



ST. JOSEPH'S DEGREE & PG COLLEGE

Autonomous

Affiliated to Osmania University

Re-accredited by NAAC with 'A' Grade.

S. No	Course	Topic	E Resources/ Links
1	Descriptive Statistics, Probability and Random variables (Theory)	<ul style="list-style-type: none"> ❖ Collection of Data ❖ Analysis of Data ❖ Graphical and Diagrammatic presentation of data ❖ Measures of central tendency ❖ Measures of Dispersion ❖ Probability ❖ Random Variables 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=j9cuxp_Qw5w ❖ https://www.youtube.com/watch?v=WV_Ta3hEsyk ❖ https://www.youtube.com/watch?v=6huEPuL3p9w ❖ https://www.youtube.com/watch?v=bfQLNyiDPsk&list=PLTNMv857s9WVStKLco6ZBOsfSGXzJ1LOf ❖ https://www.youtube.com/watch?v=XcLO4f1i4Yo ❖ https://www.youtube.com/watch?v=pCbFNf0NNhQ ❖ https://ocw.mit.edu/courses/mathematics/18-05-introduction-to-probability-and-statistics-spring-2014/readings/MIT18_05S14_Reading6b.pdf
2	Descriptive Statistics, Probability and Random variables (Practical)	<ul style="list-style-type: none"> ❖ Graphical presentation of data ❖ Diagrammatic presentation of data ❖ Computation of non-central and central moments ❖ Computation of measures of central tendency ❖ Computation of measures of dispersion ❖ Computation of coefficients of Skewness and Kurtosis 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=FgbEIDUs3gg ❖ https://www.youtube.com/watch?v=Z2gzLYaQatQ ❖ https://www.youtube.com/watch?v=4_9vGqQaCFk ❖ https://www.youtube.com/watch?v=fgVNgJsmbTM
3	Probability Distributions	<ul style="list-style-type: none"> ❖ Generating 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=GL5DVOQ2-5Fs

	(Theory)	<ul style="list-style-type: none"> ❖ Functions ❖ Discrete distributions ❖ Continuous distributions 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=cbmfYoepHPk ❖ https://www.youtube.com/watch?v=FicsVfM4C-Q ❖ MITO:https://ocw.mit.edu/courses/economics/14-30-introduction-to-statistical-method-in-economics-spring-2006/lecture-notes/l6.pdf
4	Probability Distributions (Practical)	<ul style="list-style-type: none"> ❖ Fitting of Discrete distributions like Binomial, Poisson, Exponential distributions ❖ Fitting of Continuous distributions like Normal, 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=tWla6Dovirs ❖ https://www.youtube.com/watch?v=JhXE-VLbkhc ❖ https://www.youtube.com/watch?v=CRroD7Mdv0_o ❖ https://www.youtube.com/watch?v=fpb96YOb5gs ❖ https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-00-introduction-to-computer-science-and-programming-fall-2008/video-lectures/lecture-22/
5	Statistical Methods (Theory)	<ul style="list-style-type: none"> ❖ Correlation and Regression ❖ Principles of Least squares ❖ Attributes ❖ Exact sampling distributions ❖ Estimation theory ❖ Confidence intervals ❖ Pivot Intervals 	<ul style="list-style-type: none"> ❖ https://ocw.mit.edu/courses/mathematics/18-05-introduction-to-probability-and-statistics-spring-2014/readings/MIT18_05S14_Reading22.pdf ❖ https://www.youtube.com/watch?v=34xF8Xn89Bc ❖ https://ocw.mit.edu/courses/mathematics/18-05-introduction-to-probability-and-statistics-spring-2014/readings/MIT18_05S14_Reading7b.pdf ❖ https://www.youtube.com/watch?v=vvv9DhUrZlY
6	Statistical Methods (Practical)	<ul style="list-style-type: none"> ❖ Fitting of least squares, parabola, power and exponential curves ❖ Computation of correlation coefficient, forming regression lines ❖ Computation of Yule's coefficient of association 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=Qy1YAKZDA7k ❖ https://www.youtube.com/watch?v=9WvINKYWpPE ❖ https://www.youtube.com/watch?v=OI1wzkuKS6Y ❖ https://www.youtube.com/watch?v=DioPjI7L2gM
7	Statistical Inference	<ul style="list-style-type: none"> ❖ Concepts of 	<ul style="list-style-type: none"> ❖ https://ocw.mit.edu/courses/mathematics/18-05-introduction-to-probability-and-statistics-spring-

	(Theory)	<ul style="list-style-type: none"> ❖ statistical hypothesis ❖ Confidence intervals by Pivot method ❖ Large sample tests ❖ Small sample tests ❖ Non-Parametric tests 	<ul style="list-style-type: none"> ❖ 2014/readings/MIT18_05S14_Reading10b.pdf ❖ https://ocw.mit.edu/courses/mathematics/18-655-mathematical-statistics-spring-2016/lecture-notes/MIT18_655S16_LecNote9.pdf ❖ https://www.youtube.com/watch?v=e8-B1iLyGU ❖ https://www.youtube.com/watch?v=D2sMsmL0ScQ ❖ https://www.youtube.com/watch?v=lclSKko2tsg ❖ https://ocw.mit.edu/courses/sloan-school-of-management/15-075j-statistical-thinking-and-data-analysis-fall-2011/lecture-notes/MIT15_075JF11_chpt14.pdf
8	Statistical Inference (Practical)	<ul style="list-style-type: none"> ❖ Large sample tests using Z-test ❖ Small sample tests ❖ χ^2 – Test for goodness of fit ❖ Nonparametric tests 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=H3VKDNdV_K8 ❖ https://www.youtube.com/watch?v=xQjGXP0JNB8 ❖ https://www.youtube.com/watch?v=v-ZcqrDTclQ ❖ https://www.youtube.com/watch?v=LOcqcg6v4M0 ❖ https://www.youtube.com/watch?v=mjCzU4WI2Gg
9	Sampling Techniques, Time Series & Demand Analysis (Theory)	<ul style="list-style-type: none"> ❖ Design of Sample Surveys ❖ Sampling Techniques ❖ Time Series ❖ Demand Analysis 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=beXCpr1-vB0&list=PLU2YP04_LRDsKB87HFYQeBMLYi3ZLEhSY ❖ https://www.youtube.com/watch?v=KOPLXYRNjB4 ❖ https://www.youtube.com/watch?v=mjjsw1Ago_E
10	Sampling Techniques, Time Series & Demand Analysis (Practical)	<ul style="list-style-type: none"> ❖ SRSWR and SRSWOR ❖ Stratified random sampling ❖ Systematic sampling ❖ Measurement of trend ❖ Determination of seasonal indices ❖ Construction of various rates, life tables ❖ Construction of Lorenz curve 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=ZXKLn9RrBGU ❖ https://www.youtube.com/watch?v=hTGdXsa6BTM ❖ https://www.youtube.com/watch?v=2AbSpvgAioU ❖ https://ocw.mit.edu/courses/mathematics/18-s096-topics-in-mathematics-with-applications-in-finance-fall-2013/video-lectures/lecture-8-time-series-analysis-i/ ❖ https://www.youtube.com/watch?v=VxVjmxNjBw ❖ https://www.youtube.com/watch?v=0Vv930-sDTI

11	R-Programming	<ul style="list-style-type: none"> ❖ Graphical Presentations ❖ Descriptive Statistics ❖ Correlation and Regression 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=WbKiJe5OkUU&list=PLFW6IRTa1g83jpiOte7RuEYCwOJa-6Gz ❖ https://www.youtube.com/watch?v=2SCg8Kuh0tE ❖ https://www.youtube.com/watch?v=WbKiJe5OkUU&t=154s ❖ https://www.youtube.com/watch?v=rsG-GgR0aEY
12	Operations Research (Theory)	<ul style="list-style-type: none"> ❖ Linear Programming problem ❖ Transportation Problems ❖ Assignment problems ❖ Sequencing 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=rDDmPvSVAII ❖ https://www.youtube.com/watch?v=8WPzcsXzASo ❖ https://www.youtube.com/watch?v=-w2z3MVTcQA ❖ https://www.youtube.com/watch?v=RGKQXBL2YW0
13	Operations Research (Practical)	<ul style="list-style-type: none"> ❖ Solution of LPP by Simplex, BigM, Two Phase, Dual ❖ Optimum solution of transportation problem ❖ Optimum and solution of Assignment problem 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=8K_M22SJIN4 ❖ https://www.youtube.com/watch?v=68HpZLv2ZRk ❖ https://www.youtube.com/watch?v=VyOhsX1g0VI
14	Actuarial Statistics-I (Theory)	<ul style="list-style-type: none"> ❖ Utility theory, insurance ❖ Life table and its relation ❖ Multiple life functions ❖ net single premiums 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=Ws8wnf-JtD0&list=PLCFMNS_v4AzkqgfO5ZXLvOSoAWmqBy7t0 ❖ https://www.youtube.com/watch?v=VS09nan347I ❖ https://www.youtube.com/watch?v=J-koofxcm6g ❖ https://www.youtube.com/watch?v=rxMoecP8ZIA
15	Actuarial Statistics-I (Practical)	<ul style="list-style-type: none"> ❖ Computation of values of utility function. ❖ Computation of various components of life tables ❖ Construction of multiple decrement table ❖ Determination of distribution function 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=-Pcmx2a8pco ❖ https://www.youtube.com/watch?v=FG3JgLuWA_M ❖ https://www.youtube.com/watch?v=88RifNtUn9A
16	SQC, Vital Statistics & Reliability (Theory)	<ul style="list-style-type: none"> ❖ Statistical Quality Control ❖ Product Control Techniques 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=dHhPEXbx9Lg ❖ https://www.youtube.com/watch?v=GeMCF3s5EDk ❖ https://www.youtube.com/watch?v=ccReTaolqHo

		<ul style="list-style-type: none"> ❖ Mortality and Fertility ❖ Life tables ❖ Reliability 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=Mo9aZJl8XtQ
17	SQC, Vital Statistics & Reliability (Practical)	<ul style="list-style-type: none"> ❖ Construction of Attributes and variables ❖ Construction of life tables ❖ Computation of various Mortality rates ❖ Computation of various Fertility rates 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=8Hh5Ydt5M4 ❖ https://www.youtube.com/watch?v=S7PAyQMRmAc ❖ https://www.youtube.com/watch?v=4if0vZjnaK4 ❖ https://www.youtube.com/watch?v=FN0IKLQi4s ❖ https://www.youtube.com/watch?v=Xzoc6YMMsnQ
18	Designs of experiment, Index Numbers & Official Statistics (Theory)	<ul style="list-style-type: none"> ❖ ANOVA one way and Two way ❖ CRD, RBD and LSD ❖ Index Numbers ❖ Base Shifting, Splicing & Deflation 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=k3IUo0XYG3E ❖ https://www.youtube.com/watch?v=82GOJMqKd2Y ❖ https://www.youtube.com/watch?v=95ZMKW75zvq ❖ https://www.youtube.com/watch?v=jd_KUEUt4Dg ❖ https://www.youtube.com/watch?v=0WYImT10zck ❖ https://www.youtube.com/watch?v=DFEykp21Kg0 ❖ https://www.youtube.com/watch?v=JY6NCfITrE ❖ https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-881-robust-system-design-summer-1998/lecture-notes/l7_anova4.pdf
19	Designs of experiment, Index Numbers & Official Statistics (Practical)	<ul style="list-style-type: none"> ❖ Analysis of one way and two way ANOVA ❖ Analysis of CRD, RBD & LSD ❖ Construction of Index Numbers 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=EQySAXdAc88 ❖ https://www.youtube.com/watch?v=p-UGHA2UUtA ❖ https://www.youtube.com/watch?v=iOoPHunv8NM ❖ https://www.youtube.com/watch?v=Pkj0QLX6XS8 ❖ https://www.youtube.com/watch?v=6s4616k8ox8
20	Actuarial Statistics-II (Theory)	<ul style="list-style-type: none"> ❖ Elements of compound interest ❖ Life annuities ❖ Net premiums ❖ Net premium reserves 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=mpFSQ_Ldlg8 ❖ https://www.youtube.com/watch?v=tguJ55h0bCk ❖ https://www.youtube.com/watch?v=4G2lslD4we0 ❖ https://www.youtube.com/watch?v=t8D38-cdlRA&list=PLOoogDtEDyvudcQ9ODIyJUTec2xjWupyi
21	Actuarial Statistics-II (Practical)	<ul style="list-style-type: none"> ❖ Computation of compound interest 	<ul style="list-style-type: none"> ❖ https://www.youtube.com/watch?v=jndqiLoSAhl ❖ https://www.youtube.com/watch?v=Vs3loeKFbAo ❖ https://www.youtube.com/watch?v=R8PNCh8exkl

		<ul style="list-style-type: none">❖ Annuities and annuity dues❖ Computation of discrete and continuous net premiums❖ Office premia calculation❖ Assurances payable at the moment of death	
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