

## **(164-SCI-18-02) B.SC. STATISTICS AND SOFT COMPUTING**

### **Significance of the Program**

Statistics provides a robust framework for data analysis and inference, soft computing extends computational approaches to handle uncertainty and imprecision, making it applicable in complex, dynamic, and real-world scenarios. The integration of both fields can offer comprehensive solutions to a wide range of problems. Soft computing aims to mimic human-like decision-making processes. It is valuable in pattern recognition tasks, especially where patterns may not be well-defined or easily distinguishable. Neural networks, a subset of soft computing, excel in recognizing complex patterns.

### **Career Options**

Pursuing a professional course in Statistics and Soft Computing, student can explore the following opportunities.

- They can work as a Data scientist in various organizations
- They can start their own Research Centre
- They may be working as an AI Engineer, Robotics Engineer, Algorithm Developer / Statistical Programmer/ Quantitative Analyst / Health Care Data Analyst / Market Analyst / Climate Modeler /Govt. Policy Analyst etc.,
- They can also pursue their higher education at all government universities under UGC/ICAR/CSIR etc.,

### **Objectives of the course:**

- The students will become trans-disciplinary in nature
- Student will be a self-reliant.
- Student may understand the fundamental statistical concepts, including probability, hypothesis testing, regression analysis, and various statistical methods.
- Develop critical and analytical thing of student/

### **Outcomes of the Programs:**

- Student develop a solid theoretical understanding of Statistical Theory.
- Enabling students to develop predictive models and machine learning algorithms, risk assessment models etc.,

- Students can expertise in developing predictive models for disease diagnosis and prognosis, Integrating statistical methods in AI applications.
- Students gain proficiency in using data analytics software. This skill is valuable for understanding big data phenomena and making predictions.

### **Major Course Outline**

1. R-Programming
2. Probability theory and distributions
3. Statistical Inference
4. Sampling and design of experiments
5. Machine learning and natural language processing.
6. Python programming for data analysis
7. Regression analysis
8. Introduction to data base management systems (DBMS)
9. Multivariate analysis
10. Biostatistics
11. Financial time series analysis
12. Basic econometrics
13. Deep learning
14. SQL