MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

SUPERVISOR'S INFO

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PROJECT ID: PS2520-11

TITLE

Explorations in Diophantine Problems

BRIEF DESCRIPTION OF PROJECT

Each student selects a topic from Diophantine Problems and develops an individual mini-project. Possible areas include continued fractions, Pell's equation, sums of squares, quadratic fields, irrationality proofs, or Diophantine approximation. The project should introduce the problem, explain the relevant theory, and illustrate the method with clear examples.

EXPECTATION/S

Submit a concise report plus a short presentation. Include key results, worked examples, and one small extension or application beyond the text. Writing must be clear, correct, and self-contained. Each student is responsible for an independent project showing understanding of both the theory and its use in solving Diophantine problems.

PREREQUISITE/S (at level 3000 or below, with at most one course at level 3000)

Students should have basic knowledge of algebra (integers, primes, modular arithmetic), elementary number theory techniques, and comfortable manipulation of equations. Familiarity with proofs, especially induction and simple number-theoretic arguments, is expected. No prior knowledge beyond MA2104 and MA2108 is required.

READING REFERENCE/S

Number Theory: An Elementary Introduction Through Diophantine Problems, Daniel Duverney, World Scientific, 2010