微積分(II)
Calculus (II)
資訊工程系四日一B
課號 2471

Instructor：洪士程 教授

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Room:理工大樓E726

Tel: 7801

Course Time & Office Hours

- Course Time
- Thursday 2 (9:25 - 10:15)
- Classroom: G-107
- Thursday 5,6 (13:30 - 15:20)
- Classroom: G-106
- Office Hours
- Tuesday 10:25-12:10

Credits

- Required or Elective
  - Required (必修)
- Credits
  - 3 Credits (三學分)

Goal

- An extention of caculus (I).
- Give an introduction to:
  - Infinite series
  - Vectors
  - Partial derivatives
  - Multiple integrals

Text Book

- Calculus: Early Transcendental Functions, 4rd edition, 2011.
  - R. T. Smith
  - R. B. Minton

Reference Books

- Reference:
  - M. D. Weir, J. Hass and F. R. Giordano, “Thomas’ Calculus,” 11th Edition, Greg Tobin, 2005.
  - J. Stewart, ”Early Transcendentals Calculus,” 5th Edition, Thomson, Learning Inc., 2003.
  - R. Larson, R. Hostetler and B. H. Edwards ”Essential Calculus: Early Transcendental Functions,” 2006.

Schedule of Progress (1/5)

- Introduction to course (week 1)
- Chap 8 INFINITE SERIES
- Sequences of Real Numbers Infinite Series
- The Integral Test, Comparison Tests (week 2)
- Alternating Series and Absolute Convergence (week 3)
- The Ratio Test and The Root Test
- Power Series, Taylor Series (week 4)

Schedule of Progress (2/5)

- Chap 9 PARAMETRIC EQUATIONS AND POLAR COORDINATES (week 5)
- Plane Curves and Parametric Equations
- Calculus and Parametric Equations
- Polar Coordinates (week 6)
- Calculus and Polar Coordinates
- Chap 10 VECTORS (week 7)
- Vectors, The Dot Product
- The Cross Product
- Vector-Valued Functions (week 8)

Schedule of Progress (3/5)

- The Calculus of Vector-Valued Functions (week 8)
- Arc Length and Curvature
- Midterm exam (week 9)
- Chap 11 PARTIAL DIFFERENTIATION (week 10)
- Functions of Several Variables, Limits and Continuity
- Partial Derivatives (week 11)
- The Chain Rule
- The Gradient and Directional Derivatives (week 12)
- Extrema of Functions of Several Variables

Schedule of Progress (4/5)

- Chap 12 MULTIPLE INTEGRALS (week 13)
- Double Integrals
- Double Integrals in Polar Coordinates
- Surface Area (week 14)
- Triple Integrals
- Triple Integrals in Cylindrical and Spherical Coordinates
- (week 15)
- Change of Variables: Jacobians

Schedule of Progress (5/5)

- Chap 13 VECTOR CALCULUS (week 16)
- Vector Field
- Line Integrals
- Independence of Path and Conservative Vector Fields (week 17)
- Greens Theorem
- Final exam (week 18)

Resources

- Text Book
- Handout

http://lms.ctl.cyut.edu.tw/

LMS-數位學習系統

Evaluation

- Quiz (30%)
- Participation (10%)
- Mid exam (30%)
- Final exam (30%)