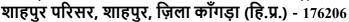
हिमाचल प्रदेश केंद्रीय विश्वविद्यालय

Central University of Himachal Pradesh

(Established under Central Universities Act 2009)



Shahpur Parisar, Shahpur, Distt. Kangra (HP) - 176206 Website: www.cuhimachal.ac.in

Course Name: Elementary Number Theory

Course Credit: 02

Course Code: IAM 415

Course Instructor: Prof. Rakesh Kumar

Credits Equivalent: (One credit is equivalent to 10 hours of lectures / organized classroom activity / contact hours; 5 hours of laboratory work / practical / field work / Tutorial / teacher-led activity and 15 hours of other workload such as independent individual/group work; obligatory/optional work placement; literature survey/ library work; data collection/ field work; writing of papers/ projects/dissertation/thesis; seminars, etc.)

Course Objective: The main objective of this course is to introduce the concept of elementary Number Theory and their properties.

Course Outcome:

By the end of the course students will be able:

CO¹: To work on the divisibility theory in the integers.

CO²: To know a more efficient avenue for testing the numbers as roots of Diophantine equation.

CO³: To explore the concept of Prime numbers and their distribution.

CO4: To explore the theory of congruences along with famous Fermat's & Wilson's theorems.

Attendance Requirements

Students are expected to attend all lectures in order to be able to fully benefit from the course. A minimum of 75% attendance is a must, failing which a student may not be permitted to appear in examination.

Evaluation Criteria:

Mid Term Examination: 20

End Term Examination: 60

Internal Assessment: 20

Course Contents:

Unit I: The Division Algorithm, The Greatest Common Divisor, The Euclidean Algorithm, The

Diophantine Equation. (10 Hours)

Unit II: The Fundamental Theorem of Arithmetic, Basic Properties of Congruences, Linear



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Congruences and the Chinese Remainder Theorem, Fermat's Little Theorem and Pseudo-primes,

Wilson's Theorem. (10 Hours)

Prescribed Text Books:

- 1. David M. Burton: Elementary Number Theory, Seventh Edition, McGraw Hill, 2009.
- 2. Kenneth H. Rosen, Elementary Number Theory and its Applications, 6th ed., Pearson, 2014

Suggested Additional Readings:

1. Baker A.: A Concise Introduction to the Theory of Numbers, First Edition, Cambridge University Press, 1984.

Course Articulation Matrix MTH 510- NUMBER THEORY

Course Outcomes	Prog. Outcomes 1	Prog. Outcomes 2	Prog. Outcomes 3	Prog. Outcomes 4	Prog. Spec. Outcomes 1	Prog. Spec. Outcomes 2
CO1	3	1	1	1	3	2
CO2	2	1	2	2	2	1
CO3	3	2	1	1	3	2
CO4	2	2	2	2	2	2

- 1. Partially Related
- 2. Moderately Related
- 3. Highly Related