Course Specifications :Mathematics 3 MTH101

1. Basic Information

Program Title	Biomedical Engineering
Departments offering the Program	Biomedical Engineering
Department Responsible for the Course	Engineering Mathematics and Physics
Course title	Math 003
Course Code	MTH101
Year/ Level	Level 100
Specialization	Major
Requirements	MTH003
Authorization data of course specification	

Teaching Hours	Credit	Lectures	Tutorial	Practical
	3	2	2	-

2. Course aims:

No.	aims
1	Apply knowledge of ordinary differential equations to solve fundamental engineering problems.
3	Encourage the in-self and life-long learning to acquire the appropriate mathematical tools, and apply them to the most recent engineering issues.

3. Intended Learning Outcomes (ILOs):

a. Knowledge and Understanding:

Demonstrate the knowledge and understanding of:

No.	Knowledge and Understanding
A1	Scientific principles and methodology of mathematics (ordinary differential equations) appropriate to biomedical engineering.
A5	Methodologies of solving engineering problems.

b. Intellectual Skills

No.	Intellectual Skills
B2	Select appropriate mathematical methods for solving and analyzing engineering problems.

c. Professional Skills

No.	Professional Skills
C1	Apply knowledge of mathematics to solve engineering problems.

d. General Skills

No.	General Skills
D2	Work under stress

4. Course Contents:

No.	Topics	Weeks
1	Maximum and minimum of functions of several variables	1-3
2	Ordinary differential equations order 1	4-6
3	Ordinary differential equations order 2	7,9-10
4	Laplace transform	11-13
5	Analytic geometry in 3D space	14

5. Teaching and Learning Methods:

No.	Teaching Method
1	Lectures
2	Smart Sessions
3	Research Assignment
4	Case Studies

6. Teaching and Learningmethods for Disabled Students:

No.	Teaching Method	Reason
1	Additional Tutorials	To support them

7. Student Evaluation:

7.1 Student Evaluation Methods:

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No.	Evaluation Method	ILOs
1	Mid Term Examination	A1, B2, C1
2	Semester work	A5, B2, C1, D2
3	Final Term Examination	A1,A5 , B2

7.2 Evaluation Schedule:

No.	Evaluation Method	Weeks
1	Mid Term Examination	8
2	Semester work	Every week.
3	Final Term Examination	15

7.3 Weighting of Evaluations:

No.	Evaluation Method	Weights
1	Mid Term Examination	25 %
2	Semester work	25 %
3	Final Term Examination	50 %
Total		100 %

8. List of References

No.	Reference List
1	James Stewart, Stewart Calculus, 7th edition, 2010 Cengage Learning
2	John Bird, Higher engineering mathematics, 6th edition, 2010, by Elsevier Ltd.
3	Kreyszig, E. "Advanced Engineering Mathematics" 7th edition, John Wiley & Sons, Inc., 1993.
4	Lecture notes

9. Facilities Required for Teaching and Learning:

No.	Facility
1	Lecture Classroom
2	White Board
3	Data Show System
4	Sound System
5	Wireless Internet

10. Matrix of Knowledge and Skills of the Course:

No.	Topic	Aim	Knowledge &Understanding	Intellectual Skills	Professional Skills	General Skills
1	Maximum and minimum of functions of several variables	1	A1	B2	C1	
2	Ordinary differential equations order 1	1	A1, A5	B2		D2
3	Ordinary differential equations order 2	1	A5		C1	D2
4	Laplace transform	3		B2		D2
5	Analytic geometry in 3D space	3			C1	D2

Course Coordinator: Prof.Dr.
Head of Department: Assoc. Prof. HossamEldeen Salah
Date of Approval;