



**DEPARTMENT OF MECHANICAL ENGINEERING**  
**MONAD UNIVERSITY, HAPUR**

Dated-17/10/2016

Course: MT-ME-111, Numerical Methods and Computer Programming

Assignment No: 2

Due date of submission: 10/11/2016

Instructions

1. Write the responses to the assignment in your own handwriting & don't copy from other's assignment.
2. Submit the responses to your HoD within due date.
3. Write your name, programme, and Enrollment no. clearly at the top of the page.
4. Each question's part carries 5 marks.

Q.1

(a) The vertical distance covered by a rocket from  $x = 8$  to  $x = 30$  seconds is given by

$$S = \int_8^{30} (2000 \ln[\frac{140000}{140000-2100t}] - 9.8x) dx$$

(b) Use the Gauss-Seidel method to solve the system

$$4x_1 + x_2 - x_3 = 3$$

$$2x_1 + 7x_2 + x_3 = 19$$

$$x_1 - 3x_2 + 12x_3 = 31$$

Q.2

(a) Find the eigenvalues and eigenvectors of the matrix  $A = \begin{Bmatrix} 1 & -3 & 3 \\ 3 & -5 & 3 \\ 6 & -6 & 4 \end{Bmatrix}$

(b) Use Runge-Kutta Method of Order 4 to solve the following, using a step size  $h=0.1$  for  $0 \leq x \leq 1$ .

$$\frac{dy}{dx} = \frac{5x^2 - y}{ex + y}, Y(0) = 1.$$



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Dated.-17/10/2016

Course: MT-ME-112, Simulation modeling and analysis.

Assignment No: 2

Due date of submission: 10/11/2016

Instructions

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Q.1

- (a) Describe different type of queuing system. What are the characteristics of queuing system?
- (b) Describe job shop with material handling and flexible manufacturing system.

Q.2

- (a) Describe growth and decay models and also logistic curves.
- (b) Describe the following.
- (i) Simulation of hydraulic system
  - (ii) Simulation of translational and rotational mechanical system



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Dated:-17/10/2016

Course: MT-ME-113 - Advance Operation Research

Assignment No: 2

Due date of submission: 10/11/2016

Instructions

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**Q.1**

(a) Explain the characteristics of waiting line systems.

(b) Define the following:

(i) Poisson distribution arrivals      (ii) FIFO      (iii) A single-service phase

**Q.2**

(a) Differentiate between deterministic and probabilistic models.

(b) Write short notes on:

(i) ABC analysis      (ii) Safety stock      (iii) Economic order quantity (EOQ)



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Dated.-17/10/2016

Course: MT-ME-114, Advanced Computer Aided Design (OE-I)

Assignment No: 2

Due date of submission: 10/11/2016

Instructions

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3. Write your name, programme, and Enrollment no. clearly at the top of the page.
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Q.1

- (a) Enumerate the Polygon mesh generation and discuss its utilization in 3D graphics.
- (b) Compare surface modeling with wire frame modeling.

Q.2

(a) Explain CSG representation in solid modeling? Explain the importance in the construction of the CSG solid models with example

(b) Write short notes on the following:

- (i) Graphics Standards
- (ii) COON's Surface
- (iii) Mass Property Calculation