUREMENT**  **Area and volume**   * Deleted: Area of an ellipse * New: Volumes of prisms and annular cylinders | **MEASUREMENT**  **Area and volume**   * Percentage error * Deleted: Area of an ellipse * Volumes of prisms, pyramids, cones, annular cylinders, composite solids   **Applications of trigonometry**  **Spherical geometry**   * Deleted: Nautical miles and knots |
| **PROBABILITY** | **PROBABILITY**   * Deleted: Probability with two-way tables |
| **ALGEBRA AND MODELLING**  **Further algebraic skills**   * New: Index laws * New: Equations with brackets or *x* in denominator * Solving equations after substitution into formula moved from Preliminary course   **Modelling with functions**   * Linear functions, break-even point * Simpler quadratic functions *y* = *ax*2 + *c* | **ALGEBRA AND MODELLING**  **Further algebraic skills and techniques**   * New: Adding and subtracting algebraic fractions, index laws * Solving equations after substitution into formula moved from Preliminary course * New: Equations involving lgebraic fractions, *x* in denominator, up to 4 steps, simultaneous equations * Deleted: Solving non-linear equations by guess-and-check   **Modelling linear relationships**  **Modelling non-linear relationships**   * Variation and inverse variation * Exponential grwoth (but not decay) |

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| **MATHEMATICS GENERAL 1** | **MATHEMATICS GENERAL 2** |
| **FOCUS STUDIES = 2/3 OF COURSE (NEW)** | **FOCUS STUDIES = 1/3 OF COURSE (NEW)** |
| **MATHEMATICS AND DESIGN**  **Scale drawings and house plans** (moved from the Preliminary course)  **Design** (first 2 moved from Preliminary course)   * Enlargements and reductions * Drawing 3D objects, perspective drawings * Line and rotational symmetry * Golden ratio, tessellations |  |
| **MATHEMATICS AND HOUSEHOLD FINANCE**  **Accommodation costs: buying and renting**   * Stamp duty, mortgage application fees, conveyancing, rental bonds * Reducing balance home loans: graphs and tables   **Costs of running a household, maintenance and repairs**   * Home insurance, strata fees * Household bills and saving money * Renovation, extension and repair costs |  |
| **MATHEMATICS AND THE HUMAN BODY**  **Blood:** Heart rate, blood pressure, blood types  **Body measurements:** line of best fit, correlation  **Lung capacity** | **MATHEMATICS AND HEALTH**  **Body measurements:** New: least-squares line of best fit, correlation coefficient  **Medication:** Milligrams, concentrations, child’s dosage, drip rates  **Life expectancy:** Graphs and statistics |
| **MATHEMATICS AND PERSONAL RESOURCE USAGE**  **Water usage and collection:** Household use, rainfall, volume of water  **Electricity:** Household use, power use by appliances  **Sustainability and energy-efficient housing:** Areas and volumes, reading scale plans | **MATHEMATICS AND RESOURCES**  **Water availability and usage:** Household use, rainfall, volume of water  **Dams, land and catchment areas:** Scale diagrams, perimeter, area, volume  **Energy and sustainability:** see Maths General 1 under Electricity and Sustainability and energy-efficient housing |