COURSE SYLLABUS

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

2. **Course Code**: ICPY 361
   Course Title: Quantum Mechanics I

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**: 2nd Trimester/every academic year

7. **Course Conditions**: None

8. **Course Description**:
   The uncertainty principle and Planck's constant, particle wave duality, Bohr 's theory, Schroedinger's equation, particle tunneling, the hydrogen problem.

9. **Course Objectives**:
   After successful completion of this course, students will be able to
   9.1 develop key concepts in the uncertainty principle and Planck's constant, particle wave duality, Bohr 's theory, Schroedinger's equation, particle tunneling, the hydrogen problem.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	Lab	Self study	
1-2	The uncertainity principle and Planck's constant	8	-	16	Withoon Chunwachirasiri
3-4	Particle wave duality	8	-	16	Withoon Chunwachirasiri
5-6	Bohr 's theory	8	-	16	Withoon Chunwachirasiri
7	Midterm Examination	4	-	-	Withoon Chunwachirasiri
8-9	Schroedinger's equation, particle tunneling	8	-	16	Withoon Chunwachirasiri
10-11	Hydrogen problem.	8	-	16	Withoon Chunwachirasiri
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 the ability to
13.1 the ability to describe the uncertainty principle and Planck's constant,
13.2 the ability to describe the particle wave duality, Bohr 's theory, Schroedinger's equation, particle tunneling, the hydrogen problem.

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:

Griffiths DJ. Introduction to Quantum Mechanics. 2nd Ed. UK.: Benjamin Cummings; 2004.

16. Instructors:

Dr. Withoon Chunwachirasiri

17. Course Coordinator:

Assistant Professor Dr. Santi Watanayon