<table>
<tr><td>Course Synopsis
Course Code</td><td colspan="6">CYE3200</td></tr>
<tr><td>Course Title</td><td colspan="6">Mathematics for Chemistry and Biology</td></tr>
<tr><td>Credit value</td><td colspan="6">02</td></tr>
<tr><td>Core/Optional</td><td colspan="6">Compulsory course for all A/L biology stream students, Should Pass this course to get the degree</td></tr>
<tr><td>Prerequisites</td><td colspan="6">Three Passes in A/L or Foundation Certificate Course in Bio Sciences stream</td></tr>
<tr><td>Hourly breakdown</td><td colspan="2">Theory</td><td>Practical</td><td>Independent Learning</td><td>Assessment</td><td>Total</td></tr>
<tr><td></td><td>28hrs

(Sessions; 14 x 2)</td><td>42 hrs
(DS 6x6 hrs) +
(RDS 1x6 hrs)</td><td>N/A</td><td>28 hrs

(Sessions; 14 x 2)</td><td>02hrs

(CAT 2x 1 hrs)</td><td>100 hrs</td></tr>
<tr><td>Course Aim/s.</td><td colspan="6">To develop an understanding of mathematics required to learn degree level chemistry , develop an ability to solve the problems and develop an ability to use learn mathematics for required places.</td></tr>
<tr><td>PLOs addressed by course</td><td colspan="6">PLO1: Theoretical Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the BSc degree.
PLO2: Problem analysis and Application. Acquire competency in problem analysis skills and the necessary knowledge to appropriately use these skills.
PLO3: Information and Communication Technology Literate
PLO4: Individual Work, Team Work and Leadership: Function effectively as an individual, and as a team member, sharing work and experiences, leading and managing assigned tasks to completion on time, demonstrating leadership to address situations in diverse and multi-disciplinary environments in day to day life.
PLO5: Creativity and Problem Solving: Identify problems and argue out and analyze such problems using to provide valid conclusions
PLO6: Vision for Life: Identify where one wants to be and develop long term goals maintaining competency to conduct scientific investigations and proceed to undertake further studies.
PLO7: Lifelong Learning: Foresee new trends and recognize their impact, and update knowledge and develop new skills to meet future changes and challenges</td></tr>
<tr><td>Course Learning Outcomes (CLO)</td><td colspan="6">CLO 1: Describe fundamental of mathematics, principles and uses in degree level.(PLO 01)
CLO 2: Solve problems associated with functions, trigonometry with rules(PLO 01, 02, and 05)
CLO 3: Explain how the limits and differentiation relationship and the rules (PLO 02 & 04)
CLO 4: Solve problems involving limits and differentiation (PLO 01, 02, 04 & 07)
CLO 5: Giving examples describe integration. (PLO 01)
CLO 6: Solve problems involving integration(PLO 01, 02, 04, 05 and 06)
CLO 7: Describe statistical theories. (PLO 01)
CLO 8: Explain the use of statistical by using with examples (PLO 01)</td></tr>
<tr><td>Content

(Main topics, sub topics)</td><td colspan="6">Basic mathematics
Numbers Introduction, Real Numbers, Factorials, Infinity; Basic Algebra Introduction As a generalized from Arithmetic, Mathematical Operation, Laws of Indices, Equations Partial fractions Binomial theorem; Logarithms Introduction, Definitions, Law/Priorities of logarithm Natural logarithm some common mistakes; Functions Variables with one variable Function with more than one variable Linear and Non- linear functions Exponential and Logarithmic functions; Limits Introduction Definition of Limits, Limits involving infinity,
Limits not involving infinity; Differentiation What is differentiation, Illustration of Differentiation, Differentiation from first principles, Notations, The short cut method,</td></tr>
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<tr><td></td><td colspan="2">Derivative of polynomial functions, Derivative of the exponential functions y =e^x Derivative of log functions, Derivative of sine and cosine the functions
Differentiation of composite functions, Differentiation of product Differentiation of a Quotient; Turning PointsIntroduction, Turning Points, Maxima and minima Point of Inflexion First Criteria, Second Criteria; Partial differentiation, Introduction Definition Total Differentiation Introduction Definition Further Derivatives; Integration Indefinite Integration, Standard Integration -Table Integration by substitution Integration by partial fractions Definite Integration
Statistics
What is statistics Introduction, Data, Biometry /Biostatistics, The present importance of statistics, Two kinds of statistics, Population of sample Variable Parameters and statistics; Classification and pictorial description of Data, Introduction, Frequency distribution class interval class limit, How to construct a frequency distribution class mark, Class Boundaries, Cumulative frequency distribution; Histograms and frequency polygons; Measures of central tendency Introduction The arithmetic mean, The mean of classified data, Weighted arithmetic mean, Properties of the arithmetic mean 'coding method' of computing mean from grouped data, The median, The mode ;Measures of variation. Introduction, Dispersion of data, The range, The mean deviation The variance and standard deviation</td></tr>
<tr><td></td><td colspan="2">• Self- learning: Course material in print, Online component developing stage.
• Non-compulsory contact sessions – Day schools
• Continuous assessments: 02 NBT + 01 Final examination</td></tr>
<tr><td rowspan="2">Assessment strategy</td><td>Overall CA Mark (OCAM): 35%</td><td>Final Assessment: 60%</td></tr>
<tr><td>Theory (100%): NBT: MCQ/SEQ – 02x 1 hrs

OCAM Computation:

60% Best 2 NBT + 40% Other NBT</td><td>Final Evaluation
Theory: 100%

1 paper – 02 hrs</td></tr>
<tr><td>Recommended Readings:</td><td colspan="2">1. Clark G. M., Cooke, D., (1983), Basic course in statistics, publisher Edward Arnold
2. Walpole R.E, Elementary statistical concept, Macmillan publishing Co. Inc New York, 2nd edition
3. Gupta C.B,(1979), An introduction to Statistical Methods, Vikas Publishing House PVT Ltd India
4. Plews A. M. Introduction statistics Heirmann Education Books Ltd London</td></tr>
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