Module Code: MATH-408
Module Title: **Number Theory-I**
Module Rating: 3 Cr. Hours

Congruences

- Elementary properties of prime numbers
- Residue classes and Euler's function
- Linear congruences and congruences of higher degree
- Congruences with prime moduli
- The theorems of Fermat, Euler and Wilson

Number-Theoretic Functions

- Möbius function
- The function [x], the symbols O and their basic properties

Primitive roots and indices

- Integers belonging to a given exponent
- Composite moduli, primitive roots modulo a prime
- Determination of integers having primitive roots indices

Recommended Books

1. W. J. Leveque, *Topics in Number Theory*, (Vols. I and II, Addison-Wesley Publishing Co., 1956)
2. Tom M. Apostol, *Introduction to Analytic Number theory*, (Springer International, 1998)
3. David M. Burton, *Elementary Number Theory*, 6th edition, (McGraw Hill Company, 2007)
4. A. Andrew, *The Theory of Numbers*, (Jones and Barlett Publishers London, 1995)
5. Harry Pollard, *The Theory of Algebraic Numbers*, (John Wiley and Sons, Inc, 1950)

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