

University / Academy : Menoufiya University

Collge / Institute : Faculty of Electronic Engineering

Department : Physics and Engineering Mathematics

Course Specification

١- Course basic information :		
Course Code: PM ٠٠٢	Course Title: (ENGINEERING MATHEMATICS(٢))	Academic year: ٢٠١٠ - ٢٠١٢ Preparatory Year Level (٠) – Semester : ٢
Department requirement Faculty requirement University requirement	Teaching hours: Lecture [٤] Tutorial [٢]	

٢- Aim of the course	<ul style="list-style-type: none">a. Understand theory of equations.b. Understand the linear transformation.c. Understand Seriesd. Understand the straight line and the equations which represent two straight lines.e. Understand the circle.f. Understand the conic sections.
٣- Intended Learning Outcomes:	
A- Knowledge and Understanding:	<ul style="list-style-type: none">a١. Concepts and theories of mathematics and sciences, appropriate to the discipline.a٢. Methodologies of solving engineering problems, data collection and interpretation
B- Intellectual Skills	<ul style="list-style-type: none">b١. Select appropriate mathematical and computer-based methods for modeling and analyzing problems.b٢. Select appropriate solutions for engineering problems

	<p>based on analytical thinking.</p> <p>b^۳. Think in a creative and innovative way in problem solving and design.</p> <p>b^۴. Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.</p> <p>b^۷. Solve engineering problems, often on the basis of limited and possibly contradicting information.</p>
C- Professional Skills	<p>c^۱. Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.</p> <p>c^۲. Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services.</p>
D- General Skills	<p>d^۱. Collaborate effectively within multidisciplinary team.</p> <p>d^۲. Work in stressful environment and within constraints.</p> <p>d^۳. Communicate effectively.</p> <p>d^۷. Search for information and engage in life-long self learning discipline.</p> <p>d^۹. Refer to relevant literatures.</p>
۴- Course Contents	Theory of equations – Matrices – linear algebraic equations – iterative methods – infinite series – conical sections.
۵- Teaching and Learning Methods	<p>۵.۱ Lectures.</p> <p>۵.۲ Exercises and tutorials.</p> <p>۵.۳ Research assignments.</p>
۶- Teaching and Learning Methods for disable students	NA
۷- Student Assessment	

Assessment Methods	<p>√.a.1 Reports, assignments, exercises, and final written exam to assess knowledge and understanding.</p> <p>√.a.2 Regular oral and written quizzes to assess intellectual skills.</p> <p>√.a.3 Oral exams to assess professional skills.</p> <p>√.a.4 Reports, assignments, and discussions to assess general and transferable skills.</p>
b- Assessment Schedule	<p>√.b.1 Assessment 1 0th week.</p> <p>√.b.2 Assessment 2 10th week.</p> <p>√.b.3 Assessment 3 14th week (Oral)</p>
c- Weighting of Assessment	<p>√.c.1 Mid-term examination 10%</p> <p>√.c.2 Final-term examination 70%</p> <p>√.c.3 Oral examination 0%</p> <p>√.c.4 Practical examination 0%</p> <p>√.c.5 Semester work 10%</p> <p>√.c.6 Other types of assessment 0%</p> <p>√.c.7 Total 100%</p>
^ - List of text books and references:	
a- Course notes	<p>There are lectures notes on engineering mathematical prepared in the form of a book authorized by the department.</p>
b- Text books	<ul style="list-style-type: none"> • Linear algebra R.R. Mahajan, M.L. Bhave, V.G. Joshi • R. B. Allenby, "Linear Algebra", Edward Arnold, London Sydney, 1990. • F. Chatelin, "Eigenvalues of Matrices", New York: Wiley-Interscience, 1993.

	<ul style="list-style-type: none"> • G. James, D. Burley, P. Dyke, J. Searl, N. Steele and N. Wright, "Advanced Modern Engineering Mathematics", 1993, Addison-wesley. • E. Kreyszig, "Advanced Engineering Mathematics", 8th ed. New York: John Wiley & sons, 1999. • E. Hill, "Analytic Function Theory", 2 Vols. 2nd ed. New York: Chelsea, 1990. • Figodesky, "Higher Mathematics", Mir publisher, Moscow, 1970. • Minoresky, "Problems in Higher Mathematics", Mir publisher, Moscow, 1979.
<p>c- Recommended books</p>	<ul style="list-style-type: none"> • Mathematics for Engineers and Scientists Alan Jeffrey • R. B. Allenby, "Linear Algebra", Edward Arnold, London Sydney, 1990. • E. Kreyszig, "Advanced Engineering Mathematics", 8th ed. New York: John Wiley & sons, 1999. • E. Hill, "Analytic Function Theory", 2 Vols. 2nd ed. New York: Chelsea, 1990. • Minoresky, "Problems in Higher Mathematics", Mir publisher, Moscow, 1979.
<p>d- Periodicals, Web sitesetc</p>	<p>Web Sites related to engineering mathematical</p>

• **Course contents - ILOs Matrix**

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Theory of equations	١, ٢	a١, a٥	b١, b٢, b٣, b٤, b٧	c١, c٢	d١, d٢, d٣, d٧, d٩
Matrices	٣, ٤	a١, a٥	b١, b٢, b٣, b٤, b٧	c١, c٢	d١, d٢, d٣, d٧, d٩
Linear Algebraic Equations	٥, ٦	a١, a٥	b١, b٢, b٣, b٤, b٧	c١, c٢	d١, d٢, d٣, d٧, d٩
Iterative Methods	٧, ٨, ٩	a١, a٥	b١, b٣, b٤, b٧	c١, c٢	d١, d٢, d٣, d٧, d٩
Infinite Series	١٠, ١١	a١, a٥	b١, b٣, b٤	c١, c٢	d١, d٢, d٣, d٧, d٩
Conical sections	١٢, ١٣	a١, a٥	b١, b٣, b٤	c١, c٢	d١, d٢, d٣, d٧, d٩

Course coordinator:
Prof. Dr. Emil Shokralla
Prof. Dr. Magdy Kamel
Dr. Wedad Ali

Head of Department:
Prof. Dr. Magdi Kamel

Date: / /