SYLLABUS

Date/ Revision	April 2017
Faculty	Engineering
Approval	Head of Program Study

SUBJECT : DISCRETE MATHEMATICS

1. Identification of Subject:

Name of Subject   : DISCRETE MATHEMATICS
Code of Subject   :
SKS / ECTS   :
Semester   : 2
Study Program   : CSE
Lecturer   : TBA

2. Competency

After having the course, students are expected to be able to:
- Demonstrate critical thinking, analytical reasoning, and problem solving skills
- Apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
- Identify and analyze a problem of its significant parts and the information needed to solve it
- Formulate and evaluate possible solutions and defend the solutions
- Construct and interpret graphs/charts, and draw appropriate conclusions

3. Description of Subject:

This course will develop advanced mathematics skills appropriate for the student of Computer Science. Topics will cover sets, numbers, algorithms, logic, computer arithmetic, applied modern algebra, combinations, recursion principles, graph theory, trees, discrete probability, and digraphs.

4. Learning Approach

Approach   : Problem based learning
Method   : Discussion, question answer, group work
Student Task   : Practices and homework
Media   : Power Point Presentation, Video, Modulo

5. Evaluation

a) Absence maximum   : 25%
b) Participation in discussion : 5   points
c) Homework, Classwork   : 10 points
d) Presentation, Simulation : 10 points
e) Daily Quiz   : 15 points
f) Final Examination   : 60 points
            Total   : 100 points

Contents/ Topics of Lecturing:

Week	Topics	Content	Remark
1	Chapter 1	Course intro; intro to logic	
2	Chapter 1	Predicted Logic	
3	Chapter 1	Proofs; Set theory	
4	Chapter 2	Functions	
5	Chapter 2	Sequences; Induction	
6	Chapter 5	Induction and Recursion	
7	Chapter 5	Structural Induction	
8	Mid Term Break		
9		Algorithmic: tail recursion, halting problem	
10	Chapter 9	Relations	
11	Chapter 9	Transitive Closure, equivalence	
12	Chapter 4	Integer, division	
13	Chapter 4	Number Theory and cryptography	
14	Chapter 4	Graph theory	
15	Final Examination		

6. Book Reference:
a) Kenneth Rosen, Discrete Mathematics and Its Application, 7th ed., 2011
b) Discrete Mathematics, An Introduction To Mathematical Reasoning Susanna S., Brooks/Cole, Cengage Learning, 2011