1.	R. S. Khandpur, “Handbook of Biomedical Instrumentation”, Tata McGraw Hill.
2.	S.C. Cobbold, “Transducers for Biomedcial Instruments”, Prentice Hall.
3.	Brown & Gann, “Engineering Principles in Physiology Vol. I”, Academic Press.
4.	Carr & Brown, “Introduction to Biomedical Equipment Technology” Pearson Education, Asia.
5.	Rao & Guha, ”Principles of Medical Electronics & Biomedical Instrumentation”, University Press, India.

BIOSTATISTICS

Details of course:-

Course Title	Course Structure			Pre-Requisite
	L	T	P	
Biostatistics (BT435)	3	1	0	

Course Objective:

To gain proficiency in random variables, probability distributions, correlation, regression, sampling, hypothesis testing, and ANOVA for statistical analysis.

Course Outcome (CO):

1. Understand random variables, distribution functions, and mathematical expectation.
2. Learn key probability distributions and their applications.
3. Analyze correlation and regression methods, including least squares and correlation coefficients.
4. Explore sampling plans, central limit theorem, and large sample testing.
5. Understand Chi-square, t-distribution, and F-distribution and their applications.
6. Learn the principles and applications of one-way, two-way, and three-way ANOVA.

S.No.	Content	Contact Hours
1.	Random variable and Expectation: Random variable and distribution function. Jointly distributed random variables. Mathematical	7

	expectation. Statistical parameters. Moment generating function. Chebyshev's inequality	
2	Probability Distributions: Binomial distributions. Multinomial distribution. Geometric distribution. Poisson distribution. Normal distribution. Normal distribution as limiting case of Binomial distribution. Exponential distribution.	6
3	Correlation and Regression: Method of least square and curve fitting. Correlation. Karl Pearson's coefficient of linear correlation. Probable error. Rank correlation and Spearman's coefficient. Regression.	7
4	Sampling distributions and Large sample estimation: Sampling plans. Statistics and sampling distributions. The central limit theorem. The sampling distribution of the sample mean. The sampling distribution of the sample proportion. Tests of significance. Large samples testing. Sampling of attributes.	8
5	Exact sampling distributions and small sample test: The Chi-square distribution. Student's t-distribution. Snedecor's F- distribution. Their Properties and applications.	8
6	ANOVA: One - way analysis of variance. Two - way analysis of variance. Three - way analysis of variance.	6
	Total	42

Books: -

S.No.	**Name of Books/ Author/Publisher**
1.	Pagano, M. and Gaureau, K. 'Principles of Biostatistics', 7th ed. Thomson Learning.2007
2.	Ross, S.M. 'Probability and Statistics for Engineers and Scientists' 3rd ed. Academic Press. 2005
3.	Walpole, R.E., Myers, R.H., Myers,S.L., Ye, K. 'Probability and Statistics for Engineers and Scientists' Prentice Hall, Inc. 2002.
4.	Taneja, H.C. 'Statistical Method for Engineering and Sciences' IK Intenational,2009

BIOPROCESS PLANT DESIGN

Details of course:-

Course Title	**Course Structure**			**Pre-Requisite**
	L	**T**	**P**	
Bioprocess Plant Design(BT404)	3	1	0	Nil