COURSE SYLLABUS

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

2. **Course Code**: ICPY 471
   Course Title: Atomic and Molecular 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**: 3rd Trimester/every academic year

7. **Course Conditions**: None

8. **Course Description :**
   One-electron atoms, Helium atom, multi-electron atoms, structure and spectra of molecules, atomic spectroscopy methods, excitations of atoms and molecules by photons and electrons.

9. **Course Objectives**:
   After successful completion of this course, students will be able to
   9.1 develop key concepts in the topics of one-electron atoms, Helium atom, multi- electron atoms, structure and spectra of molecules, atomic spectroscopy methods, excitations of atoms and molecules by photons and electrons.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	Lab	Self study	
1-2	One-electron atoms, helium atom, multi-electron atoms,	8	-	16	Sujint Wangsuya
3-6	Structure and spectra of molecules,	16	-	32	Sujint Wangsuya
7	Midterm Examination	4	-	-	Sujint Wangsuya
8-9	Atomic spectroscopy methods,	8	-	16	Sujint Wangsuya
10-11	Excitations of atoms and molecules by photons and electrons	8	-	16	Sujint Wangsuya
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 one-electron atoms, Helium atom, multi-electron atoms, structure and spectra of molecules, atomic spectroscopy methods, excitations of atoms and molecules by photons and electrons.

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:

Erkoc S, Uzer T. Lecture notes on atomic and molecular physics. U.S.A.: World Scientific Pub. Co. Inc; 1996.

16. Instructors:

Professor Sujint Wangsuya

17. Course Coordinator:

Assistant Professor Dr. Santi Watanayon