

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE**

1.	Title of the Course	Linear Integral Equations
2.	Course Number	MA6101
3.	Status of the Course	Elective Course
4.	Structure of Credits	3-0-0-3
5.	Offered to	PG
6.	New Course/ Modification to	New Course
7.	To be offered by	Dr. Durga Prasad Challa Department of Mathematics
8.	To take effect from	January 2018
9.	Prerequisite	Functional Analysis
10.	Whether approved by the Program	Yes
11.	Course Objective:	The main objective of this course is to introduce Integral Equations, to know the relationship between Integral Equations and Differential Equations, and the methods and concepts to solve Integral Equations.
12.	Course Content:	Classification of Integral Equations; Fredholm Equations of Second Kind: Mapping Properties, Compact Operators, Adjoint Operators, Riesz Theory, Fredholm Theory; Numerics for Fredholm Equations: Degenerate Kernel Approximations, Projection Methods, Collocation Methods, Quadrature Methods; Volterra Equations;
13.	Text Book:	1. R. Kress, Linear Integral Equations, 3 rd Edn., <i>Springer, New York</i> , 2014.
14.	References:	1. Y. Kōsaku, Lectures on Differential and Integral Equations, Translated from the Japanese. Reprint of the 1960 translation. <i>Dover Publications, New York</i> , 1991. 2. D. Porter, D. S. G. Stirling, Integral Equations: A Practical Treatment from Spectral Theory to Applications, Cambridge University Press, 1990. 3. W. V. Lovitt, Linear Integral Equations. Dover Publications, New York, 1950.