COURSE SYLLABUS

1. **Program of Study**: Bachelor of Science (Physics)
   Faculty/Institute/College: International College, Mahidol University

2. **Course Code**: ICPY 452
   Course Title: Statistical Mechanics

3. **Number of Credits**: 4 (4-0-8) (Lecture/lab/Self-study)

4. **Prerequisites**: None

5. **Type of Course**: Required Major Course

6. **Session / Academic Year**: 3rd Trimester/every academic year

7. **Course Conditions**: None

8. **Course Description**:
   Statistical physics, distributions, Boltzmann 's factor, partition and grand partition functions, Ising's model, quantum statistics.

9. **Course Objectives**:
   After successful completion of this course, students will be able to
   9.1 develop key concepts on the topics of statistical physics, distributions, Boltzmann 's factor, partition and grand partition functions, Ising's model, quantum statistics.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	Lab	Self study	
1-2	Statistical physics	8	-	16	I-Ming-Tan
3-4	Distributions	8	-	16	I-Ming-Tan
5-6	Boltzmann 's factor	8	-	16	I-Ming-Tan
7	Midterm Examination	4	-	-	I-Ming-Tan
8-9	Partition and grand partition functions, Ising's model,	8	-	16	I-Ming-Tan
10-11	Quantum statistics	8	-	16	I-Ming-Tan
Final Examination					
Total		48	-	80	

11. Teaching Method *(s)*

11.1 Lecture
11.2 Suggested readings
11.3 Discussion in class

12. Teaching Media

12.1 Powerpoint Presentations
12.2 Texts and teaching materials

13. Measurement and Evaluation of Student Achievement

Student achievement is measured and evaluated by

13.1 the ability to describe the key concepts on the topics of statistical physics, distributions, Boltzmann 's factor, partition and grand partition functions, Ising's model, quantum statistics.

Student's achievement will be graded according to the college and university standard using the symbols: A, B+, B, C+, C, D+, D and F.

Ratio of mark	
Mid-term examination	40%
Final examination	40%
Attendance and assignment	20%
Total	100%

14. Course Evaluation

14.1 Evaluate as indicated in number 13 above.
14.2 Evaluate student's satisfaction towards teaching and learning of the course using a questionnaire.

15. References:

McQuarrie DA. Statistical mechanics. U.S.A.: University Science Book; 2000.

16. Instructors:

Professor I-Ming-Tan

17. Course Coordinator:

Assistant Professor Dr. Santi Watanayon