GEK1517 Mathematical Thinking

--- Course Description ---

List of Topics to be Covered:

**The Notion of Proof in Mathematics.**

**Three Models:**
The Definition-Theorem-Proof (DTP) model of Mathematics (with examples from Euclidean Geometry and others).

The Definition-Speculation-Theorem-Proof (DSTP) model of Mathematics (with examples).

The Idea-Criticism model of Mathematics.

**Major Facilities for Mathematical Thinking:** Human Language; Vision, Spatial Sense and Motion Sense; Logic and Deduction; Intuition, Association and Metaphor; Stimulus Response; Process and Time.

**Critical Reasoning:** Conjectures and Refutations.

**Post Critical Facets:** Fact ≠ Knowledge; Personal Use of Imagination, Heritage/Tradition, Connoisseurship, Conviviality and Serendipity.

**Lectures:** WED 10-12Noon in LT27; THURSDAY 6 -8PM in LT25. Tutorials: To be arranged in the second week.

**Assessment:**
* Two (about 20 min each) short quizzes in tutorial classes/lectures (20%).
* **Final Exam** (80%): can bring in one (1) hand-written (on both sides) A-4 size help sheet. **Date of the Exam:** 29 Nov 2005 PM Session (please double check).

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