COURSE SYLLABUS

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

2. **Course Code**: ICPY 451
   Course Title: Analytical 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**: 2nd Trimester/every academic year

7. **Course Conditions**: None

8. **Course Description :**
   Noninertial reference systems, rigid bodies in three dimension, principle of least action, Lagrangian Mechanics, and Hamiltonin theory

9. **Course Objectives**:
   After successful completion of this course, students will be able to
   9.1 develop key concepts on the topics of noninertial reference systems, rigid bodies in three dimension, principle of least action, Lagrangian Mechanics, and Hamiltonin theory.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	Lab	Self study	
1-2	Noninertial reference systems	8	-	16	Dr. Narin Nuttavut
3-4	Rigid bodies in three dimension,	8	-	16	Dr. Narin Nuttavut
5-6	Principle of least action,	8	-	16	Dr. Narin Nuttavut
7	Midterm Examination	4	-	-	Dr. Narin Nuttavut
8-9	Lagrangian Mechanics	8	-	16	Dr. Narin Nuttavut
10-11	Hamiltonin theory	8	-	16	Dr. Narin Nuttavut
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 noninertial reference systems, rigid bodies in three dimension, principle of least action, Lagrangian Mechanics, and Hamiltonin theory.

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:

Hand LN, Finch JD. Analytical Mechanics. U.S.A.: Cambridge University Press; 1998.

16. Instructors:

Dr. Narin Nuttavut

17. Course Coordinator

Assistant Professor Dr. Santi Watanayon