MANGALORE UNIVERSITY

Department of Statistics

STS455: (a) ACTUARIAL STATISTICS

Hours/Week:3 **Credits : 3**		**I.A.Marks:30** **Exam. Marks: 70**

Course Outcomes:

CO1: To understand how actuarial science is used in finance, investments, banking and insurance.

CO2: Explain the concept of survival models

CO3: Describe estimation procedures for lifetime distributions.

CO4: To understand the statistical behaviour of actuarial indicators.

CO5: To solve the problems related to the benefit amounts in insurance, annuities, premiums and reserves.

	UNIT-I	14 Hrs.

Introduction to life Insurance, insurance contracts, survival models. Future lifetime random variable, force of mortality, actuarial notation, curtate future lifetime, complete and curtate expected future lifetimes, Life tables, Fractional age assumptions, Uniform distribution of deaths, constant force of mortality, Selectlifetables.

	UNIT-II	14 Hrs.

Compound interest and discounting, force of interest, benefit payable at the time of death, term life insurance. Whole life insurance: the continuous case, the annual case, the 1/*m*thly case. Recursions, term insurance, pure endowment, endowment insurance.

Annuities-certain, annual life annuities, whole life annuity-due, term annuity-due, whole life immediate annuity, term immediate annuity. Annuities payable continuously. Annuities payable *m* timesperyear.

	UNIT-III	10Hrs.

Loss at issue random variable, principles of premium calculation. Fully continuous premiums, fully discrete premiums, true mthly payment premiums. Gross premiums.

Reserves, Fully continuous reserves, fullydiscrete reserves.

REFERENCE BOOKS:

1. David C.M.Dickson, Mary R. Hardy and Howard R Waters (2009) “Actuarial Mathematics for Life Contingent Risks”, Cambrigge UniversityPress.
2. Shailaja R Deshmukh (2009) “Actuarial Statistics”, University Press (India) Private Limited,Hyderabad
3. N.L. Bowers, H.U. Gerber, J.C. Hickman, D.A. Jones and C.J. Nesbitt (1997),“ActuarialMathematics”, Second Edition, The Society ofActuaries