COURSE SYLLABUS

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

2. **Course Code**: ICPY 472
   Course Title: Solid State Physics

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**: 1st Trimester/every academic year

7. **Course Conditions**: None

8. **Course Description :**
   Periodic structure and symmetries of crystals, diffraction, reciprocal lattice, chemical bonding, lattice dynamics, phonons, thermal properties, free electron gas.

9. **Course Objectives**:
   After successful completion of this course, students will be able to
   9.1 develop key concepts in the topics of the periodic structure and symmetries of crystals, diffraction, reciprocal lattice, chemical bonding, lattice dynamics, phonons, thermal properties, free electron gas.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	Lab	Self study	
1-2	Periodic structure and symmetries of crystals	8	-	15	Wisit Singhsomroje
3-4	Diffraction	8	-	16	Wisit Singhsomroje
5-6	Reciprocal lattice	8	-	16	Wisit Singhsomroje
7	Midterm Examination	4	-	-	Wisit Singhsomroje
8-9	Chemical bonding, lattice dynamics, phonons	8	-	16	Wisit Singhsomroje
10-11	Thermal properties, free electron gas.	8	-	16	Wisit Singhsomroje
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
12.1 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 the periodic structure and symmetries of crystals, diffraction, reciprocal lattice, chemical bonding, lattice dynamics, phonons, thermal properties, free electron gas..

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:

Kittel C. Introduction to solid state physics. U.S.A: Wiley; 2004.

16. Instructors:

Wisit Singhsomroje

17. Course Coordinator:

Assistant Professor Dr. Santi Watanayon