**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 | Discrete Mathematics II |
| Module level, if applicable | Bachelor |
| Code, if applicable | MMM-2207 |
| Subtitle, if applicable | - |
| Courses, if applicable | Discrete Mathematics II |
| Semester(s) in which the module is taught | 3rd (third) |
| Person responsible for the module | Chair of the Lab. of Algebra |
| Lecturer(s) | Dr. Al. Sutjijana, M.Sc.<br>Dr. rer. nat. Yeni Susanti, M.Si. |
| Language | Bahasa Indonesia |
| Relation to curriculum | Compulsary course in the second year (3rd semester) Bachelor Degree |
| Type of teaching, contact hours | 100 minutes lectures, 120 minutes structured activities. |
| Workload | Total workload is 90.67 hours per semester, which consists of 100 minutes lectures per week for 14 weeks, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam. |
| Credit points | 2 |
| Requirements according to the examination regulations | Students have taken Discrete Mathematics II course (MMM-2207) and have an examination card where the course is stated on. |
| Recommended prerequisites | Students have taken Discrete Mathematics I course (MMM-1206) and have participated in the final examination of the course. |
| Module objectives/intended learning outcomes | After completing this course the students should have :<br>CO 1. ability to apply generating function concept in solving appropriate combinatorial problems<br>CO 2. ability to solve some linear recurrence relations.<br>CO 3. ability to prove the properties of lattice and Boolean algebra |
| Content | Numerical discrete function, generating function, recurrence relation, Fibonacci numbers, poset, lattice, Boolean algebra |
| Study and examination requirements and forms of examination | The final mark will be weighted as follows:<br>No — Assessment methods (components, activities) — Weight (percentage)<br>1 — Final Examination — 40%<br>2 — Mid-Term Examination — 30%<br>3 — Class Activities: Quiz, Homework, etc. — 30%<br><br>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 | Board, LCD Projector, Laptop/Computer |
| Reading List | 1. Kenneth H. Rosen, 2011, *Discrete Mathematics and Its Applications*,Seventh Edition, Mc-Graw Hill Education<br>2. Richard A. Brualdi, R., 2009, *Introduction to Combinatoric,* 5th edition, Pearson<br>3. John M. Harris, Jeffry L. Hirst, Michael J. Mossinghof, 2008, *Combinatorics and Graph Theory*, Springer<br>4. Vijay K. Khanna, 2005, *Lattices and Boolean Algebra* : First Concepts, Vikas Publication House. |

| | |
|---|---|
| | 5. L. Lovasz, J. Pelikan, K. Vesztergombi, 2003, *Discrete Mathematics Elementary and Beyond*, Springer-Verlag, New York.<br>6. Chen Chuan Chong, Koh Khee Meng, 1992, *Principles and Techniques in Combinatorics*, World Wcientific Publishing Co Pte Ltd.<br>7. R.C. Bose, B. Manvel, 1984, *Introduction to Combinatorial Theory*, John Wiley and Sons.<br>8. C. L. Liu, 1977, *Elements of Discrete Mathematics*, McGraw-Hill Book Company. |

## 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 | v | | | |
| **CO 2** | | v | | | v | v | | | |
| **CO 3** | | | v | | | v | | | v |