

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Generalized Linear Models
2.	Course Number	MA6202
3.	Status of the Course	Elective
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. Ishapathik Das
8.	To take effect from	July 2018
9.	Prerequisite	CoT
10.	Whether approved by the Program	Yes
11.	Course Objective (Max 70 words): This course focuses on the theory and applications of generalized linear models (GLMs) where responses are assumed to follow a distribution having the form of exponential family and the mean response is related to linear predictor by a link function. GLMs provide a unified theory of many of the models usually used in statistical modelling such as the linear regression, ANOVA, log-linear models, logit, and probit models for binary responses, models for gamma responses, survival data as well as their multivariate extensions.	
12.	Course Content (Max 100 words): An outline of GLMs, Components, Exponential Family, Link Functions, Inference, Maximum Likelihood Estimation procedure for GLMs, Model diagnostics, Model selection, Models for Binary responses, Poisson regression and log-linear models, Multinomial Response Models, Bayesian GLMs.	
13.	Text Book(s): 1. P. McCullagh, J. Nelder, Generalized Linear Models, 2 nd Edition, Chapman and Hall/CRC, 1989.	
14.	References(s): 1. L. Fahrmeir, G. Tutz, Multivariate Statistical Modelling Based on Generalized Linear Models, 2 nd Edition, Springer-Verlag, New York, 2001. 2. A. Agresti, Categorical Data Analysis, 2 nd Edition, New York: Wiley, 2002. 3. J. Jiang, Linear and Generalized Linear Mixed Models and Their Applications, Springer, New York, 2007. 4. C. E. McCulloch, S. R. Searle, J. M. Neuhaus, Generalized, Linear, and Mixed Models, 2 nd Edition, John Wiley & Sons, Inc., Hoboken, New Jersey, 2008.	