

# Maharashtra State Board of Technical Education, Mumbai

## TUTORIAL PLAN (TuP)

Academic Year: 2025–2026

**K2-B**

Academic Year: 2025-26

Date: 10/12/2025

Institute Name & Code: K. K. Wagh Polytechnic, Nashik-3 (0078)

Program & Code: Artificial Intelligence & Machine Learning (AN) Course Code & Abbr.: 312301 (AMS)

Course Name: Applied Mathematics

Name of Faculty: Mrs. S.V.Amrutkar

Class: FYAN (Neural)

Course Index: 201

Semester: II

Scheme: K

Total Hrs: 15

### • Course Outcomes (COs):

By learning course Applied Mathematics (AMS-312301) First Year students will be able to:

- CO201.1 - Solve the broad-based engineering problems of integration using suitable methods.
- CO201.2 - Use definite integration to solve given engineering related problems.
- CO201.3 - Apply the concept of differential equation to find the solutions of given engineering problems.
- CO201.4 - Employ numerical methods to solve programme specific problems.
- CO201.5 - Use probability distributions to solve elementary engineering problems.

### • Teaching-Learning and Assessment Scheme:

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs/Week			SLH	NLH			Theory				Based on LL Practical				Based on SL		
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
													Max	Max	Max	Min	Max	Min	Max	Min	
312301	Applied Mathematics	AMS	AEC	3	1	-	-	4	2	3	30	70	100	40	-	-	-	-	-	-	100

### Laboratory Learning Outcome (LLO)

LLO 1.1 \*Solve simple problems of Integration by substitution

LLO 2.1 \*Solve integration using by parts

LLO 3.1 Solve integration by partial fractions

LLO 4.1 Solve examples on Definite Integral based on given methods.

LLO 5.1 \*Solve problems on properties of definite integral.

LLO 8.1 Solve examples on order, degree and formation of differential equation.

LLO 9.1 Solve first order first degree differential equation using variable separable method.

LLO 10.1 \*Solve first order first degree differential equation using exact differential equation and linear differential equation.

LLO 12.1 \*Solve problems on Bisection method and Regula falsi method.

LLO 13.1 Solve problems on Newton-Raphson method.

LLO 14.1 Solve problems on Jacobi's method and Gauss Seidal Method.

LLO 15.1 \*Use Bakhshali iterative methods for finding approximate value of square root. (IKS)

LLO 16.1 \*Solve engineering problems using Binomial distribution.

LLO 17.1 \*Solve engineering problems using Poisson distribution.

LLO 18.1 Solve engineering problems using Normal distribution.

• **Tutorial Plan:**

Sr. No.	CO	LLO	Name of Tutorial	Planned Date	Performance Date	Remarks	Related Self Learning (if any)
			Revision	A-16/12/2025 B-17/12/2025 C-15/12/2025			
1.	CO201.1	1.1	Integration with simple Examples	A-23/12/2025 B-24/12/2025 C-22/12/2025			Not Applicable
2.	CO201.1	1.1	Integration by substitution	A-06/01/2026 B-07/01/2026 C-05/01/2026			Not Applicable
3.	CO201.1	2.1 3.1	Integration by parts & Integration by partial fractions.	A-13/01/2026 B-14/01/2026 C-12/01/2026			Not Applicable
4.	CO201.2	4.1 5.1	Definite Integral based on given methods & Properties of definite integral	A-20/01/2026 B-21/01/2026 C-19/01/2026			Not Applicable
5.	CO201.3	8.1 9.1	Order, degree and formation of differential equation. Variable separable method.	A-03/02/2026 B-04/02/2026 C-02/02/2026			Not Applicable
6.	CO201.3	10.1	Exact differential equation and linear differential equation	A-10/02/2026 B-11/02/2026 C-09/02/2026			Not Applicable
7.	CO201.4	12.1 13.1	Bisection method and Regula falsi method. Newton- Raphson method.	A-17/02/2026 B-18/02/2026 C-16/02/2026			Not Applicable
8.	CO201.4	14.1 15.1	Jacobi's method and Gauss Seidal Method & Bakhshali iterative methods for finding approximate value of square root. (IKS)	A-24/02/2026 B-25/02/2026 C-23/02/2026			Not Applicable
9.	CO201.5	16.1 17.1	Binomial Distribution & Poisson Distribution	A-10/03/2026 B-11/03/2026 C-09/03/2026			Not Applicable
10.	CO201.5	18.1	Normal Distribution	A-17/03/2026 B-18/03/2026 C-16/03/2026			Not Applicable

• **Tutorialwise LLO-CO Mapping:**

PR. No.	LLO	CO201.1	CO201.2	CO201.3	CO201.4	CO201.5
Tutorial 1	1.1	✓				
Tutorial 2	2.1 3.1	✓				
Tutorial 3	4.1 5.1	✓				
Tutorial 4	8.1 9.1		✓			
Tutorial 5	10.1 11.1			✓		
Tutorial 6	6.1			✓		
Tutorial 7	7.1				✓	
Tutorial 8	8.1				✓	
Tutorial 9	11.1					✓
Tutorial 10	12.1					✓

• **SUGGESTED LEARNING MATERIALS / BOOKS**

Sr.No	Author	Title	Publisher
1	Grewal B. S.	Higher Engineering Mathematics	Khanna publication New Delhi, 2013 ISBN: 8174091955

2	Dutta. D	A text book of Engineering Mathematics	New age publication New Delhi, 2006 ISBN: 978- 81-224-1689-3
3	Kreysizg, Ervin	Advance Engineering Mathematics	Wiley publication New Delhi 2016 ISBN: 978-81- 265-5423-2
4	Das H.K.	Advance Engineering Mathematics	S Chand publication New Delhi 2008 ISBN: 9788121903455
5	S. S. Sastry	Introductory Methods of Numerical Analysis	PHI Learning Private Limited, New Delhi. ISBN-978-81-203-4592-8
6	C. S. Seshadri	Studies in the History of Indian Mathematics	Hindustan Book Agency (India) P 19 Green Park Extension New Delhi. ISBN 978-93-80250-06-9
7	Marvin L. Bittinger David J. Ellenbogen Scott A. Sargent	Calculus and Its Applications	Addison-Wesley 10th Edition ISBN-13: 978-0-321-69433-1
8	Gareth James, Daniela Witten, Trevor Hastie Robert and Tibshirani	An Introduction to Statistical Learning with Applications in R	Springer New York Heidelberg Dordrecht London ISBN 978-1-4614-7137-0 ISBN 978-1-4614-7138-7 (eBook)

### • LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	<a href="http://nptel.ac.in/courses/106102064/1">http://nptel.ac.in/courses/106102064/1</a>	Online Learning Initiatives by IITs and IISc
2	<a href="https://www.khanacademy.org/math?gclid=CNqHuabCys4CFdOJaddHoPig">https://www.khanacademy.org/math?gclid=CNqHuabCys4CFdOJaddHoPig</a>	Concept of Mathematics through video lectures and notes
3	<a href="https://www.wolframalpha.com/">https://www.wolframalpha.com/</a>	Solving mathematical problems, performing calculations, and visualizing mathematical concepts.
4	<a href="http://www.sosmath.com/">http://www.sosmath.com/</a>	Free resources and tutorials
5	<a href="http://mathworld.wolfram.com/">http://mathworld.wolfram.com/</a>	Extensive math encyclopedia with detailed explanations of mathematical concepts
6	<a href="https://www.mathsisfun.com/">https://www.mathsisfun.com/</a>	Explanations and interactive lessons covering various math topics, from basic arithmetic to advanced
7	<a href="http://tutorial.math.lamar.edu/">http://tutorial.math.lamar.edu/</a>	Comprehensive set of notes and tutorials covering a wide range of mathematics topics.
8	<a href="https://www.purplemath.com/">https://www.purplemath.com/</a>	Purplemath is a great resource for students seeking help with algebra and other foundational mathematics to improve learning.
9	<a href="https://www.brilliant.org/">https://www.brilliant.org/</a>	Interactive learning in Mathematics
10	<a href="https://www.edx.org/">https://www.edx.org/</a>	Offers a variety of courses
11	<a href="https://www.coursera.org/">https://www.coursera.org/</a>	Coursera offers online courses in applied mathematics from universities and institutions around the globe.
12	<a href="https://ocw.mit.edu/index.htm">https://ocw.mit.edu/index.htm</a>	The Massachusetts Institute of Technology (MIT) offers free access to course materials for a wide range of mathematical courses.

### • Tools for conducting Tutorials:

1. MKCL LMS-Learn Live
2. YouTube

Mrs.S.V.Amrutkar  
(Name & Signature of staff)

Mrs. R.Y.Thombare.  
(Name & Signature of HOD)