



LESSON PLAN

Program Name:	B.TECH -CSE-A	AY	2020-21
Course Name:	MATHEMATICS -I	Class / Sem	I/I
Faculty Name:	V P N V KUMARI	Regulation	R20

Lec. no.	Name of the Topic	TM	Ref
	Unit-I: Sequences, Series and Mean value theorems		
1	Sequences and Series	C&T	T1,R4
2	Convergences and divergence	C&T	T1,R4
3	Ratio test – Comparison tests	C&T	T1,R4
4	Integral test – Cauchy’s root test	C&T	T1,R4
5	Alternate series– Leibnitz’s rule	SEM	T1,R4
6	Rolle’s Theorem	C&T	W5
7	Lagrange’s mean value theorem	C&T,SEM	T1,R4
8	Cauchy’s mean value theorem	C&T	T1,R4
9	Taylor’s theorem with remainders, Problems	C&T,SEM	W5
10	applications on the above theorem	C&T	T1,R4
	<i>Revision</i>		
	UNIT-II: Differential equations of first order and first degree		
11	Linear differential equations	C&T,HW	W6
12	Bernoulli’s equations	C&T,HW	T1,R4
13	Exact equations	C&T,Q	T1,R4
14	Equations reducible to exact form. Type-1	C&T,GD	T1,R4
15	Type-2	C&T,GD	T1,R4
16	Type-3	C&T,GD	T1,R4
17	Type-4	C&T,GD	T1,R4
18	Newton’s Law of cooling	(ASG)	T1,R4
19	Law of natural growth and decay	C&T	T1,R4
20	Orthogonal trajectories	PPT	W7
21	Electrical circuits	C&T	T1,R4
	<i>Revision</i>		
	UNIT-III: Linear differential equations of higher order		
22	Homogeneous differential equations of higher order with constant coefficients	C&T,Q	T1,R4
23	Non- homogeneous differential equations of higher order with constant coefficients Type-1	C&T,HW	T1,T2
24	Type-2	C&T	T1,T2
25	Type-3	C&T	T1,T2
26	Type-4	C&T	T1,T2
27	Type-5	C&T,SEM	T1,T2

Lec. no.	Name of the Topic	TM	Ref
28	Method of Variation of parameters	C&T	T1,T3
29	Cauchy linear equations	C&T	T1,T3,W8
30	Legendre linear equation	SEM,CD	T1,T3
31	Applications: LCR circuit	(ASG)	W9
32	Simple Harmonic motion.	PPT	T1,R2
	<i>Revision</i>		
	UNIT-IV: Partial differentiation		
33	Introduction	C&T	T1,R4
34	Homogeneous function	C&T,GT	T1,R4,W10
35	Euler's theorem	C&T,SEM	T1,R4
36	Total derivative	C&T,Q	T1,R4
37	Chain rule	C&T	T1,R4
38	Jacobian	SEM	T1,R3,W11
39	Functional dependence	GD	T1,R2
40	Taylor's series expansion of functions of two variables	C&T,GT	T1,R4
41	Maclaurin's series expansion of functions of two variables	C&T	T1,R4
42	Applications: Maxima and Minima of functions of two variables without constraints	C&T	T1,R4
43	Lagrange's method.	C&T	T1,R4
	<i>Revision</i>		
	UNIT-V: Multiple integrals		
44	Double and Triple integrals	C&T,TSP	T1,R4,W12
45	Change of order of integration in double integrals	GL	
46	Change of variables to polar, cylindrical coordinates.	C&T	T1,T2,W13
47	Change of variables to polar spherical coordinates.	C&T	T1,T2
48	Applications: Finding Areas and Volumes	C&T	T1,R4
	<i>Revision</i>		
	TUTORIAL PLAN		
49	Alternate series- Leibnitz's rule	SEM	T1,R4
50	Newton's Law of cooling	(ASG)	T1,R2
51	Orthogonal trajectories	PPT	T1,R4
52	Legendre linear equation	SEM	T1,R3
53	Applications: LCR circuit	(ASG)	T1,R4
54	Simple Harmonic motion.	SEM	T1,R4
55	Jacobian	SEM	T1,R4
56	Functional dependence	GD,TPS	T1,T3
	Change of order of integration in double integrals	GL	

Teaching Methods: C&T:-Chalk & Talk; S/P:-Slides/PPT;Videos; SEM: Seminar; DEMO; CHART; ET/GL: Expert Talk/Guest Lecture; QUIZ; GD:-Group discussion; RTCS: Real time case studies; JAR:-Journal article review; PD:-Poster design; OL:-Online lecture/Google class room; Industrial Visit (IV), Assignment (ASG), Quiz/Puzzle (Q), Brain storming (BS), Think-Pair-Share (TPS), Home Work(HW), Group Tasks(GT) etc.

TEXT BOOKS:

- T1. B. S. Grewal, Higher Engineering Mathematics, 44th Edition, Khanna Publishers.
T2. B. V. Ramana, Higher Engineering Mathematics, 2007 Edition, Tata Mc. Graw Hill Education.

REFERENCES:

- R1. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley-India.
R2. Srimantha Pal, S C Bhunia, Engineering Mathematics, Oxford University Press.
R3. Joel Hass, Christopher Heil and Maurice D. Weir, Thomas calculus, 14th Edition, Pearson.

OTHERS:

- R4 :Dr . T .K. V Iyengar Higher Engineering Mathematics S CHAND Publications

Web Resources:

- W1: <https://www.mathsisfun.com/calculus/differential-equations.html>

- W3: [equation/s://www.sathyabama.ac.in/sites/default/files/course-material/2020-10/SMT1105-1.pdf](https://www.sathyabama.ac.in/sites/default/files/course-material/2020-10/SMT1105-1.pdf)
- W4: https://mrcet.com/downloads/digital_notes/HS/Mathematics-I.pdf
- W5: NPTEL :: Mathematics - NOC:Engineering Mathematics - I
- W6: e-pg pathshala mathematics video lectures differential equations - Search Videos (bing.com)
- W7: e-pg pathshala mathematics video lectures orthogonal trajectories - Search Videos (bing.com)
- W8: MOOC Mathematics Courses CAUCHY LINEAR EQUATIONS - Search Videos (bing.com)
- W9: MOOC Mathematics Courses LCR circuits - Search Videos (bing.com)
- W10: <https://www.google.com/search?q=Any+govt+initiatives+mathematics-1+1+btec+ICT+initiatives+homogeneous+functions&tbm>
- W11: <https://www.google.com/search?q=Any+govt+initiatives+mathematics-1+1+btec+ICT+initiatives+jacobian+video+lectures&tbm>
- W12: UGC CEC I Btech Mathematics 1 Video Lectures multiple integrals - Search Videos (bing.com)
- W13: UGC CEC I Btech Mathematics 1 Video Lectures change of variables to polar,cylindrical coordinates - Search Videos (bing.com)

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Signature of the Faculty

Date:4-1-2021



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