Semester	JAN 2022
Open to semester	6,8,12,14
Course code	**MT3224**
Course title	**Algebraic Number Theory**
Credits	4 /
Course Coordinator & participating faculty (if any)	Supriya Pisolkar
Nature of Course	Lectures
Pre-requisites	1. Course on Rings-Vectors spaces-Modules 2. Field theory and Galois theory
Objectives (goals, type of students for whom useful, outcome etc)	This will be a first introduction to Algebraic number theory which goes beyond the elementary number theory. In this course we will learn foundations of Algebraic number theory often regarded as one of the complete beautiful theories in mathematics.
Course contents (details of topics /sections with no. of lectures for each)	Basic number theory: Solving congruences, Chinese remainder theorem, Quadratic reciprocity. (6- 8 lectures) Prime ideals in Z[i], Algebraic numbers, Dedekind domains, Ideal class group, Ramification theory, finiteness of class number, Local fields. (20 - 25 lectures) Examples: quadratic extensions; cyclotomic extensions. Time permitting: ad`eles and id`eles. (5 - 6 lectures)
Evaluation /assessment	End-Sem Examination-60% Mid-Sem Examination-40% Others-%
Suggested readings (with full list of authors, publisher, year, edn etc.)	1. Algebraic Number Theory by Jurgen Neukirch, Springer, Comprehensive Series Vol. 322. 2. Problems in algebraic number theory by Esmonde and Murty, Springer GTM, Vol. 190. 3. Number fields by Daniel Marcus - Springer publications. 4. P-adic numbers by F. Q. Gouvea. - Springer publications.