Syllabus: PHYS S0152 Mathematical Physics, Fall 2005

1. **Credits**: Three (3) credit hours.

2. **Lectures**: Monday 10:10-11:00, 11:10-12:00 in L306; Thursday 10:10-11:00 in C004; lectured in English

3. **Office Hours**: Monday 15:10-16:00; Wednesday 15:10-16:00; and by appointment.

4. **Lecturer**: Shang-Yung Wang (Office: S304; Ext: 2819; Email: sywang@mail.phys.tku.edu.tw)

5. **Course Web Page**: http://dctsp.ec.tku.edu.tw/125982qp

6. **Prerequisites**: General Physics (S0290), Calculus (S0325)

7. **Textbook and References**:

   (a) *Mathematical Methods for Physicists*, G.B. Arfken and H.J. Weber, 5th ed. (textbook)
   (b) *Mathematical Methods of Physics*, J. Mathews and R. L. Walker, 2nd ed. (reference)
   (c) *Mathematical Physics*, E. Butkov (reference)
   (d) *MathWorld* – A Wolfram Web Resource, E.W. Weisstein (reference, available online at http://mathworld.wolfram.com)

8. **Homework**: Homework will be assigned every Thursday, and is due next Thursday. Late homework will *not* be accepted.

9. **Midterm**: The midterm is scheduled on Monday, November 14th, 10:10-12:00.

10. **Final Exam**: The final is scheduled on Monday, January 9th, 10:10-12:00.

11. **Grading**: Homework (30%), Midterm (30%), Final exam (40%)

12. **Course Objectives:**

    This course introduces some of the mathematical techniques that are frequently used in the analysis of a wide variety of physical problems.

13. **Plan of Lectures (tentative):**

    - Functions of a Complex Variable
    - Infinite Series
    - Ordinary Differential Equations
    - Integral Transforms
    - Sturm-Liouville Theory*
    - Calculus of Variations†

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*if time permitted
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