

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Department of Mathematics

COURSE OUTLINE TEMPLATE			
Course Title	PROBABILITY & STATISTICS		
Course Code	MA611	No. of Credits	4
Department	Mechanical Engineering	Faculty	Ms.Sangeetha.S Ms.Kavitha.J
Class	M.Tech Industrial Safety Engineering I Sem	Section	-
Pre-requisites Course Code	NIL		
Course Coordinator(s) (if, applicable)	NIL		
E-mail	kavitha@nift.edu sangeethas@nift.edu sangee.siva11@gmail.com	Telephone No.	8754435993 9976110352
Course Type	General Institute requirements		

COURSE OVERVIEW:

To create general awareness and understanding of probability theory , Statistics and Reliability concepts

Learning Objectives:

- To make the students mathematically strong for solving engineering scientific problems.
- To provide the required fundamental concepts in probability and statistics
- To introduce the basic concepts of one dimensional and two dimensional random variables

COURSE OUTCOMES (CO)

Afer completing this course the students will be able to

- To apply the principles and techniques learnt in this course for solving the practical problems which arise in the industry
- To formulate real problems with multi dimensions
- To develop student's problem solving skill in their domain

COURSE TEACHING AND LEARNING ACTIVITIES

WEEK	TOPIC	MODE OF DELIVERY
1 st , 2 nd 3 rd Week	Random variable – Two dimensional random variables – Standard probability distributions – Binomial, Poisson and Normal distributions – Moment generating function.	CHALK & TALK
4 th , 5 th & 6 th Week	Special distributions – Uniform, Geometric, Exponential, Gamma, Weibull & Beta distributions – Mean, Variance, Raw moments from moment generating distributions.	
6 th week	Assessment Test – I	CHALK & TALK
7 th , 8 th & 9 th week	Sampling distributions – Confidence interval estimation of population parameters – Testing of Hypothesis – Large sample tests for mean and proportion – t-test, F-test and Chi – square test.	
10 th , 11 th & 12 th Week	Curve fitting – Method of least squares – Regression and correlation – Rank correlation - Multiple and partial correlation – Analysis of variance – One way and two way classification- Design of experiments.	
12 th week	Assessment test – II	

13 th & 14 th Week	Basic concepts of reliability – Failure rate analysis – Reliability of systems – Series, Parallel – Maintenance – Preventive and corrective – Maintainability equation – Availability – Quality and Reliability	CHALK & TALK
14 th Week	Retest	
After 14 th Week	Semester Examination	

COURSE ASSESSMENT METHODS

S.No	Mode of Assessment	Week	Duration	% weightage
1.	Assessment test - I	6 th Week	1 hour	20%
2.	Assessment test – II	12 th Week	1 hour	20%
3.	Retest	14 th Week		
3.	Semester Exam	After 14 th Week	3 hours	50%
4.	Seminar			10%

Reference Books:

1. Bowker and Liberman, Engineering Statistics, Prentice Hall
2. Gupta S.C & Kapoor V.K Fundamentals of Mathematical Statistics, Sultan Chand and Sons
3. Spiegel, Murray R, Probability and Statistics, Schaum's series
4. Siegel, Murray R, Statistics, Schaum's series.

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

1. Feedback form issued to students to express their comments about the course before cycle test I & after completing the syllabus. Students are requested to give genuine feedback about the course.
2. Student knowledge about the topic covered in this course will be judged through marks obtained in examination.

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

1. Examination:

- i) Students who have missed the first or second cycle test or both can register the Re-Test examination which shall be conducted soon after the completion of the second cycle test and before the regular semester examination.
- ii) The Re-Test examination shall be conducted for 20 marks comprising the syllabus of both first and second cycle tests.
- iii) Students should submit assignments before last date of submission. In case students fails to submit their assignments within last date of submission, he/she will get zero mark for that particular assignment.

2. Attendance:

- i) The minimum attendance for appearing for the semester examination is 75%
 - ii) Those students, whose attendance fails below 75% but above 50% in a subject, shall attend mandatory classes before the semester examinations to qualify to write semester exam.
 - iii) The students who are having attendance less than 50% has to redo the course in next semester.
3. The institute follows relative grading with flexibility given to teachers to decide the mark ranges for grades. All assessment of a course will be done on the basis of marks.

4. The performance analysis committee, which shall meet within seven days after the completion of all examinations, shall analyze the relative cumulative performance of students in all examinations (continuous and end-semester) of a course and finalize the letter grade ranges for the course.
5. The letter grades and the corresponding grade points are as follows

Letter	S	A	B	C	D	E,R	F,I	V	FF	X
Grade(GP)	10	9	8	7	6	5	0	-	2	-

- a) Students scoring less than the passing minimum marks in the assessments defined in the course plan shall be deemed to have not successfully completed the course and be given an 'F' grade.
- b) Students awarded F grade may REDO the course or opt for formative assessment.
- c) 'V' indicates lack of required attendance. Students awarded 'V' grade must compulsorily redo the course.
- d) 'I' grade indicated incompleteness of formative assessment.
- e) A student who gets an 'I' grade must necessarily convert it to a 'R' grade by completing the formative assessment.
- f) An 'FF' grade is awarded for not completing the formative assessment in the prescribed maximum period of study due to gross negligence. An 'FF' grade will have a grade point of 2 and it will remain on the grade card permanently. This will be used in the CGPA calculations.
- g) A student who earns a minimum of 5 grade points (a 'E' grade or a 'R' grade) in a course is declared to have successfully completed the course.
- h) If the student fails to appear semester examination due to genuine/medical reason, can register for special end semester examination after approval from course teacher & Head of department of mathematics/Dean(academic). The special end semester examination will be conducted within ten days from reopening of institute for next semester. Students should register their names with course teacher to appear for special end semester examination within three days from reopening of institute for next semester. Grade issued as per the guidelines followed for his/her batch students.
- i) There will be one reassessment (for 100 marks) for the students who have secured 'F' in this course and will be conducted within ten days from reopening of institute for next semester. Students should register their names with course teacher to appear for reassessment within three days from reopening of institute for next semester. If the students satisfy the criteria fixed by the faculty to promote E grade will be given and others given 'F' grade.


ADDITIONAL COURSE INFORMATION:

Faculty is available for discussion after the class hours at the Department on the first floor of Lyceum. Room No. 204 and 215.

FOR SENATE'S CONSIDERATION


Course Faculty


CC Chairperson


HOD(Maths) 28/9/2017