DEPARTEMEN PENDIDIKAN NASIONAL
UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
Alamat: Karangmalang, Yogyakarta – 55281
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Lampiran-1

SYLLABUS

Faculty	:	Mathematics and Natural Sciences
Study Program	:	Mathematics Education
Course name/code	:	Algebra and Trigonometry & MAT302
UOC	:	Theory: 2 uoc ; Practicum: 1 uoc
Semester	:	1
Required course name/code	:	-
Lecturer	:	Endah Retnowati, M.Ed.

I. BASIC OF COMPETENCY

Understanding lesson materials in Secondary Schools related to Algebra and Trigonometry and explaining how to deliver logically and as basic knowledge to learn advance mathematics in higher education.

II. COURSE DESCRIPTION

This course covers basic knowledge of algebra including equations, inequalities, linier equation systems, linier inequalities, quadratic equations and inequalities, quadratic functions and the graph, functions in fraction and the graph, irrational equations and the graph, exponent and logarithm functions and the graph. This course contains basic knowledge of trigonometry, including trigonometric functions, equation and inequality of trigonometry, hyperbolic functions and Euler's formula.

III. REFERENCES

A. Compulsory
Wijdenes. 1958. ***Aldjabar Rendah*** (Penerjemah: Kuipers, L dan Rawuh). Jakarta: Noordhoff-Kolff N.V.
Sullivan, M. 2005. ***Algebra and Trigonometry***. USA: Pearson Prentice Hall.
B. Recommended
Terry H. Wesner dan Harry L. Nustad. 1983. ***Elementary Algebra with Applications***. Iowa: Wm. C. Brown Company.

IV. LECTURE PLANNING

Meeting	Standar of Competency	Indicator	Main Material	Lecture Strategy
1,2	Understanding linier equation systems and solving problems	-Giving example of problems about linier equation systems (LES) -Solving (LES) using methods of elimination, substitution, graph and matrix	linier equations and linier equation systems	Discussion Tutorial
3	Solving linier inequalities and applying to daily problems	-Using properties of linier inequality into problem solving -solving linier inequality	Linier inequalities	Discussion Tutorial
4, 5	Understanding	-Expressing common form of	Quadratic equation	Discussion

	quadratic equation and applying to daily problems	quadratic equation -Using properties of roots of quadratic equation -Forming new quadratic equation -Solving daily problems related to quadratic equation		Tutorial
6	Understanding graph of quadratic function, how to sketch graph and the uses in problem solving	-Sketching quadratic forms -Solving problems applying graph of function	Quadratic function	Discussion Tutorial
7	Solving quadratic inequality and applying to problem solving	-Applying arithmetical properties into quadratic inequality - Solving daily problems using quadratic inequality	Quadratic inequality	Discussion Tutorial
	Exam-1			
9 – 12	Understanding graph of function in the form of fraction and how to sketch graphs	-Explaining asymtots -Sketching graphs of function in the form of fraction	$y = \frac{ax+b}{px+q}$ $y = \frac{ax^2+bx+c}{px+q}$ $y = \frac{ax^2+bx+c}{px^2+qx+r}$	Discussion Tutorial
13	Understanding and solving irrational equation and inequality	-Solving irrational equation -Solving irrational inequality	irrational equation and inequality	Discussion Tutorial
14, 15	Understanding irrational function and the graph	-sketching irrational function	Irrational function	Discussion Tutorial
16, 17	Understanding the concept of exponential and logarithm, the function and the graphs	-Expressing exponential form into logarithm form and vice versa -Sketching exponential and logarithm function -Solving application problems related to exponential or logarithm functions	Exponential and logarithm function	Discussion Tutorial
18, 19	Understanding number sequence	-Giving example of daily facts or problems of arithmetical sequence -Giving example of daily facts or problems of geometrical sequence -Summing sequential numbers	Arithmetical sequence Geometrical sequence	Discussion Tutorial
20	Exam-2			
22	Understanding trigonometry	-Calculating the value of trigonometry functions: sine,	Trigonometry functions: sine,	Discussion Tutorial

	functions and the graph	cosine and tangent -Sketching trigonometry functions of sine, cosine and tangent	cosine and tangent	
23		-Calculating the value of trigonometry functions: secant, cosecant, cotangent -Sketching trigonometry functions of secant, cosecant, cotangent	Trigonometry functions: secant, cosecant, cotangent	Discussion Tutorial
24, 25	Understanding trigonometry equations and solving the problems	-Expressing the proof of identity -Expressing the proof of formula addition of two angles -Expressing the proof of double angle formula		Discussion Tutorial
26, 27		-Applying trigonometri formulas to solve trigonometry equations - Applying trigonometri formulas to solve trigonometry inequalities	Trigonometry equations and inequalities	Discussion Tutorial
28, 29		-Applying trigonometry formulas to evaluate trigonometric forms	trigonometry formulas	Discussion Tutorial
30, 31	Understanding hyperbolicus functions, graphs and the application	-Expressing hyperbolicus functions -Sketching hyperbolicus functions	Hyperbolic functions	Discussion Tutorial
32		-Using Euler formulas to solve problems related to hiperbolicus functions	Euler formulas	Discussion Tutorial

V. Evaluation

No	Component	Weight (%)
1	In Class Participation	20%
2	Assignment	20%
3	Exam 1, 2, 3	60%
	Total	100%

Yogyakarta, 15 Agustus 2009
Lecturer,

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