D21DA Data Analysis and Simulation

COURSE DETAILS
Course Code: D21DA
Full Course Title: Data Analysis and Simulation
SCQF Level: 11
SCAF Credits: 15
Available as Elective: No

DELIVERY LEVEL
Undergraduate: Yes
Postgraduate Taught: Yes
Postgraduate Research: No

Additional Information:

COURSE AIMS
To develop knowledge of statistical data analysis and its application in engineering and science. To introduce basic concepts of the use of simulation techniques for analysis of complex systems.

LEARNING OUTCOMES – SUBJECT MASTERY
(1) Understand and be able to apply statistical methods to analysis of engineering and scientific data
(2) Be able to design experiments
(3) Understand basic principles of simulation and modelling and be able to apply them to analysis of complex systems
(4) Gain basic knowledge about linear optimisation techniques and be able to apply them to solution of simple problems

LEARNING OUTCOMES – PERSONAL ABILITIES
(1) Critically review, extend and apply knowledge to a range of engineering and scientific problems
(2) Direct and take responsibility for own work
(3) Analyse and communicate information in clear and concise form
(4) Deal with complex problems and critically review and consolidate knowledge

SYLLABUS
Introduction to statistics, Exploratory data analysis, Basics of probability theory. Probability distributions. Sampling and confidence intervals. Hypothesis testing, Parametric and Non-parametric tests, Analysis of variance, Data correlation and
D21DA Data Analysis and Simulation

regression analysis, Simulation and modelling, Design of the Experiments, Reliability Analysis.

**COURSE RELATIONSHIPS**

N/A

**LOCATION AND ASSESSMENT METHODS**

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