



UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS MIPA

FRM/FMIPA/063-01
18 Februari 2012

SYLLABUS

Faculty : Math. & Natural Science
 Study Program : Math. Ed International Class
 Subject/Code : Linear Programming/MAT330
 Credits : Theory=2, Practicum=1
 Semester : 5
 Prerequisite : Linear Algebra 1/MAT 308
 Lecturer : Himmawati P.L, M.Si; Nur Insani, M.Sc

I. COURSE DESCRIPTION

Formulation of LP, Solving LP using graphical method, Integer LP, Solving LP using simplex and two-phase simplex method, Duality, Sensitivity Analysis, Special Cases of LP, Transportation Problem.

II. STANDARD COMPETENCES

Students have abilities to solve Linear Programming and Transportation Problems.

III. ACTIVITY PLAN

Meeting	Based competency	Main topic	Learning strategy	References
1	Introduction	Introduction	Lecturing	
2	Understanding basic concept on Linear algebra and analytic geometry	Elementary Row Operations, system of linear inequalities	Lecturing	A, B, C, D
3	Formulating of linear programming problem	What Linear Programming	Lecturing	A, B, C, D
4	Formulating of linear programming problem	Formulation of LP problem	Group discussion	A, B, C, D
5	Solving LP using graphic methods	Graphic method	Group discussion	A, B, C, D
6	Solving LP using graphic methods	Graphic method	Group discussion	A, B, C, D
7	Solving maximum LP using simplex method	Simplex method	Lecturing	A, B, C, D
8	Solving maximum LP using simplex method	Simplex method	Group discussion	A, B, C, D
9	Solving minimum LP using simplex method	Simplex method	Presentation 1	A, B, C, D
10	Solving minimum LP using simplex method	Simplex method	Group discussion	A, B, C, D
11	Solving general constraints-LP using simplex method	Simplex method	Group discussion	A, B, C, D
12	Solving LP using 2-phase simplex method	Simplex method	Presentation 2	A, B, C, D
13	Solving LP using excel solver	Solving LP using excel solver	Presentation 3	A, B, C, D

14	Solving LP using excel solver	Solving LP using excel solver	Group discussion	A, B, C, D
15	Understanding Duality	Duality	Lecturing	A, B, C, D
16	Using Duality to solve LP	Duality	Presentation 4	A, B, C, D
17	Review			
18	MIDTERM			
19	Understanding theory of simplex	Theory of simplex		A, B, C, D
20	Understanding special cases of LP	Special cases of LP	Presentation 5	A, B, C, D
21	Understanding sensitivity analysis	sensitivity analysis	Lecturing	A, B, C, D
22	Understanding sensitivity analysis	sensitivity analysis	Group discussion	A, B, C, D
23	Formulating transportation problem	transportation problem	Lecturing	A, B, C, D
24	Setting initial tableau	Initial tableau of TP	Lecturing	A, B, C, D
25	Setting initial tableau	Initial tableau of TP	Group discussion	A, B, C, D
26	Testing optimality of TP using Stepping stone method	Optimum test of TP	Lecturing	A, B, C, D
27	Testing optimality of TP using MODI	Optimum test of TP	Presentation 6	A, B, C, D
28	Solving special cases of TP	Solving special cases of TP	Presentation 7	A, B, C, D
29	Solving unbalanced TP	Unbalanced TP	Group discussion	A, B, C, D
30	Solving maximization and blocked-path TP	Maximization and blocked-path TP	Group discussion	A, B, C, D
31	Review			
32	Midterm			

IV. REFERENCES

- A. Himmawati P.L. 2012. *Handout of Linear Programming*
- B. Susanto, B. *Program Linier*. UGM. Yogyakarta
- C. Taha, Hamdi. *Operation Research*
- D. Kolman, Bernard and Beck, R.E. 1995. *Elementary Linear Programming with Application*. Elsevier Science & Technology Books

V. EVALUATION

No.	Component	Weight (%)
1.	Individual tasks	15
2.	Presentation	10
3.	Group's task	10
4.	Midterm 2x	30
5.	Final test	35
Total		100%