



Satuan Acara Pengajaran

ENMT800003 - Metode Penelitian & Komputasi

Pengajar

Nofrijon Bin Imam Sofyan Ph.D

Prof. Dr. Ir. Johny Wahyuadi Mudaryoto DEA.

Minggu 1

Materi	General introduction - Class information - Course content and grading - General introduction to experimental research and methodology + Experimental research + Definitions and importance of definitions + Aspect of quantifications + The purpose and principles
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Referensi	<ol style="list-style-type: none">1. C. R. Kothari: Research Methodology, Methods & Techniques, New Age International (P) Ltd., Publishers, New Delhi, 2004.2. G. Marczyk, D. DeMatteo, and D. Festinger: Essentials of Research Design and Methodology, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.3. J. M. Ruane: Essentials of research methods: a guide to social science research, Blackwell Publishing, Malden, 2005.4. L. Blaxter, C. Hughes, and M. Tight: How to Research, 3rd ed., Open University Press, Berkshire, UK, 2006.5. Y. K. Singh: Fundamental of Research Methodology and Statistics, New Age International (P) Ltd., Publishers, New Delhi, 2006.6. S.C. Chapra: Applied Numerical Methods With MATLAB for Engineers and Scientists, McGraw-Hill, Co., Boston, 2005.7. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.8. J.P. Marques de S&aacute;acutec: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.
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Aktivitas

Minggu 8

Materi Midterm

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Referensi

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Minggu 9

Materi Introduction to computation
- Modeling, computers, and error analysis
- Mathematical modeling, numerical methods, and problem solving
- Software tools

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Referensi 1. S.C. Chapra: Applied Numerical Methods With MATLAB for Engineers and Scientists, McGraw-Hill, Co., Boston, 2005.
2. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.
3. J.P. Marques de Sá: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.

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Minggu 10

Materi MATLAB Fundamentals
- Logical expression
- Vectorization
- If, while, and loop
- Function and m-file
- Introduction to Programming

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MATLAB Software

- Referensi**
1. S.C. Chapra: Applied Numerical Methods With MATLAB for Engineers and Scientists, McGraw-Hill, Co., Boston, 2005.
 2. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.
 3. J.P. Marques de Sá: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.
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Minggu 11

- Materi**
- System of Linear Equations
 - Solution for a System of Linear Equations
 - Solving a System of Linear Equations
 - Inverse Matrix
 - Decomposition (Factorization)
 - Iterative Methods to Solve Equations
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- Referensi**
1. S.C. Chapra: Applied Numerical Methods With MATLAB for Engineers and Scientists, McGraw-Hill, Co., Boston, 2005.
 2. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.
 3. J.P. Marques de Sá: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.
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Minggu 12

- Materi**
- Interpolation and Curve Fitting
 - Interpolation by Lagrange Polynomial
 - Interpolation by Newton Polynomial
 - Interpolation by Cubic Spline
 - Curve Fitting
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- Referensi**
1. S.C. Chapra: Applied Numerical Methods With MATLAB for Engineers and Scientists, McGraw-Hill, Co., Boston, 2005.
 2. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.
 3. J.P. Marques de Sá: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.
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Minggu 13

Materi Ordinary Differential Equations
- Euler's Method
- Improvement of Euler's Method
- Runge-Kutta Methods
- Systems of Equations

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2. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.
3. J.P. Marques de Sá: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.

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Minggu 14

Materi Statistics and data processing analysis
- Presenting and summarizing the data
- Parametric tests of hypotheses
- Statistical classification
- Data regression

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2. W.Y. Yang, W. Cao, T.S. Chung, J. Morris: Applied numerical methods using MATLAB, John Wiley & Sons, Inc., Hoboken, New Jersey, 2005.
3. J.P. Marques de Sá: Applied Statistics Using SPSS, STATISTICA, MATLAB and R, Springer-Verlag Berlin Heidelberg 2007.

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Minggu 15

Materi Case study and project

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Referensi

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Minggu 16

Materi Final examination

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