COURSE SYLLABUS

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

2. **Course Code**: ICPY 331
   Course Title: Mathematical Methods in Physics 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**:
   Special functions, Legendre functions, Hermite polynomials, Laguerre polynomials, Bessel functions.

9. **Course Objectives**:
   After successful completion of this course, students will be able to
   9.1 develop key concepts in Special functions, Legendre functions, Hermite polynomials, Laguerre polynomials, Bessel functions.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	Lab	Self study	
1-2	Special functions	8	-	8	Dr. Narin Nuttavut
3-4	Legendre functions	8	-	8	Dr. Narin Nuttavut
5-6	Hermite polynomials	8	-	8	Dr. Narin Nuttavut
7	Midterm Examination	4	-	-	Dr. Narin Nuttavut
8-9	Laguerre polynomials	8	-	8	Dr. Narin Nuttavut
10-11	Bessel functions	8	-	8	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 key concepts in the special functions, Legendre functions, Hermite polynomials, Laguerre polynomials, Bessel functions. 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:

Arfken GB, Weber HJ. Mathematical methods for physicist. U.S.A: Academic Press; 2005.

16 Instructors:

Dr. Narin Nuttavut

17. Course Coordinator:

Assistant Professor Dr. Santi Watanayon