Course Code	EM 526
Course Title	Industrial Statistics
No. of Credits	3
Pre-requisites	EM213
Compulsory/Optional	Optional

Aim(s): To develop skills in analyzing problemsin industry by applying statistical methods.

Intended Learning Outcomes:

On successful completion of the course, the students should be able to;

- Apply statistical techniques to obtain a sample and apply statistical methods to make inferences about the population.
- Apply regression analysis to model data, test the model adequacy and validate the model.
- Analyze data and interpret results using statistical software.

Time Allocation (Hours): Lectures : 30   Tutorials : 7Practical :16   Assignments

Course content/Course description:

- **Sampling Methods:**Simple random sampling,stratified sampling,cluster sampling,and systematic sampling.
- **Questionnaire design and analysis**: Introduction to questionnaire design and analysis, introduction to statistical software.
- **Methods of estimation:**Minimum variance unbiased estimators, confidence interval on mean, variance, proportion and difference of means.
- **Testing of Hypotheses:**Mean, variance and proportion, comparison of two means, two variances, and two proportions (independent and dependent samples), use of p-value for the analysis.
- **Regression Analysis:** introduction, simple linear regression, polynomial regression, multiple linear regression, regression with dummy variables, intrinsically linear regression, inferences concerning the regression coefficients, multicollinearity, residual analysis, repeated measures and lack of fit, forward selection method, backward elimination method, stepwise method, model validation.

Recommended Texts :
- R.S.N. Pillai and Bagavathi,Statistics: Theory and Practice 1st edition,(2002),S. Chand &Company LTD.

- D.C. Montgomery and G.C. Runger, Applied Statistics and Probability for Engineers, 6thedition.(2013), John Wiley and Sons, Inc.

- J.S. Milton, Jesse C. Arnold,Introduction to Probability and Statistics, principals and Applications for Engineering and the Computing Sciences, 4th edition,(2002),McGraw-Hill, Inc.

Assessment	Percentage Mark
In-course Tutorials Lab Assignments/ Quizzes Mid Semester Examination	10 20 20
End-semester	50