Programme Structure

Year 1			
Course	**Code**	**Course**	**Code**
Probability and Statistics	FMS 1133	Calculus 2	FMS 2113
Algebra	FMS 1223	Statistical Theory	FMS 1213
Calculus 1	FMS 1263	Principles of Management	PMS 1113
Physics	FFS 1113	Problem Solving Algorithm	IXS 1124
Physics Lab	FFS 1121	Technical English 2	ZES 1243
Technical English 1	ZES 1133	Malaysian Studies	MPW 2133
Foreign Language I	ZLU ****	Islamic / Morale Studies	MPW 2143 / MPW 2153
Year 2			
Course	**Code**	**Course**	**Code**
Linear Algebra	FMS 3133	Statistical Methods and Application	FMS 2223
Philosophy and Civilization of Knowledge	FXS 1212	Experimental Design	FMS 2323
Free Elective Subject		Linear Programming	FMS 3213
Co-curriculum	HKU 1111	Major Elective Subject	FMS ****
Statistical Inference	FMS 2123	Major Elective Subject	FMS ****
Free Elective Subject		Co-curriculum	HKU 2111
National Language A-exemption	MPW 1113	Foreign Language II	ZLU
Year 3			
Course	**Code**	**Course**	**Code**
Linear Regression	FMS 3153	Ordinary Differential Equations	FMS 3313
Real Analysis	FMS 3113	Entrepreneurship	PFS 3233
Statistical Computing	FMS 4333	Time Series	FMS 3333
Major Elective Subject	FMS ****	Research Project	FSS 4133
Free Elective Subject	FSS ****	Major Elective Subject	FMS ****
Scientific Communication	BBS 3123	Free Elective Subject	
Free Elective Subject		Free Elective Subject	
Year 4			
Course	**Code**	**Course**	**Code**
Industrial Training	FSS 4123		

Core Course Description

Course Code	Course	Synopsis
FMS 1223	Algebra	Review of real number system, complex numbers, vectors, polynomial, series induction, matrices and system of linear equations
FMS 1263	Calculus I	This subject covers system number, continuity, differentiation, integration and differential equation
FMS 2113	Calculus 2	Review basic concepts in curve and polar coordinate, further differentiation, further integration, application of integration, multivariable functions, partial differentiation, double integral and triple integral
FMS 3133	Linear Algebra	Review inverse matrix, system of linear equation, vector space, linear transformation, eigenvalue and eigenvector.
FMS3123	Linear Programming	Linear programming (LP) is a technique for optimization of a linear objective function, subject to linear equality and linear inequality constraints. Informally, linear programming determines the way to achieve the best outcome (such as maximum profit or lowest cost) in a given mathematical model and given some list of requirements represented as linear equations. Optimization will be solved by dual and simplex method.
FMS3313	Ordinary Differential Equation	This is major core subject, taken by students majoring in mathematics. Students will further look at the definition of Differential Equation, Techniques of solving ODE and the applications of First and Second order Ordinary Differential Equation.
FMS3113	Real Analysis	Review of Analysis Set Theory, Introduction of set and notation for set, relations and functions analyze cardinality, analyze limit, limit theorem, limit at infinity, analyze The axioms for the Real Numbers, field and order, analyze completeness axioms, metrics space, analyze Sequences, convergence and boudedness, Sandwich Theorem, monotone sequences, Nested Interval Theorem, Subsequences, Analyze The Topology of R, analyze open and closed sets, Analyze limit points, Bolzano-Weierstrass theorem, analyze Cauchy Sequences, Analyze Covering Properties and Compactness, Analyze Connectedness, Analyze Continuity, operation sum, product, quotient and composition on continuity, Analyze Unilateral Continuity, Jump discontinuity, removable discontinuity, Monotone function are “nearly everywhere” continuous, uniform continuity, analyze Differentiation, operation on differentiation, Chain rule, analyze Extrema, Mean value theorems, monotonicity, Darboux property.

Course Code	Course	Synopsis
FMS1213	Statistical Theory	Review of statistical distributions, identify types of discrete and continuous distributions and apply these distributions in statistical problem, finding the probability distribution of a function of random variables
FMS 1133	Probability & Statistics	Review the definition of statistics. Differentiate between a population and sample; distinguish between descriptive statistics and inferential statistics. Organize and describe data sets. Use data to determine the probability that an event will occur. Create and use probability distributions. Apply the Normal, Binomial and Poisson distribution and its approximation to Normal
FMS 2123	Statistical Inference	Review of sampling distribution, estimation of parameters and its properties, methods of estimation, maximum likelihood estimation, Bayesian statistics and moment generating function. Constructing confidence intervals for parameters and making decisions by hypothesis testing for parameters.
FMS 2223	Statistical Methods & Application	Review of basic statistics method, Introduction to computer statistical package, One-way ANOVA – randomized complete design, Multiple and contrast comparison, Two-way ANOVA – randomized complete block design, Two-way ANOVA – equal sample sizes, Correlation and simple linear regression and analysis, Multiple regression, Categorical data analysis.
FMS 2323	Experimental Design	This course covers principles of design such as randomization, replication, factorial arrangement and blocking. Practical experience is gained in designing, carrying out, analyzing and writing up the results of an experimental study. Methods of analysis are discussed and practiced, mainly on computer. The emphasis is on general principles of design and analysis rather than in describing the details of particular design layouts
FMS 4333	Statistical Computing	This course is designed to introduce students' exploration of the theoretical and practical problems in the development and use of statistical tools for numerical and graphical analysis of data. Topics covered include the study of statistical software packages, SAS, to handle large data sets, programming of computer algorithms that perform statistical tests of hypotheses; ANOVA; regression analysis and presentation of results using statistical computing tools for reporting.
FMS 3153	Linear Regression	Simple linear regression, method of least squares, residual, estimation of error term variance, inferences, coefficient of determination, correlation, diagnostics and remedial measures, matrix approach to simple linear regression, multiple linear regression, matrix approach to multiple regression, inferences, multicollinearity, model selection, regression models for quantitative and qualitative predictors, Nonlinear regression, inferences.

Course Code	Course	Synopsis
FSS 4123	Industrial Training	The subjects discussed tend to expose students to various aspects of industrial training especially in areas related to human resource management field such as resource planning, development, performance appraisal, compensation and industrial relations
FSS 4133	Research Project	This course is primarily concerned with the knowledge in preparing a good research and having ability and skill in dealing with people.
BDS 3213	Scientific Communication	This subject is designed to enable students on thesis writing which is part of them pre-requisite for the degree of Scientific communication. This subject encompasses of lecture in thesis writing, practices and seminar presentation by students.