ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

VI SEMESTER MATHEMATICS TIME: 5 Hrs/Week

M 6301 – A-1(4)
w.e.f. 2017-2018

Cluster Elective–VIII-A-1: INTEGRAL TRANSFORMS Max. Marks:100

OBJECTIVES : To enable the students to

- Know and understand the problems and identities
- Apply the principles in engineering, physics and other Allied Sciences
- Synthesize the knowledge to formulate conclusions
- Apply the theories in every branch of science and also in Commerce and Management Systems.

COURSE

UNIT – 1 Application of Laplace Transform to solutions of Differential Equations : -

Solutions of Ordinary Differential Equations.
Solutions of Differential Equations with Constants Co-efficient
Solutions of Differential Equations with Variable Co-efficient

UNIT – 2 Application of Laplace Transform : -

Solution of Simultaneous Ordinary Differential Equations.
Solutions of Partial Differential Equations.

UNIT – 3 Application of Laplace Transforms to Integral Equations : -

Definitions : Integral Equations - Abel's Integral Equation-Integral Equation of Convolution Type, Integral Differential Equations, Application of L.T. to Integral Equations.

UNIT –4 Fourier Transforms-I : -

Definition of Fourier Transform – Fourier's in Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform, shifting property – modulation theorem.

UNIT – 5 Fourier Transform-II : -

Convolution Definition – Convolution Theorem for Fourier transform – parseval's Indentify – Relationship between Fourier and Laplace transforms – problems related to Integral Equations.

Finte Fourier Transforms : -

Finte Fourier Sine Transform – Finte Fourier Cosine Transform – Inversion formula for sine and cosine Transforms (only statement and related problems).

Prescribed Text Book :

Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut. (2010)

Reference Books :-

1. A Course of Mathematical Analysis by Shanthi Narayana and P.K. Mittal, Published by S. Chand and Company pvt. Ltd., New Delhi.(2006)
2. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Company Pvt. Ltd., New Delhi.(2016)
3. Lapalce and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut. (2016)
4. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S.Chand and Company pvt. Ltd., New Delhi. (2014)

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

VI SEMESTER **MATHEMATICS** **TIME: 1 Hr / Week**

M 6351 – A-1(1)
w.e.f. 2017-2018

Cluster Elective–VIII-A-1: INTEGRAL TRANSFORMS Max. Marks: 50
PRACTICAL SYLLABUS

OBJECTIVES : To enable the students to

- Know and understand the problems and identities
- Apply the principles in engineering, physics and other Allied Sciences
- Synthesize the knowledge to formulate conclusions
- Apply the theories in every branch of science and also in Commerce and Management Systems.

COURSE

UNIT – 1 Application of Laplace Transform to solutions of Differential Equations : -

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Solutions of Differential Equations with Constants Co-efficient
Solutions of Differential Equations with Variable Co-efficient

UNIT – 2 Application of Laplace Transform : -

Solution of Simultaneous Ordinary Differential Equations.
Solutions of Partial Differential Equations.

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Definitions : Integral Equations - Abel's Integral Equation-Integral Equation of Convolution Type, Integral Differential Equations, Application of L.T. to Integral Equations.

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Definition of Fourier Transform – Fourier's in Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform, shifting property – modulation theorem.

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6. Lapalce and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut. (2016)
4. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S.Chand and Company pvt. Ltd., New Delhi. (2014)