UNIVERSITAS GADJAH MADA
Faculty of Mathematics and Natural Sciences
Mathematics Department
Sekip Utara Bulaksumur Yogyakarta 55281 Telp: +62 274 552243 Fax: +62 274 555131 Email: math@ugm.ac.id Website: http://math.fmipa.ugm.ac.id

Undergraduate Programme in Mathematics
Telp : +62 274 552243
Email : maths1@ugm.ac.id; kaprodi-s1-matematika.mipa@ugm.ac.id
sekprodi-s1-matematika.mipa@ugm.ac.id
Website : http://s1math.fmipa.ugm.ac.id/

MODULE HANDBOOK

Module name	Introduction to Combinatorics
Module level, if applicable	Bachelor
Code, if applicable	MMM-2209
Subtitle, if applicable	-
Courses, if applicable	Introduction to Combinatorics
Semester(s) in which the module is taught	4th (fourth)
Person responsible for the module	Chair of the Lab. of Algebra
Lecturer(s)	Dr. Al. Sutjijana, M.Sc. Dr. rer. nat. Yeni Susanti, M.Si. Dr. Budi Surodjo, M.S.
Language	Bahasa Indonesia
Relation to curriculum	Bachelor Degree, Elective Course, 4th semester
Type of teaching, contact hours	150 minutes lectures, 180 minutes structured activities.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.
Credit points	3
Requirements according to the examination regulations	Students have taken Introduction to Combinatorics course (MMM-2209) and have an examination card where the course is stated on.
Recommended prerequisites	Discrete Mathematics Students have taken Introduction to Discrete Mathematics II course (MMM-2207) and have participated in the final examination of the course.
Module objectives/intended learning outcomes	After completing this course the students should have : CO 1. ability to solve combinatorial problem (Diophantine Linear Equation and Enumeration Problems) using generating function CO 2. ability to construct Galois field, to prove its properties and to do calculation related to Galois field. CO 3. ability to construct finite plane geometry and to prove its properties CO 4. ability to identify and solve MOLS (Mutually Orthogonal Latin Squares) related problems CO 5. ability to prove the properties of Balanced Incomplete Block Design (BIBD) and to construct BIBD with certain parameters
Content	Diophantine Linear Equation, Application of generating function, Finite Field, Galois Field, Finite Plane Geometry, Orthogonal Latin Square, Balanced Incomplete Block Design, Steiner Triple System.
Study and examination requirements and forms of examination	The final mark will be weighted as follows: No — Assessment methods (components, activities) — Weight (percentage) 1 — Final Examination — 40% 2 — Mid-Term Examination — 30% 3 — Class Activities: Quiz, Homework, etc. — 30% The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.

Media employed	Projector, Board
Reading List	1. Bose, R.C., Manvel, B., 1983, *Introduction to Combinatorial Theory*, Colorado State University, John Wiley and Sons. 2. Richard Brualdi, R., 1977, *Introduction to Combinatoric.* University of Wisconsin, North Holland 3. Van Lint, J.H., Wilson, R.M., 1992, *A Course in Combinatorics*, Cambridge university Press 4. Lovasz, L., Pelikan, J., Vesztergombi, K., 2003, *Discrete Mathematics Elementary and Beyond*, Springer-Verlag, New York 5. John Mackintosh Howie, 2006, *Fields and Galois Theory*, Springer.

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1		v			v				
CO 2			v						
CO 3			v						
CO 4		v			v				
CO 5			v						