Course Syllabus

1. **Program of Study**   Bachelor of Science (Applied Mathematics)
   College   Mahidol University International College

2. **Course Code**   ICMA 331
   Course Title   Special Functions

3. **Number of Credit**s   4(4-0-8) (Lecture-Lab-Self study)

4. **Prerequisite**   ICMA 214

5. **Type of Course**   Elective Course

6. **Session / Academic year** 1st or 2nd Trimester/every academic year

7. **Course Conditions**   Number of students is 20-30.

8. **Course Description**
   Orthogonal polynomials, gamma functions, beta functions, hypergeometric functions, Legendre functions, spherical harmonics in p dimensions, Bessel functions.

9. **Course Objectives**
   After successful completion of this course, students will be able to
   9.1   understand number of functions;
   9.2   apply such functions in related area.

10. **Course Outline**

Week	Topics	Hours			Instructor
		Lecture	**Lab**	**Self study**	
1-2	Orthogonal polynomials	8	-	16	
3	Gamma and beta functions	4	-	8	
4-5	Hypergeometric functions,	6	-	16	
5	**Midterm Exam**	2	-	4	
6-7	Legendre functions	8	-	16	
8-9	Spherical harmonics in p dimensions	8	-	16	
10-11	Bessel functions	6	-	16	
11	Review	2	-	4	
Final Examination					
Total		**44**	**-**	**88**	

11. **Teaching Methods**
    Lecturing and problem solving.

12. **Teaching Media**
    Text and handouts.

13. **Measurement and Evaluation of Student Achievement**
    Student achievement is measured and evaluated by
    13.1 The ability to explain the number of functions;

13.2 The ability to apply such functions in related area.

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	
Homework	20%
Midterm examination	40%
Final examination	40%

14. Course evaluation

14.1 Students' achievement as indicated in number 13 above.

14.2 Students' satisfaction towards teaching and learning of the course using questionnaires.

15. References

15.1 Hochstadt H. The functions of mathematical physics. New York: John Wiley and Sons, Inc.; 1971.

15.2 Andrews GE, Askew R, Rog R. Special functions: Cambridge University Press; 1999.

16. Instructors

Dr. Aram Tangboondouangjit

17. Course Coordinator

Assoc. Prof. Dr. Chinda Achariyakul