TEQIP-III Sponsored Short-Term Course
on
Bayesian Applications in Engineering

Discipline of Civil Engineering
Indian institute of Technology Indore

Bayesian framework of statistical modelling and uncertainty quantification is garnering significant interest in engineering literature. The ease of model building in Bayesian framework is sometimes overshadowed by the perceived computational challenges. The aim of the course is to introduce the Bayesian framework and computations using simple practical examples, and to discover the powerful approach to uncertainty quantification. The vision is to encourage the participants to apply the Bayesian concepts in their teaching, research, and real-world applications. The course is designed to provide a brief practical overview of Bayesian computations and opportunities therein. Multiple engineering applications are considered as hands-on practice in a scientific computing language called **R**.

Instructor: Dr. Munir Ahmad Nayak, email id: munir_nayak@iiti.ac.in
Dates: 21 Dec 2020 to 25 Dec 2020 (5days)
Topics
1. Basic Probability Concepts
2. Bayesian Regression
   a. Linear regression, Applications
   b. Generalized linear regression, Applications
3. Markov Chain Simulations
   a. Gibbs sampling, Examples
   b. Metropolis-Hasting algorithm, Examples
   c. Convergence Assessment, Examples
4. Bayesian Model Evaluations
   a. Predictive accuracy, Examples
   b. Bayes Factors, Examples

Course Registration Fee:
No registration fee for participants from TEQIP institutes
Rs. 15,000 (for industry personnel)
Rs. 10,000 (for faculty members)
Rs. 1,000 (for students) *including service tax

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Email copy of fee-payment proof to be sent via email to the instructor