MA 314: TOPICS IN COMMUTATIVE ALGEBRA

INSTRUCTORS: AMBEDKAR DUKKIPATI/SANKARAN VISWANATH

OUTLINE OF THE COURSE

Abstract relations and Dickson's Lemma; Hilbert Basis theorem, Buchberger Criterion for Gröbner Bases and Elimination Theorem; Field Extensions and the Hilbert Nullstellensatz; Decomposition, Radical, and Zeroes of Ideals; Syzygies, Gröbner Bases for Modules, Computation of Hom, Free Resolutions; Universal Gröbner Bases and Toric Ideals.

Pre-requisites: A course in abstract algebra.

REFERENCES

Gröbner Bases–a Computational Approach to Commutative Algebra by T. Becker and V. Weispfenning; Springer; 1993.

An Introduction to Gröbner Bases by W.W. Adams and P. Loustaunau; Graduate Studies in Mathematics, Vol. 3, American Mathematical Society, 1994.

Gröbner bases and convex polytopes by B. Sturmfels; Providence, R.I. : American Mathematical Society, 1996.

Schedule:
Wed & Fri 3.30 to 5 pm
Venue: Mathematics, Lecture Hall 2