KL UNIVERISTY
FIRST SEMESTER 2010-11
Course Handout
Academic Division

Dated: 07-07-2010

Course No. : **MATH C 201**
Course Title : **Engineering Mathematics-III**
Course Structure : **3-0-0**
Course coordinator : **T Srinivasa Rao**
Instructors : **P. Hariprasad**

1. Course Description:
The course has been planed to known about Fourier series and Transforms, continuity and derivative of Complex valued function, derivation of line integrals in complex plane, derivation of real integrals by using Cauchy integral theorem and Residue theorem, formation of P.D.E. and their solutions by using different methods and different types of probability distributions

2. Scope and Objective of the Course:
The course is designed for the second year Ist semester students. The course will provide an over view of the study of Complex variables and different types of Probability Densistes.Further, the students will learn how the course instructions are useful in mathematical modeling.

Its needless to state that any engineering problem must be suitably mathematically modeled and the solution must be studied in detail for its physical interpretation and viability.
At the end of the course, the student is expected to possess knowledge in

- Fundamental knowledge of mathematical modeling
- Obtain solution such mathematically modeled problems

3. Books:
(i) Textbook:

a. Higher engineering mathematics by B.S.GREWAL Khanna Publications

(ii) Reference Book:

a. Advanced Engineering Mathematics by N.Bali
b. Higher ENGINEERING MATHEMATICS by B.V.Ramana

4. Syllabus:
UNIT-1
FOURIER SERIES AND TRANSFORMS:Fourier series, Even and odd functions, half range series .Parse alls Formula Fourier Integrals, Fourier sine and cosine Integrals, Fourier transform, Fourier sine and cosine transforms. (8-hrs)

UNIT-2

COMPLEX ANALYSIS Complex Numbers, Complex Plane, Continuity and Derivative,C.R.Equations,Analytic Equations ,Harmonic function, Orthogonal system, Line integrals in Complex plane, Cauchy Integral Formula. (10-hrs)

UNIT-3

Derivatives of Analytic Function, Laurent Series, Singularities and Zeros, Residue Theorem, Evaluation of Real Integrals (7-hrs)

UNIT-4

PARTIAL DIFFERENTIAL EQUATIONS

Formation, Solution of P.D.E., Equation solvable by direct Integration method, Linear and Non Linear Equations of first order, Char pits method ,Homogeneous and Non Homogeneous linear equations with 1^{st} order (10-hrs)

UNIT - 5

PROBALITY DENSITIES

Continuous Random variable, Normal Distribution, Normal approximation to Binomial Distribution, Beta and Gamma Distributions' (9-hrs)

5.Course Plan:

Lec No.	Learning Objective	Topics to be covered	Reference
1	***To known about Euler's Formulae***	***Derivation of EULERS FORMULAE***	T1-P 375
2	Application of Euler's Formulae	Problems	T1: P382
3	To known about Half range series	Derivation of half range series and problems	T1 P389
4	To known about Parsevals identity	Derivation of Parsivals identity	T1 P393
5	To known about Fourier integrals	Derivation of Fourier integrals ,Fourier sine cosine integrals	T1 P714
6	Application on Fourier Integrals	Problems	T1 P716
7	To known about Fourier transforms	Derivation of Fourier transforms ,Fourier sine and cosine transforms	T1 P716
8	Application of Fourier transforms	Problems	T1-P722
9	Introduction	Definition of Complex number Complex plane continuity and derivability	T1-P631
10	To known about relation between continuity and derivability	Problems	T2-P666
11	Analytic function	Proof of necessary and sufficient condition for Analytic	T1-P632
12	Application on analytic function	Problems	T1-P638
13	Harmonic Functions	Definition of Harmonic function and problems.	T1-P635
14	Orthogonal System	Definition of Orthogonal system and problems	T1-P636

15	Polar coordinates	Derivation of C.R.Equations in polar form	T1-P634
16	Line integrals	Problems	T1-P653
17	Cauchy theorem and Cauchy integral formula	Derivation of Cauchy theorem and Cauchy integral Formula	T1-P654
18	Application on C.I.F.	Problems	T1-P655
19	Laurent series	Derivation of Laurent series	T1-P662
20	Application	Problems	T1-P663
21	Singularities	Definition of different types of singularity and Problems	T1-P665
22	Residue Theorem	Derivation of residue theorem	T1-P668
23	Application	Problems	T1-P669
24	Evaluation of Real integrals	Problems	T1-P672
25	Special Integrals	Problems	T1-P673
26	INTRODUCTION	Definition of P.D.E and formation	T1 -P541
27	Solution of P.D.E	Solution of P.D.E. by using Direct integration method	T1-P544
28	Linear I^{st} order P.D.E	Solution of I^{st} order linear P.D.E	T1-P545
29	Non linear I^{st} order P.D.E.	Solution of I^{st} order non linear P.D.E	T1 P547
30	Application	Problems	T1548
31	Char pits Equation	Solution of Char pits Equation	T1-P551
32	Homogeneous linear Equation	Definition of H.L.P.D.E.with Constant coefficients	T1-P553
33	Complementary function	Derivation of rules for C.F.	T1-P554
34	Particular solution	Derivation of rules for P.S.	T1-P555
35	Non Homogeneous linear equations	Solutions	T1-P559
36	Introduction	Definition of some Fundamental Terms	R2-26.1
37	Continuous Random variable	Definition of C.R.V and Problems	R2-27.8
38	Normal Distribution	Derivation Normal Distribution and their properties	T1-P791
39	Application	Problems on Normal distribution	T1-P793
40	Normal approximation to Binomial distribution	Problems	T1-P796
41	Beta distribution	Derivation	R2-27.12
42	Applications	Problems	R2-27.12
43	Gamma distribution	Derivation	R2-27.13
44	Applications	Problems	R2-27.13
45	Revision	Previous Exam Problems	

6.Self learning material:

Unit	Topic	Source
I	Derivation of Parsevals identity for Fourier transforms and their applications	Higher engineering mathematics by GREWAL, Page NO -723
I	Complex form of Fourier series and Practical harmonic analysis	Higher engineering mathematics by GREWAL ,page No:396
II	Converse of Cauchy theorem	Higher engineering mathematics by GREWAL, Page No:659
II	proof of Liouville theorem	Higher engineering mathematics by GREWAL, Page No:659
III	TAYLOR SERIES EXPANCTIONS for Analytic functions	Higher engineering mathematics by GREWAL ,Page No:661
III	LAURENT SERIES EXPANCTIONS FOR Analytic functions	Higher engineering mathematics by GREWAL, Page No:661
IV	Solution of Lap lace equations	Higher engineering mathematics by GREWAL ,Page No:945
IV	Solution of Possions equations	Higher engineering mathematics by GREWAL ,Page No:945
V	Normal approximation to Binomial distribution	Higher engineering mathematics by GREWAL Page No -796
V	Other Type of Distributions	Higher engineering mathematics by GREWAL, Page No -796

7.Evaluation Scheme:

Component	Duration (minutes)	% Weightage	Marks	Date & Time	Venue
Test-1	50 Min	10	10	13-08-2010 9.30 to 10.20 A.M	CSE005,101,104 105,106,201,202 204,205,209,301 309,502,509
Test-2	50 Min	10	10	17-09-2010 9.30 to 10.20 A.M	CSE005,101,104 105,106,201,202 204,205,209,301 309,502,509
Assignement submission		5	5	Continuous	
Assignment Test	50 Min	5	5	29-10-2010 9.00 to 10.20 A.M	CSE005,101,104 105,106,201,202 204,205,209,301 309,502,509
Quiz	30 Min	5	5	29-10-2010 9.00 to 10.20 A.M	CSE005,101,104 105,106,201,202 204,205,209,301 309,502,509
Regular Lab Evaluation	Continuous	0	0		
Comprehensive Lab Exam	3 Hrs	0	0		
Comprehensive Exam	3 Hrs	60	60		
Attendance for Theory & Tutorial		5	5	Continuos	
Attendance for Lab		0	0	Continuos	

8. Chamber consultation h1ur: Informed in the class in first week.

9. Notices: All notices regarding the course will be put in E-learning website.

10.Tutorial: Tutorial will be conducted by the respective in charge faculty. The tutorials are planned to supplement the material taught in the lectures and clear doubts. Student must attend registered section for tutorial in the respective classroom. Class assignment, class tests and other evaluation components will also be conducted during tutorials. Students must actively participate in the tutorial and come prepared for it.

Course Coordinator