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Master in Mathematics

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MODULE HANDBOOK

Module Name	Capita Selecta in Algebra B (Topic in Algebraic Geometry)
Module level, if applicable	Master
Code, if applicable	MMM 6212
Subtitle, if applicable	
Courses, if applicable	
Semester(s) in which the module is taught	Second year
Person responsible for the module	Chair of Algebra Research Group
Lecturer(s)	Dr. Budi Surodjo, MSi.
Language	Indonesia
Relation to curriculum	Elective courses
Teaching methods	Lecture, presentation, project
Workload (incl. contact hours, self-study hours)	3 hours lectures, 3 hours supervised activities, 3 hours individual learning per week, 14 weeks per semester, total 9 hours x 14 weeks = 126 hours per semester.
Credit points	3
Required and recommended prerequisites for joining the module	Before taking this course, students must master the basics of number theory and algebraic structures especially about ring theory

Module objectives/intended learning outcomes	Upon successful completion of this course, students are able to: CO.1. explain the concept of Hilbert's basis and prove in detail its properties. CO.2. explain the concept of a surface and prove in detail its properties. CO.3. clarify and prove in detail the Groebner properties of the Zariski bases and topology. CO 4. reconstructs the concept of commutative algebra in geometry
Content	Commutative algebra, ring of polynomials, Hilbert bases and theorems, Nullstellensatz Hilbert, Affine and projective variability, morphism and rational mapping between varias, conics, plane curves, and quadratic surfaces, Groebner Basis, Zarizki topology, irreducibility and dimensions, applications in elliptic curve geometry, Bezout's theorem, and Riemann-Roch . theorem
Examination forms	Oral presentation, essay, project
Study and examination requirements	The final mark will be weighted as follows: No Assessment methods (components, activities) Weight(%) 1 Final Examination 35% 2 Mid-Term Examination 30% 3 Projects (Presentation) 25% 4 Peer Assessment/Quiz 10%
Media employed	LCD, Laptop, Zoom media
Reading list	Eisenbund., D., 2004, *Commutative Algebra with a View Toward Algebraic Geometry*, Springer-Science+Business Media Inc., New York Gortz, U, and Wedhorn, T., 2010, *Algebraic Geometry I: Scheme with Examples and Exercises*, Springer Inc. Lefschetz, S., 2005, *Algebraic Geometry*, Dover Publications, Inc. Mineola, New York. Milne., J.S., 2017, *Algebraic Geometry*, https://www.jmilne.org/math/CourseNotes/AG510.pdf

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1		V	V			
CO 2		V	V			
CO 3			V	V	V	
CO 4				V	V	

Compilation Date	**:**	**August 4, 2017**
Modified Date	**:**	**August 8, 2022**