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**Introduction to the online Professional Learning Course for Further Maths AS Unit 1 (Pure).**

The course is split into five periods of study, each of two or three weeks, that will enable participants to study the content of the module and encounter possible teaching approaches in the comfort of their homes. This will be backed up by both the opportunity to email the tutor during the study period and a zoom meeting with the tutor at the end of each study period in which some exam style questions will be considered.

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| Study Period 1 | Complex Numbers | * Introduction to complex numbers * Geometry of complex numbers * Loci * Mappings of the complex plane |
| Study Period 2 | Polynomials and Introduction to Matrices | * Roots of Polynomials * Properties of Roots * Introduction to Matrices * Matrices and Transformations |
| Study Period 3 | Matrices and Transformations | * Algebra with 2 × 2 matrices * 2D Transformations using 2 × 2 matrices * 2D Transformations using 3 × 3 matrices * Simple Transformations in 3 dimensions |
| Study Period 4 | Proof by Induction and Series | * Proof by Induction * Series |
| Study Period 5 | Vectors | * Vector equation of a line * Scalar Product * Equation of a Plane * Distances and Angles |

The resources for each topic will be placed in a folder on Microsoft Teams.

The resources for each session include

* The flipped classroom videos which, although initially prepared for use by A-level students, will give a valuable overview of the concepts to be encountered.
* PowerPoints which develop the major concepts and illustrate them with fully worked solutions to examples.
* Exercises (with outline solutions) : participants are encouraged to work through at least some of these!
* Where appropriate, Geogebra files illustrating the concepts or providing animations of the physical situations.
* A final PowerPoint containing the questions that we will be considered during the zoom meeting: participants are encouraged to have a go at as many as possible of these before the session so that solution methods and any problems encountered can be discussed during the zoom meeting.

*An extract from the study material from the first session can be found ……….*