

B. Stat.
STATISTICS
SYLLABUS (2007-2010)

under
CHOICE BASED CREDIT SYSTEM
(CBCS)



ST. JOSEPH'S COLLEGE (AUTONOMOUS)
(Nationally Reaccredited with A+ Grade / College with Potential for Excellence)
TIRUCHIRAPPALLI - 620 002

Features of Choice Based Credit System (CBCS)

The Autonomous St. Joseph's College (1978) with A+ Grade from NAAC (2007) has introduced the choice based credit system (CBCS) for UG and PG courses from the academic year 2001-2002.

OBJECTIVES of Credit System:

- * To provide mobility and flexibility for students within and outside the parent department
- * To provide broad based education
- * To help students learn at their own pace
- * To provide students scope for acquiring extra credits
- * To impart more job oriented skills to students
- * To make any course multi-disciplinary in approach

What is a credit system?

Weightage to a course is given in relation to the hours assigned for the course. Generally one hour per week has one credit. However, there could be some flexibility because of practicals, field visits and tutorials. The following Table shows the relation between credits and hours.

Hours in a week	Hours (2-3)	Hours (4)	Hours (5-6)
Theory Credits	1	3	4
Practicals Credits	1	2	3

For UG courses a student must earn a minimum of 140 credits to get a pass. The 140 credits are split as follows:

	BA	BSc	BCom
English	16	16	8
Languages	12	12	12
Allied: Compulsory - 2 courses	10	10	10
Allied: Optional - 2 courses	10	8	10
Computer Literacy	2	2	2
Foundation Courses	3	3	3
Environmental Studies	3	3	3
Electives	9	9	9
SHEPHERD	3	3	3
Core Courses	<u>72</u>	<u>74</u>	<u>80</u>
Total	<u>140</u>	<u>140</u>	<u>140</u>

A student can acquire credits more than 140 by taking electives offered by departments in the free hours available to him in 5th and 6th semesters.

Allied Courses:

The allied courses are of two categories.

Allied Compulsory and Allied Optional: The student has choice in allied optional as two courses are offered simultaneously. The department must offer two courses. The student has to choose one.

Electives

A student should take at least three electives.

A least one elective should be from Arts Department for a student of Science Department and vice versa for Arts students.

A student cannot take more than one elective from his parent department.

Credit System Codes - Subject Code Fixation

The various papers in the different courses are coded. The following code system is adopted.

- The code number of the subject should be as **07UPH1XX** where
 - a) 07 refers to year of revision
 - b) U refers to Undergraduate
 - c) PH refers to Physics*
 - d) 1 refers to Semester 1
 - e) 0X refers to Languages (Part 1)
 - f) 1X refers to General English (Part 2)
 - g) 2X refers to Core Major (Part 3)
 - h) 5X refers to Core Allied Compulsory (Part 3)
 - i) 7X refers to Core Allied Optional (Part 3)
 - j) 8X refers to Elective (Part 3)
 - k) 9X refers to Foundation Course (Part 4)
- } X - Paper number
- The code number of the subject should be as **07PEC1XX** where
 - a) 07 refers to year of revision
 - b) P refers to Postgraduate
 - c) EC refers to Economics*
 - d) 1 refers to Semester 1
 - e) 2X refers to Core
 - f) 4X refers to Optional
 - g) 6X refers to EDC
- } X-Paper number

Codes for Departments:

Sl. No.	Course	Subject Code
1.	Biochemistry	BI
2.	Biotechnology	BT
3.	Business Administration	BU
4.	Chemistry	CH
5.	Commerce	CO
6.	Computer Applications	CA
7.	Computer Science	CS
8.	Information Technology	IT
9.	Economics	EC
10.	English	EN
11.	English - General	GE
12.	Electronics	EL
13.	Foundation Course	FC
14.	French	FR
15.	Hindi	HI
16.	History	HS
17.	Human Resource Management	HR
18.	Mathematics	MA
19.	Physics	PH
20.	Plant Biology & Plant Biotechnology	PB
21.	Personnel Management & Industrial Relations	PM
22.	Sanskrit	SA
23.	Statistics	ST
24.	Tamil	TA
25.	Tamil - General	GT
26.	Transport Management	TM

Evaluation

For each course there is formative Continuous Internal Assessment (CIA) and Semester Examinations (SE) in the weightage ratio 50:50. The following table illustrates how one evaluates the **Overall Percentage Marks (OPM)** for a student in Part I (English) in the four papers put together.

$$\text{OPM} = \frac{a_1b_1 + a_2b_2 + a_3b_3 + a_4b_4}{(b_1 + b_2 + b_3 + b_4)}$$

Where a_1, a_2, a_3 and a_4 indicate the marks obtained in the 4 semesters for English and b_1, b_2, b_3 and b_4 indicate the corresponding credits for the 4 courses. For example let us consider the following marks scored by a student in the 4 semesters in English.

Part II-General English

S. No.	Sem.	Subject	CIA	SE	Total	Avg	Credit	Cr.pts
1.	I	GE-I	50	48	98	49.0	4	196.0
2.	II	GE-II	50	48	98	49.0	4	196.0
3.	III	GE-III	50	50	100	50.0	4	200.0
4.	IV	GE-IV	50	48	98	49.0	4	196.0
TOTAL								788.0

$$\text{OPM} = 788 / \text{total number of credits} = 788.0 / 16 = 49.25$$

This percentage corresponds to III class.

If OPM is between 50 and 60 the student gets II class. If OPM is 60 and more then the student is placed in I class.

If scores OPM=75 and more he gets first class with distinction.

Similarly we can compute OPM for part II and Part III using the marks in various subjects and the corresponding credits.

Part IV consists of foundation courses, computer literacy, SHEPHERD programme, Service Organisation and only a pass is indicated for these and Part IV is not taken into account for computing OPM.

Declaration of result:

_____ has successfully completed B.Sc. degree course with FIRST CLASS. His overall average percentage of marks in part III is _____. He has acquired 11 more credits in the course by taking Foundation Courses, Environmental Studies, Computer Literacy, and SHEPHERD programme.

B. Stat. - STATISTICS - COURSE PATTERN

Sem.	Part	Code	Subject Title	Hr	Cr
I	I	*	Tamil - I / Hindi - I / French - I / Sanskrit - I	4	3
	II	07UGE111	General English - I	5	4
	III	07UST121	Descriptive Statistics	8	7
	III	07UST122	Computational Statistics - I (Internal)	3	2
	III	07UST151	Allied: Computers in Statistics - I (Pascal)	6	4
	III	07UST152	Allied: Computer Lab - I (Pascal Programming)	2	1
	IV	07UFC191	Foundations of Humanity	2	1
			Total for semester - I	30	19
II	I	*	Tamil - II / Hindi - II / French -II / Sanskrit - II	4	3
	II	07UGE212	General English - II	5	4
	III	07UST223	Probability Theory	8	7
	III	07UST224	Computational Statistics - II (Internal)	3	2
	III	07UST253	Allied: Computers in Statistics - II (C - Programming)	6	4
	III	07UST254	Allied: Computer Lab - II (C - Programming)	2	1
	IV	07UFC292	Computer Literacy	2	2
	IV	07UFC293	Social Analysis	2	1
		Total for semester - II	32	24	
III	I	*	Tamil - III / Hindi - III / French -III / Sanskrit - III	4	3
	II	07UGE313	General English - III	5	4
	III	07UST325	Distributions Theory	9	8
	III	07UMA371	Allied: Mathematics - I (or)		
	III	07UCO371	Allied: Accountancy - I	6	4
	IV	07UFC394	Social Ethics / or		
	IV	07UFC395	Religious Doctrine-I	2	1
	IV	07UFC396	Environmental Studies	4	2
		Total for semester - III	30	22	
IV	I	*	Tamil - IV / Hindi - IV / French -IV / Sanskrit - IV	4	3
	II	07UGE414	General English - IV	5	4
	III	07UST426	Elements of Statistical Inference	9	8
	III	07UMA472	Allied: Mathematics - II (or)		
	III	07UCO472	Allied: Accountancy - II	6	4
	IV	*	Elective - I	4	3
	IV	07UFC497	Building Men for Others / or		
	IV	07UFC498	Religious Doctrine-II	2	1
		Total for semester - IV	30	23	
V	III	07UST527	Sampling Theory	6	6
	III	07UST528	Applied Statistics	7	7
	III	07UST529	Biostatistics	7	7
	III	07UST530	Operation Research - I	6	6
	III	*	Elective - II	4	3
			Total for Semester -V	30	29
VI	III	07UST631	Design of Experiments	7	7
	III	07UST632	Engineering Statistics	7	7
	III	07UST633	Operation Research - II	7	7
		07UST634	Statistical Package theory and practical (Internal)	3	2
		07UST635	Seminar and Statistical interviews skills (Internal)	4	3
	III	*	Elective -III	2	1
			Total for Semester -VI	30	27
I-V	IV		Extension Service : SHEPHERD		3
			Total Credits for All Semesters		140

* Code numbers according to the subjects chosen

Sem:I
07UGT101

Hours : 5
Credits: 4

பொதுத்தமிழ் - 1

நோக்கங்கள்:

1. சமூக மாற்ற உணர்வை ஊட்டும் தலைசிறந்த தற்காலக் கவிஞர்கள், உரைநடை ஆசிரியர்களது படைப்புகளின் இலக்கியநயம் பாராட்டல்.
2. சந்திப்பிழையின்றி எழுதப் பயிற்றுவித்தல்

பயன்கள்

1. சமூக உணர்வூட்டும் படைப்புகளை அழகியல் நுகர்ச்சி வாயிலாக மாணாக்கர் கற்றுக்கொள்வர்.
2. சந்திப்பிழை நீக்கி எழுதும் திறன் பெறுவர்.

செய்யுள் திரட்டு

1. மகாகவி பாரதியார் கவிதைகள்
2. பாரதிதாசன் கவிதைகள்
3. சுத்தானந்த பாரதியார், தமிழ்க்கனல் ஷஎன்னருமைத் தமிழர்களே'
4. கவிமணி கவிதைகள்
5. கவிஞர் கண்ணதாசன் - இயேசு காவியம்
6. பெருஞ்சித்திரனார் பாடல்கள்
7. அப்துல் ரகுமான் - ஆலாபனை
8. கவிஞர் அறிவுமதி கவிதைகள்
9. மொழிபெயர்ப்புக் கவிதைகள்
10. இலக்கணம்: வல்லினம் மிகும் - மிகா இடங்கள்

இலக்கிய வரலாறு - மூன்றாம் பாகம்

சிறுகதை

உரைநடை : முதல் ஆறு கட்டுரைகள்

பாடநூல்

1. செய்யுள் திரட்டு - தமிழ்த்துறை வெளியீடு, 2004-2007
2. இலக்கணம் - மேற்குறித்த நூலில் உள்ளது.
3. சமூகவியல் நோக்கில் தமிழ் இலக்கிய வரலாறு, தமிழ்த்துறை வெளியீடு
4. உரைநடை நூல் - திறன் வளர்க்கும் கட்டுரைகள், தமிழ்த்துறை வெளியீடு, 2004-05 (அறக்கட்டளைச் சொற்பொழிவு நீங்கலாக 12 கட்டுரைகள்)
5. சிறுகதை: உறவு, நியுசெஞ்சரி புத்தகநிலையம், சென்னை, 2007 முதற்பதிப்பு

Sem.: I
Code: 07UGE111

GENERAL ENGLISH - I

Hours : 5
Credits : 4

Objectives

1. To enable students develop their communication skills.
2. To inculcate in students the four basic skills: Reading, Writing, Listening and Speaking.

Unit I

1. Prose : At the College
2. Shakespeare : The Merchant of Venice
3. Essential English Grammar : Units 1 to 5
4. Reading Comprehension

Unit II

5. Poetry : The Passionate Shepherd to his Love
6. Shakespeare : The Taming of the Shrew
7. Essential English Grammar : Units 6 to 10
8. Letter Writing : Informal

Unit III

9. Prose : Outside the Class
10. Shakespeare : The Tempest
11. Essential English Grammar : Units 11 to 15
12. Letter Writing : Formal

Unit IV

13. Prose : For Business and Pleasure
14. Poetry : Daybreak
15. Shakespeare : Julius Caesar
16. Essential English Grammar : Units 16 to 22

Unit V

17. Poetry : I love to see it lap the miles
18. Shakespeare : King Lear
19. Shakespeare : Macbeth
20. Essential English Grammar : Units 23 to 29

Required Reading

1. Krishnaswamy, N. & T. Sriraman: Creative English for Communication (Macmillan)
2. Raju, A.K. (ed.) : Pegasus (Macmillan)
3. Murphy, R. : Essential English Grammar (CUP)
4. Dodd, E.F. : Six Tales from Shakespeare (Macmillan)

Sem - I
07UST121

Hours/week: 8
Credits: 7

DESCRIPTIVE STATISTICS

To explain how to analyse the given data. At the end of the course a student should be able to solve simple real life problems.

Unit - I Collection and Scrutiny of Data

Origin and meaning of statistics - general uses-relation with other disciplines-Limitations and misuses of statistics.

Methods of collection: Complete enumeration - sample survey-Primary data; methods of collection; secondary data sources.

Unit - II Presentation of Data

Presentation of data by tables and by diagrams- construction of tables (univariate and bivariate)- classification - graphical representation of a frequency distribution by histogram and frequency polygon and Ogives.

Diagrammatic presentation: Line diagram, Bar diagrams: Simple, multiple, subdivided and percentage-Pie chart, comparative pie chart.

Unit - III Analysis of Data (Univariate)

Measures of central tendency: Arithmetic mean-weighted mean-median-partition values-mode-geometric mean-Harmonic mean-choice of an average-characteristics of a good average.

Measures of dispersion: range-quartile deviation-mean deviation - standard deviation - relative measures of dispersion - Coefficient of variance-Lorenz curve.

Measures of skewness and kurtosis.

Unit - IV Analysis of Data (Bivariate)

Correlation: Scatter plot-coefficient of correlation-probable error-coefficient of determination-Spearman's rank correlation coefficient-correlation coefficient for bivariate frequency table-correlation ratio-partial and multiple correlations (with respect to three variables only).

Association of attributes: Dichotomy-order of classes association and disassociation-methods: (I) comparison of observed and expected frequencies(II) proportion method, (III) Yule's coefficient of association, (iv) coefficient of colligation.

Unit - V Analysis of Data (Fitting of Mathematical Models)

Simple regression analysis: Distinction between regression analysis and correlation- Linear regression: Finding regression equations by Graphical method, method of least squares and using statistical constants(x , y , σ_y , σ_x and r). Properties of linear regression coefficients. Curvilinear regression: Fitting of second degree Parabola, exponential and power curves.

Note: Probability and Expectation concepts are to be avoided.

Books for study

1. Saxena H.C. : Elementary Statistics. S. Chand & Co., 1983.
2. Gupta, S.C. and Kapoor, V.K. : Fundamentals of Mathematical Statistics. Sultan Chand & Co. 3rd Ed, 1984.

Note: The question paper may consist of Theory and Problem in the ratio 50:50.

Sem - I
07UST122

Hours/week: 3
Credits: 2

COMPUTATIONAL STATISTICS - I
(Internal)

Objective: To impart the computational skills to the students.

Unit - I

Frequency Distributions - Univariate, Bivariate and cross-tabs.

Graphs: Histogram, Frequency polygon, Frequency curves, Ogives, Lorenz curve.

Unit - II

Diagrams: Cluster bar diagrams, Stacked bar diagrams, Pie chart, Pictograms, Stem and leaf plots, Scatter diagram.

Unit - III

Measures of central tendency: Mean, Median, Mode, Geometric mean, Harmonic mean, Weighted mean, Partition values.

Unit - IV

Measures of dispersion: Range, Mean deviation, Quartile deviation, Standard deviation, combined standard deviation, Coefficient of Variation.

Unit - V

Skewness and Kurtosis: Raw moments, Central moments Karl Pearsons coefficient of skewness, Bowley's coefficient of skewness $\beta_1, \beta_2, \gamma_1, \gamma_2$.

Sem - I
07UST151

Hours/week: 6
Credits: 4

**Allied: COMPUTERS IN STATISTICS - I
(PASCAL PROGRAMMING)**

Objective : To introduce the art of programming through the structured Pascal Language.

Unit - I

Introduction to computer programming-algorithm-flowchart, Introduction to Pascal-data types - standard, scalar data types-user defined scalar data types-scalar sub range data type-constant declaration names in Pascal.

Unit - II

Arithmetic expressions-Boolean expressions. Built-in function-Assignment statement-Read-readln statements-write, write in statements. Structure of Pascal programs.

Unit - III

Iterative statements-while, Repeat and For statements. If-then, case and GOTO statements. Structured data types-arrays.

Unit - IV

Function-declaration and invoking-procedures-parameters. Recursion function and procedures as parameters. Subprograms.

Unit - V

Records-File organizations and accessing modes-creating and using files- text files.

Books for study:

1. Michael Schneider,G : An Introduction of programming and problem solving with PASCAL - John wiley & sons, NewYork,1982.
2. Rajaraman, V : Computer programming in PASCAL , PHI, New Delhi, 1998.

Sem - I
07UST152

Hours/week: 2
Credits: 1

Allied: COMPUTER LAB - I
(PASCAL PROGRAMMING)

To train the students to design & execute a variety of Pascal programs on computers.

1. Program for preparing Bio-data.
2. Program for evaluating the area of a triangle.
3. Program for computing mean and variance.
4. Solving Quadratic Equation.
5. Computing Correlation and Regression Coefficients.
6. Fitting of Straight line.
7. Matrix Addition and multiplication.
8. Arranging in ascending, descending and alphabetical order.
9. Newton Raphson method.
10. Binomial fitting.
11. Payroll preparation (Sequential files).
12. Blood bank data storage and retrieval (Random files).

Sem:II
07UGT202

Hours : 5
Credits: 4

பொதுத்தமிழ்-2

நோக்கங்கள்

1. சமயநல்லிணக்க உணர்வை வளர்த்தல்
2. தமிழ்க்காப்பியங்களில் அழகும் அறிவுணர்வும் ஊட்டும் பகுதிகளைப் படித்துப் புரிந்து கொள்வர். உரைநடைக்கட்டுரை எழுதும் திறன் பெறுவர்.

பயன்கள்

தமிழைத் திருத்தமாகப் படிக்கவும் பேசவும் பிழையின்றி எழுதவும் தேர்ச்சி பெறுதல்.
தம் படைப்புக்களில் படித்தவற்றை முறையாகப் பயன்படுத்தல்

1. செய்யுள் திரட்டு

1. சிலப்பதிகாரம்
2. மணிமேகலை
3. சீவகசிந்தாமணி
4. கம்பராமாயணம்
5. தேம்பாவணி
6. சீறாப்புராணம்
7. இரட்சணிய சரிதம்
8. இலக்கணம்: எழுத்து, சொல்

2. இலக்கணம் - எழுத்து, சொல் (தமிழ்த் துறை வெளியீடு)

இலக்கிய வரலாறு - இரண்டாம் பாகம் (தமிழ்த்துறை வெளியீடு,2001)
உரைநடை நூல்-7 முதல் இறுதிக்கட்டுரைகள் வரை, திறன்வளர்க்கும் கட்டுரைகள் (7-12) (தமிழ் ஆய்வுத்துறை வெளியீடு, 2001)

பாடநூல்:

செய்யுள் திரட்டு - தமிழ்த்துறை வெளியீடு, 2004-07

Sem.: II
Code: 07UGE212

Hours : 5
Credits : 4

GENERAL ENGLISH - II

Objectives

1. To enable students develop their communication skills.
2. To inculcate in students the four basic skills: Reading, Writing, Listening and Speaking.

Unit I

1. Prose: Are you Smart?
2. Jules Verne : Around the World in 80 Days (Chap. 1 to 5)
3. Essential English Grammar: Units 30 to 35
4. Reading Comprehension

Unit II

5. Poetry : Gitanjali (Song 36)
6. Jules Verne : Around the World in 80 Days (Chap. 6 to 10)
7. Essential English Grammar: Units 36 to 40
8. Note-making

Unit III

9. Prose: Are you Creative?
10. Jules Verne : Around the World in 80 Days (Chap. 11 to 15)
11. Essential English Grammar: Units 41 to 45
12. Note-taking

Unit IV

13. Prose: How to Win?
14. Poetry: The Pond
15. Jules Verne : Around the World in 80 Days (Chap. 16 to 20)
16. Essential English Grammar: Units 46 to 50

Unit V

17. Poetry: The Tree
18. Jules Verne : Around the World in 80 Days (Chap. 21 to 26)
19. Essential English Grammar: Units 51 to 57
20. Dialogue Writing

Required Reading

1. Krishnaswamy, N. & T. Sriraman: Creative English for Communication (Macmillan)
2. Raju, A.K. (ed.) : Pegasus (Macmillan)
3. Murphy, R. : Essential English Grammar (CUP)
4. Verne, J. (Retold by M. Green): Around the World in Eighty Days (Macmillan)

Sem - II
07UST223

Hours/week: 8
Credits: 7

PROBABILITY THEORY

Inferential Statistics helps one to make inferences about a whole group by studying a part of it. This is the vital reason for the present importance and popularity of Statistics in diversified fields. The techniques in Inferential Statistics by and large depend on Probability concepts. Hence the study of Probability theory along with Real Analysis in the same semester serves as a pre-requisite for all the subsequent semesters.

Unit - I

Random experiment sample point, sample space, algebra of events, Operation on events, classical and relative frequency approach to probability-discrete probability space, axiomatic approach to probability.

Unit - II

Addition theorem of probability - Conditional probability-independence of events-multiplication theorem-Bayes's theorem and its application.

Unit - III

Definition of discrete and continuous random variables - probability mass function, probability density functions, distribution function and their properties. Expectation of random variables and its properties. Joint distribution of two random variables, marginal and conditional distributions. Independence of random variables. Covariance, Correlation.

Unit - IV

Moment generating functions - Characteristic functions - Inversion and Uniqueness theorems. (Statement only) cumulant generating functions and its properties. Moments, measures of central tendency, dispersion, skewness and kurtosis.

Unit - V

Chebyshev's Inequality and applications-Markov inequality-Concept of convergence in probability and Stochastic convergence- Weak law of large numbers- Central limit theorems (De-Moivre and Levy-Lindeberg Levy theorem).

Books for study:

1. Dudewicz,E.J. and Mishra,S.N. Introduction to Mathematical Statistics, John Wiley, 1988.
2. Hogg,R.V. and Craig,A.T. : Introduction to Mathematical Statistics, Prentice Hall, England, 5th Ed, 1999.

Book for reference:

1. Gupta,S.C. and Kapoor,V.K. : Fundamentals of Mathematical Statistics, Sultan Chand & Co, 1984.

Sem - II
07UST224

Hours/week: 3
Credits: 2

COMPUTATIONAL STATISTICS - II (Internal)

To impart the computational skills to the students

Unit - I

Correlation: Karl Pearson's correlation coefficient, Spearman's rank correlation coefficient, coefficient of determination.

Theory of attributes: Independence of attributes, consistency of data, Yule's coefficient of association and Yule's coefficient of colligation.

Unit - II

Regression analysis: Lines of regression, exponential curves, Power curves, Parabola.

Unit - III

Partial and multiple correlation coefficients with respect to three variables.

Unit - IV

Discrete random variable: distribution function - joint distribution, marginal and conditional distributions independence, covariance correlation - various measures of central tendency dispersion, skewness and kurtosis using expectation concept. Dispersion using expectation concept.

Unit - V

Probability distributions: Fitting of Binomial, Poisson and Normal distribution and their goodness of fit.

Question Paper pattern:

Answer all the questions $5 \times 20 = 100$

Either or type

Sem - II
07UST253

Hours/week: 6
Credits: 4

**Allied : COMPUTERS IN STATISTICS - II
(C Programming)**

To explain the main features of C language, which plays a pivotal role in the programming field.

Unit - I Introductory concepts

Introduction to C- Fundamentals of C- Constants, Variables, Declarations- Expressions- Special Arithmetic operators- Conversions- Library routines- Execution of C programs in UNIX Environment.

Unit - II Simple and Control Statements

Simple statements- GETC, PUTC, GETS, PUTS, SCANF, PRINTF and assignment statements - Illustrations.

Control statements- IF statements, SWITCH statements, GOTO statement- FOR, WHILE, DO WHILE statements - Problems.

Unit - III Functions and Arrays

Functions- Importance of Functions in C - Declaration - Usage-Argument passing methods- Storage classes.

Arrays-Declarations-Dimensions-Usage-Arrays with Functions-Applications.

Unit - IV Pointers, Structures and Unions

Pointers-Importance-Declaration-Pointer Arithmetic-Pointer Expression-Passing of Pointers- Pointers with Arrays-Pointers to Pointers.

Unit - V File Processing

File Processing(Sequential and Random)- File organizations-Accessing methods-File processing statements-Simple Applications- Creation, Processing and Updating of files.

Books for study

1. Balagurusamy, E. : Programming in ANSI C, Tata McGraw - Hill publishing Company Ltd. 1992.
2. Byron S Gottfried, Theory and problems of programming with C, SCHAUM Out line Series, International Editions.

Books for Reference

1. Herbert Schildt, Osborn : C made Simple, McGraw Hil Publications
2. Kernighan and Ritchie: C Programming Language, Prentice Hall of India Pvt. Ltd, 2000.

Sem - II
07UST254

Hours/week: 2
Credits: 1

**Allied: COMPUTER LAB - II
(C Programming)**

Objective :

To train the students to design and execute a variety of C programs on Computers.

List of Exercises

1. Use of GETC,PUTC, GETS and PUTS statements.
2. Use of SCANF and PRINTF statements.
3. Calculation of mean and variance.
4. Squeezing a given character string (Elimination of all white charaters).
5. Writing a character string in reverse order.
6. Computation of correlation and Regression Coefficients.
7. A problem involving Recursion or Palindrome.
8. A problem involving Pointers and Functions.
9. Sales data processing using structures.
10. Creation and updating of a sequential file.
11. Creation and updating of a random file

Sem - III
07UST303

Hours/week: 5
Credits: 4

பொதுத்தமிழ்-3

நோக்கங்கள்

1. தமிழ்ச்செய்யுள்களைப் படித்துப் பொருள் புரிந்து கொள்ளுதல்
2. செய்யுள்களில் அமைந்துள்ள சமூகக்கருத்துக்களை உணர்தல்
3. படைப்புத்திறனை வளர்த்தெடுத்தல்

பயன்கள்

1. புரிந்து கொண்ட கருத்துக்களில் பயனுள்ளவற்றைத் தெளிவாக, இனிமையாக எடுத்துச்சொல்லும் திறனைப் பெறுதல்.
2. தமிழ் மொழியின் சிறப்பை அறிதல்.

செய்யுள் திரட்டு

1. குறுந்தொகை
2. பதிற்றுப்பத்து
3. கலித்தொகை
4. புறநானூறு
5. சிறுபாணாற்றப்படை
6. பதினெண் கீழ்க்கணக்கு - திருக்குறள்
7. இலக்கணப் பகுதி: யாப்பு, அணி

இலக்கணம் : யாப்பு, அணி

1. புதினம் - சூரியகாந்தன், அம்மன் பூவோடு, பாவைபதிப்பகம், சென்னை, 2003
2. இலக்கிய வரலாறு - முதல் பாகம்.

பாடநூல்

1. செய்யுள் திரட்டு - தமிழ்த்துறை வெளியீடு 2004-07
2. சமூகவியல் நோக்கில் இலக்கிய வரலாறு - தமிழ்த்துறை வெளியீடு

Sem.: III
Code: 07UGE 313

Hours : 5
Credits : 4

GENERAL ENGLISH - III

Objectives

1. To enable students to acquire reading habit and thus develop their reading skills.
2. To make them activate their passive vocabulary and sentence structures through prescribed texts.
3. To enhance their taste for reading that will naturally develop their vocabulary power and sentence structures.
4. To develop the listening, speaking and writing skills of students through the prescribed texts.

Unit - I

1. Guy de Maupassant: The Diamond Necklace
2. Emile Gaboriou: The Accursed House
3. Sheila Kaye-Smith: Mrs. Adis
4. Anton Tchekov: The Bet
5. Reading Comprehension

Unit - II

6. O. Henry : After Twenty years
7. Leonard Merrick: The Judgement of Paris
8. Stephen Leacock: The Conjuror's Revenge
9. A.E. Coppard: The Halfyard Ham
10. Expansion of a Maxim

Unit - III

11. Far From the Madding Crowd: Chapters 1 to 4
12. Far From the Madding Crowd: Chapters 5 to 8
13. Far From the Madding Crowd: Chapters 9 to 11
14. Far From the Madding Crowd: Chapters 12 and 13
15. Essential English Grammar: Units 58 to 72

Unit - IV

16. P.G. Wodehouse: The Prize Poem
17. Mulk Raj Anand: The Barber's Trade Union
18. R.K. Narayan: Wife's Holiday
19. Kushwant Singh: The Mark of Vishnu
20. Essential English Grammar: Units 73 to 91

Unit - V

21. Far From the Madding Crowd: Chapters 14 to 15
22. Far From the Madding Crowd: Chapters 16 to 18
23. Far From the Madding Crowd: Chapters 19 to 21
24. Far From the Madding Crowd: Chapters 22 to 24
25. Précis Writing

Required Reading

1. Ramesh, K.P. (Ed.): The Diamond Necklace and Other Stories (Macmillan)
2. Hardy, T. (Retold by EF Dodd): Far From the Madding Crowd (Macmillan)
3. Murphy, Raymond: Essential English Grammar (CUP)

Sem - III
07UST325

Hours/week: 9
Credits: 8

DISTRIBUTIONS THEORY

To expose the various important probability models and real life situations where these distributed provide appropriate models.

Unit - I Discrete Distributions

Binomial, multinomial, Poisson, Hyper geometric, Negative binomial, Geometric distributions.

Unit - II Continuous distributions

Rectangular, Cauchy, Beta, Gamma Distributions.

Unit - III

Exponential, Normal and Lognormal distributions.

Unit - IV

Bivariate normal and distribution of order Statistics.

Unit - V Sampling distributions

Study on t , χ^2 and F distributions and inter relationship between these distributions.

Books for study:

1. Johnson, N.L. and Kotz, S: Discrete Distributions, John Wiley and sons, 1969.
2. Johnson, N.L. and Kotz, S.: Continuous univariate distributions, Vol.I & Vol.II, John Wiley and sons, 1970.
3. Gupta.S.C and Kapoor, V.K. : Fundamental of Mathematical Statistics, Sultan Chand & Co., 1984.

Sem III
07UMA375

Hours / week: 6
Credit : 5

Allied: MATHEMATICS I

Objectives:

1. To train the students in mastering the techniques of various branches of mathematics
2. To motivate the students to apply the techniques in their respective major subjects

Unit I

Matrices-definition of matrix-types of matrices - fundamental algebraic operations - inverse of a matrix - finding inverse of the non singular matrix by adjoint method and solving simultaneous equation by matrix inverse method , orthogonal matrix and unitary matrix (chapter 5 , sec 1 - 4 6)

Unit II

Definition of the rank of a matrix - finding rank of a matrix - vectors and vector spaces the n-tuple space R^n - linear dependence and independence - characteristic equation - characteristic roots and characteristic vectors - Cayley Hamilton theorem - matrix representation of a set of linear equations - consistency of a system of linear equations.
(Chapter 5, sec 7-11, 14, 15, 16)

Unit III

Partial fractions- binomial theorem - exponential and logarithmic series - summation based on the three series.
(Chapter: 1, Chapter: sec 1, 3 and chapter 3: sec 3, 4.1, 5)

Unit IV

Applications of differentiation - tangent and normal - concavity and convexity - point of inflexion - simple examples of maxima and minima
(Chapter: IX sec 1 & 2, chapter V sec 1 & 2)

Unit V

Evaluation of double integrals, changing order of integrals, changing order of integration and evaluation of triple integrals (Cartesian co-ordinates only) (chapter 5 : sec 1.2,2.2,3)

Books for study:

1. Ancillary maths book I by Narayanan and Manickavasagam Pillai (for units I,II &III)
2. Calculus vol I Narayanan and Manickavasagam Pillai (for unit IV)
3. Ancillary maths book II by Narayanan and Manickavasagam Pillai

Sem-III
07UCO371

Hours/Week: 6
Credits: 5

Allied: ACCOUNTS - I

Objectives :

1. To enable the students to have a thorough knowledge of the fundamental concept & basic principles of Accountancy.
2. To provide knowledge on maintaining various book of accounts.

Unit 1

Accounting principles- concepts-Subsidiary Books -Ledger.

Unit 2

Trial Balance - Bank Reconciliation Statement.

Unit 3

Trading, Profit and Loss Accounts - Balance Sheet of a Sole Trader (Simple Adjustments)

Unit 4

Non - trading Organization - Preparation of Income and Expenditure Account form Receipts and Payment Accounts (Simple Adjustments)

Unit 5

Single Entry or Accounts from Incomplete records.

Text Book

TS Reddy & A Murthy, Financial Accounting, Margham Publications, Chennai,2006

References

1. Shukla MC, Grewal TS & Gupta SC, 2006 Advanced Accounts Volume I , S. Chand & Company Ltd., New Delhi.
2. R. L. Gupta & V. K. Gupta, 2006, Financial Accounting, Sultan Chand & Sons, New Delhi
3. R. L Gupta & M. Radhaswamy,2006, Advanced Accountancy , Volumen I, Sultan Chand & Sons, New Delhi
4. S.P. Jain & K.L. Narang ,2004, Advanced Accountancy Volume I, Kalyani Publishers
5. S N Maheshwari & S K Maheshwari, 2005, Introduction to Accouncey, Vikas Publishing House Pvt. Ltd., New Delhi.

Sem: IV
07UGT404

Hours : 5
Credits: 4

பொதுத்தமிழ்-4

நோக்கம்

1. நாடகத்தின் நோக்கம், அதன் போக்கு, உத்திகள், பாத்திரப்பாங்கு, உரையாடல் முறை, கற்பனைத்திறம் போன்றவற்றை வெளிப்படுத்தல்
2. புதிய நாடகங்களைப் படைக்கும் திறனை மாணவர்களிடையே உருவாக்குதல்.

பயன்கள்

1. நாடகவழி அழகியல் உணர்வுகளை வளர்த்தல்.
2. நாடகங்களைச் சமூகப் பயன்பாட்டிற்கு ஏற்ப உருவாக்குதல்

செய்யுள் நாடகம் :

மனோன்மணியம், பேராசிரியர் சுந்தரனார்

அலகு 1: மனோன்மணியம், பாயிரம், அங்கம் 1, களம் 1-5 வரை

அலகு 2: மனோன்மணியம், பாயிரம், அங்கம் 2, களம் 1-3 வரை

அலகு 3: மனோன்மணியம், பாயிரம், அங்கம் 3, களம் 1-4 வரை

அலகு 4: மனோன்மணியம், பாயிரம், அங்கம் 4, களம் 1-5 வரை

அலகு 5: மனோன்மணியம், பாயிரம், அங்கம் 5, களம் 1-3 வரை

உரைநடை நாடகம் :

முனைவர் ஆ. சிவக்கண்ணன், பேராசிரியர் பிரம்மச்சாரி, நியூசெஞ்சுரி புத்தகநிலையம், 2005. (உரைநடை நாடகம் முழுமையும்)

பாடநூல்

1. பேராசிரியர் சுந்தரனார் , மனோன்மணியம் - (பதி) தமிழ்த்துறை, தூய வளனார் கல்லூரி, திருச்சிராப்பள்ளி
2. முனைவர் சிவக்கண்ணன், பேராசிரியர் பிரம்மச்சாரி, பாவைப்பதிப்பகம்.

மதிப்பெண் பகிர்வு

மனோன்மணியம் - 80

உரைநடை நாடகம் - 20

உரைநடை பாகம் 3-இல் நாடகம் கட்டுரை வினாவில் மட்டும் இடம் பெற வேண்டும்.

Sem.: IV
Code: 07UGE414

Hours : 5
Credits : 4

GENERAL ENGLISH - IV

Objectives

1. To enhance reading skills towards developing vocabulary power and composition skills.
2. To create in students a taste for enjoying English One-Act Plays thus making them imbibe dramatic skills.
3. To develop the listening, speaking and writing skills of students through the prescribed texts.

Unit - I

1. A. Ball: The Seven Slaves
2. R.H. Wood: Post Early for Christmas
3. Reading Comprehension
4. Essential English Grammar: Units 92 to 98

Unit - II

5. Monica Thorne: The King Who Limped
6. A.E.M. Bayliss: One Good Turn
7. A Tale of Two Cities: Part I
8. Essential English Grammar: Units 99 to 106

Unit - III

9. A Tale of Two Cities: PART II: Chapters 1 to 3
10. A Tale of Two Cities: PART II: Chapters 4 to 7
11. A Tale of Two Cities: PART II: Chapters 8 to 10
12. General Essay

Unit - IV

13. Allan Monkhouse: Night Watches
14. Ella Adkins: The Unexpected
15. A Tale of Two Cities: PART II: Chapters 11 to 13
16. Essential English Grammar : Units 107 to 114

Unit - V

17. Josephina Niggli: Sunday Costs Five Pesos
18. A Tale of Two Cities: PART III: Chapters 1 to 5
19. A Tale of Two Cities: PART III: Chapters 6 to 9
20. Report Writing

Required Reading

1. K.S. Ramamurthy (Ed.): Seven One-Act Plays (OUP)
2. Dickens, C. (Retold by P. Atkinson): A Tale of Two Cities (Macmillan)
3. Murphy, Raymond: Essential English Grammar (CUP)

Sem - IV
07UST421

Hours/week: 9
Credits: 8

ELEMENTS OF STATISTICAL INFERENCE

Objective :

To enable the students to clearly understand the concepts of statistical estimation and statistical hypothesis testing.

Good knowledge in Real Analysis and Probability is the pre-requisite for this paper. Inferential Statistics helps us to infer about a whole group(population) by just studying a part of it (sample). When a population is to be studied, two distinct situations usually arise : I) To know the unknown population characteristics(parameters), (ii) There may be some assumptions (hypotheses) about the population which should be tested for their validity. The Estimation theory is needed to tackle the first type of situation and Testing of Hypothesis is instrumental in dealing with the second type of situations. It is not an exaggeration to state that these are the two eyes of Statistical Inference. At the end of the course, the student will definitely be in a position to solve many social, economical, biological and other practical real-life problems.

Unit - I Point Estimation Theory

Parametric Estimation : Estimator-Consistency and unbiased of an estimator-Cramer-Rao Inequality. Efficiency-Asymptotic efficiency of an estimator- Estimators based on sufficient statistics- Neyman's Factorization Theorem(without proof)- Rao-Blackwell Theorem. Method of Moments, Method of Maximum Likelihood and Method of minimum chi-square- Properties of estimators obtained by these methods, (without proof).

Unit - II Testing of Hypothesis

Simple and composite hypothesis- two kinds of errors, level of significance, size and power a test-desirable properties of a good test, most powerful test, Neyman-pearson lemma and its use - Simple example, Uniformly most powerful tests and unbiased tests based on normal Likelihood ratio test and its properties. Application of LR test for single mean.

Unit - III Tests of Significance

Tests of significance-Asymptotic and exact tests based on normal,t, chi-square and F distributions with regard to mean, variance, standard deviation coefficient of correlation, regression coefficients partial and multiple correlation coefficients . contingency tables-tests for goodness of fit and test for independence of attributes. Tests for homogeneity of variances, proportions and correlation coefficients.

Unit - IV Interval Estimation

Confidence Interval:

Interval estimation for proportions, mean(s), Variance(s) based on Chi-square, student's t , F and Normal distributions .

Unit - V

Non-parametric tests - Kolmogorov -Smirnov test, Sign test, Wald-Wolfowitz runs test, run test for randomness, median test, Wilcoxon test and Wilcoxon - Mann - Whitney test.

Books for study

1. Hogg,R.V, Craig.A.T., and Tannis : Introduction to mathematical statistics, Prentice Hall, England, 1995.
2. Dudewrez. E.J and Mishra.S.N. : Modern Mathematical statistics, John Wiley and sons, 1988.
3. Gupta,S.C. and Kapoor, V.K. : Fundamentals of Mathematical Statistics, Sultan & Chand & Co 3rd Ed, 1984.

Books for Reference

1. Kendall, M. and Stuart, A. : The advanced theory of Statistics Vol.II, Charles Griffin, 1961.
2. Rohatgi, V.K. : Statistical Inference, John Wiley and sons, 1984.

Sem IV
07UMA472

Hours/Week: 6
Credit : 5

Allied: MATHEMATICS-II

Objective

1. To train the students in mastering the techniques of various branches of Mathematics
2. To motivate the students to apply the techniques in the techniques in their respective major subjects.

Unit I

Partial Differentiation - Euler's Theorem - total differentiation. Maxima and minima of several independent variables - without constraints - maxima and minima with constraints Lagrangian multiplier method only - Jacobian of 2 variables.
(Chapter: 1 Section 1 - 8 and Chapter 2:2.1, 3)

Unit II

First order differential equations - variables separable method - homogeneous equations - non-homogeneous equations - linear equation and Bernoulli equation.
(Chapter 2: Section 1-6.2)

Unit III

Second order differential equations with constant coefficients methods of finding particular integrals for e^{ax} , $\sin ax$, $\cos ax$, polynomial in x . and $x e^{ax}$. Linear equations with variable coefficients. (Chapter: 3 Sections 1-5)

Unit IV

Formation of partial differential equations - complete solution - particular solution - singular solution - general solution - solution for pde of Lagrange's form. (Chapter 6: Section 1-6.1)

Unit V

Solving differential equations using Taylor series method - Picard's method - Euler's method - Modified Euler's method - Runge-Kutta method of second order (simple problems only).
(Chapter 7: Section 7.2, 7.3, and 7.4, 7.4.2 and 7.5)

Books for study

1. Ancillary Mathematics Book II by Narayanan and Manikavasagam Pillai (Units I- IV)
2. Numerical methods by S.S. Sastry (Unit V)

Books for Reference

1. Allied Mathematics by P.R. Vittal.
2. Ancillary Mathematics by S. Arumugam and others

Sem-IV
07UCO472

Hours/Week: 6
Credits: 5

Allied: ACCOUNTS - II

Objectives

1. To impart basic knowledge of Partnership and Company Accounts.
2. To help the students to know the treatment of accounting in different situations.

Unit-1

Partnership Accounts - Admission - Meaning of goodwill valuation of good will - treatment of goodwill - revaluation of assets and liabilities - new profit sharing ratio- capital accounts - balance sheet after admission.

Unit-2

Retirement and death of partners - Revaluation of Assets & Liabilities - Treatment of Goodwill - Closing of retiring Partner's capital a/c - Joint life policy - Balance Sheet after retirement and death.

Unit-3

Partnership accounts II - Dissolution - Realization account - Dissolution of firm- Insolvency of partners Garner Vs Murray- Piece meal distribution.

Unit-4

Company accounts- Principles of company accounts- issues of shares- Application - Allotment - Forfeiture - Reissue of Share.

Unit-5

Company final accounts with simple adjustments.

Text Book

TS Reddy & A Murthy, Financial Accounting, Margham Publications, Chennai,2006

References

1. Shukla MC, Grewal TS & Gupta SC, 2006 Advanced Accounts Volume I & II , S. Chand & Company Ltd., New Delhi.
2. R. L. Gupta & V. K. Gupta, 2006, Financial Accounting, Sultan Chand & Sons, New Delhi
3. R. L Gupta & M. Radhaswamy,2006, Advanced Accountancy , Volume I & II, Sultan Chand & Sons, New Delhi
4. S N Maheshwari & S K Maheshwari, 2005, Introduction to Accountancy, Vikas Publishing House Pvt. Ltd., New Delhi.

Sem - V
07UST527

Hours/week: 6
Credits: 6

SAMPLING THEORY

Objective:

To impart the basic knowledge of statistical sampling concepts. At the end of the Course, the student should be able to select the suitable sampling techniques. Also, he should be in a position to conduct sample survey independently.

Unit - I Sample Survey

Complete enumeration Vs Sampling - need and limitations of sampling design -Organization and Execution of Sample Surveys-Essential aspects of Sample Survey-Pilot Survey-Sources of Error in a survey. Sampling and Non-sampling errors.

Unit - II Simple Random Sampling

Simple random sampling (WR and WOR) - Use of Random number Table-Unbiased estimates of Mean and Variance-Estimation of Sample Size. Sampling for attributes.

Unit - III Stratified Random Sampling

Stratified Random Sampling : Properties of the estimates - Unbiased estimates of Mean and Variance-Optimum and Proportional allocations- Comparison of different allocation.

Unit - IV Systematic Sampling

Need for Systematic Sampling-Estimation of Mean and Variance of the Estimated mean-Comparison of Simple and Stratified random sampling with Systematic sampling-systematic sampling when the population with linear Trend.

Unit - V Ratio & Regression Estimators

Ratio estimators: Ratio estimates, Variance of the Ratio Estimates-Ratio Estimator as BLUE-Bias of the ratio estimate. Regression estimators: Linear Regression estimates- Simple Estimate of Variance-Bias of the linear regression estimate-linear regression estimator under a linear regression model.

Books for study:

1. William G. Cochran. : Sampling Techniques, John Wiley Sons, 1999.
2. Sukhatame, P.V. and Sukhatame,B.V. : Sampling Theory of Surveys with Applications, ISAS publishers, 3rd Ed, 1957.
3. Sampath, S : Sampling Theory and Methods, Narosa Publishing House, 2001

Books for Reference

1. Daroga Singh and Choudary, F.S. : Theory and Analysis of Sample Survey Designs, New age international publishers, 1986.

Sem - V
07UST528

Hours/week: 7
Credits: 7

APPLIED STATISTICS

Objective:

To provide fundamental ideas about application of statistical concepts in the real world. Statistics finds innumerable applications in almost all walks of life. One cannot exhaust all such applications in a course. Due to this reason, this paper is developed to discuss the application of Statistics in three vital areas, namely Economics, Finance and Econometrics.

Unit - I Time Series

Concepts of time series - Components of time series - Additive and multiplicative models for the analysis of time series measurement of trend by (i) Graphic method, (ii) Semi Average method, (iii) Method of Curve Fitting by principal of least squares. Measurement of Seasonal Variations by (i) Method of simple average, (ii) Ratio-to-trend method, (iii) Ratio-to-Moving Average Method, (iv) Link Relatives method. Measurement of cyclic variations by residual approach. Random component of a time series - Variate difference method.

Unit - II Index numbers

Index numbers and their definitions, construction and uses - Commonly used index numbers - Laspeyre's, Paasche's and Fisher's ideal numbers - Criteria of a good index numbers . Test for index numbers like time, factor-reversal test, Circular test. Fixed and Chain base index numbers - Cost of living Index number - Base shifting, splicing and deflating of index numbers.

Unit - III Econometrics - I

Definition - Scope - Objectives - Limitations - Divisions of Econometrics. National income - Method of estimation of National Income in India - Difficulties in estimation.

Unit - IV Econometrics - II

Problems of single equation model - Autocorrelation - Multicollinearity - Heteroscedasticity - Specification problems and bias - Errors in variables.

Unit - V Financial Statistics

Investment Analysis: Time value of money - Compound Value - Present value - Annuities - Present value of an Annuity - Present value for a deferred annuity - Measurement of investment worth - Payback method - Average rate of return method - Net present value method - Internal rate of return method.

Break-even Analysis: Cost, Volume and Profit analysis - Basic CVP Model - Computation of BVP - Graphic Analysis - Sensitivity Analysis - Break-even analysis for the multiproduct case.

Books for Study:

1. Gupta, S.C. and Kapoor, V.K: Fundamentals of Applied Statistics, Sultan Chand and Sons. (For Units I & II)
2. Suigh, S.P., Parashar, K. and Suigh, H.P: Econometrics, S. Chand and Sons. (For Units III & IV)
3. Vohra, N.D.: Quantitative Techniques in Management. (For Unit V)

Sem - V
07UST529

Hours/week: 7
Credits: 7

BIOSTATISTICS

Objective:

- ✧ To expose the essential ideas about the practical applications of Statistics in
- ✧ Biology.
- ✧ Statistical techniques find numerous applications in various domains of Bio-Statistics. Through this paper, the student is enabled to acquire the knowledge about this vital interdisciplinary area of study.

Unit - I Linear Models

Linear Function - Measurement error- Equation error - Linear Model - Five types of linear model, namely, Functionally related Models, Mean related Models, Experimental design Models, Variance - of - Components Models and Regression Models.

Unit - II Psychometry

Methods of Standardisation of scales and tests, Z-scores, Standard scores, T scores, Percentile scores, intelligent quotient and its measurement and uses - validity of test scores and its determination.

Unit - III Demography - I

Official sources of vital statistics - Morality rates: Crude, specific and standardised death rates - Graduations of mortality rates by Gompertz's law and Makehalm's law -

Unit - IV Demography - II

Complete life table and its essential characteristics. Fertility and reproduction rates: Crude birth rates-general and specific fertility rates - Gross and net reproduction rates -population projection-Use of logistic curve in the study of population growth.

Unit - V Design for Bio-assays and response surfaces

Bio-assays, Direct assays, Indirect-Bio-assays, Parallel line assays, (without analysis), Slope ratio assays, Validity tests (Concepts only)
Introduction to Response surface design, linear response surface design, second order response surface designs (Concepts only), uses.

Books for Study

1. Graybill, F.A. : An Introduction to Linear Statistical Models - Vol I, McGraw Hill. (For Unit I)
2. Gupta, S.C. and Kapoor, V.K.: Fundamentals of Applied Statistics, Sultan Chand & Sons. (For Units II, III and IV)
3. Das, M.N and N.C.Giri: Design and Analysis of Experiments, New Age International Publishers. (For Unit V)

Sem - V
07UST530

Hours/week: 6
Credits: 6

OPERATIONS RESEARCH - I

Objective :

To impart basic knowledge of various optimization techniques.

Resources are scarce in many a situation. Any decision making process may have to take into account, a set of constraints. The optimization in such situation is of vital importance. This paper involves few important optimization techniques that are free from Statistical concepts.

Unit - I Nature of OR and LPP

Different types of models in OR, their construction and general methods of solution. Linear Programming: Introduction-Formation of LPP- Simplex method-Degeneracy and unbounded solution-Two phase method-The Big M method(Simple problems only).

Unit - II Advanced Topics in LPP

Duality theory and its applications-Framing dual program- relationship between dual and primal problem-Dual simplex method(simple problems only).

Unit - III Transportation Problem

Transportation problem-Linear programming formulation-Finding an Initial basic feasible solution by Northwest corner rule and Vogel's rule-Optimality-Degeneracy.

Unit - IV Assignment Problem

Assignment problem-Solving an assignment problem by Koney method(Hungarian)- Travelling Salesman Problem.

Unit - V Sequencing and Replacement Problems

Sequencing Problem-Processing n jobs through two machines-Processing n jobs through three machines-Processing n jobs through m-machines.

Replacement Problems : Replacement of items whose maintenance costs increases with time and the value of the money remains the same during the period.

Books for study:

1. Philips,D.T. , Ravindran, A and Solberg,J.J.: Operations Research-Principle and Practice(Unit - I, II & III Relevant portions only).
2. Taha, H.A : Operations Research - An Introduction (Unit - IV - Chapter 18 and chapter 8, Art.8.1,8.2,8.3), 6th ed, PHI, 1998.
3. Kamir, V.K. : Operation Research (Unit - V - Chapter 7&8)

Books for Reference

1. Kanti Swarup, Gupta, P.K. and Man Mohan: Operations Research, Sultan Chand & Co, 3rd ed, 1984.

Sem - VI
07UST631

Hours/week: 7
Credits: 7

DESIGN OF EXPERIMENTS

Objective :

To expose the essential ideas about designing and executing and interpreting statistical field experiments.

Statistical experiments shall be designed and studied to identify the best agricultural inputs, like the best fertilizers etc. In a country like ours, which is basically an agricultural one, one ought to know how to select the best agricultural inputs and reap the maximum yield. Through this paper, the student is enabled to acquire the knowledge about this vital area and help the society (agriculturists) with his knowledge.

Unit - I Fundamental principle of Experiments

Fundamental principles of experimentation - Randomization, Replication and Local control techniques. Uniformity trials - Transformation of data and its uses..

Unit - II The Analysis of variance and Analysis of Covariance

ANOVA - One way and two way classification - Illustration. Concepts of 3 way classification Analysis of Covariance for a one way layout with one concomitant variable - Analysis of Covariance for an RBD with one concomitant variable.

Unit - III Basic designs

Completely randomized experiments(CRD)-Randomized block designs(RBD)-Latin square designs(LSD)-Missing plot techniques- efficiency of the above designs.

Unit - IV Factorial Experiments

Factorial experiments designs: $2^2, 2^3$ and 3^2 factorial designs-confounding in $2^2, 2^3$ and 3^2 experiments. Partial confounding in 2^3 experiments. Concept on asymmetrical factorial design only.

Unit - V BIBD

Balanced incomplete block design(BIBD), Intra block analysis of BIBD - Parametric relationship of BIBD.

Books for study:

1. Das, M.N. and Giri, N.C. : Design and analysis of Experiments, New age international Publication 2nd ed, 1986.
2. Doughlas, C. Montgomery: Design and analysis of Experiments, John Wiley & sons, 1976.

BOOKS FOR REFERENCE:

1. Gupta, S.C. and Kapoor, V.K. : Fundamentals of Applied Statistics, Sultan Chand & co, 3rd ed, 1984.
2. Oscar Kempthorne: Design and analysis of experiments, John wiley and sons, 1952.

Sem - VI
07UST632

Hours/week: 7
Credits: 7

ENGINEERING STATISTICS

Objective :

To provide essential inputs about applicability of statistical concept, in the sphere of quality control and quality management. Industrialization is another vital sector that is needed for the balanced growth of any nation. When a stiff competitive environment prevails in the production sector, quality assurance and reliability of the products become the moot points. The ways and means to achieve these are taught through this paper.

Unit - I Statistical Techniques

Concepts of Statistical Quality Control: Meaning-causes of variation-process control-process capability-General theory for control charts-Analysis and evaluation of Control charts, Statistical toleranceing.

Unit - II Attribute and Variable Control Charts

Control Charts for variables-X, R, σ charts, run charts, revision of controls.
Control charts for attributes-p,np,C charts-CUSUM control charts.

Unit - III Acceptance Sampling

Types of Inspection, Sampling vs 100% Inspection, Concepts of operating characteristics (OC) curves, AOQ,AQL,LTPD.
Single Sampling Plan for attributes and variables, Published Sampling Plans MIL 105E & IS 2500 part1&2. Double Sampling plan.

Unit - IV Reliability

Concepts and measures, components and systems, coherent systems, reliability of systems, cuts and paths, modular decomposition, bounds on system reliability.
Accelerated life testing, reliability estimate based on failure times number of failures and stress-strength analysis, reliability demonstration plan.

Unit - V Quality systems and Quality Assurance

Concepts of Quality Management-Inspection, Quality Control and Quality Assurance. Systems approach for Quality-ISO9000 Standards-Implications and requirements. Quality Audits, Assessments and Surveillance. Concepts of Total Quality Management.

Books for study:

1. Montgomery D.C., : Statistical Quality Control , John Wiley and sons, 2nd Ed, 1991.
2. Juran, J.M. : Quality Control Handbook, McGraw Hill, 1998.
3. Barlow, R.E. and Proschan: Statistical Theory of Reliability and life testing, Holt, Rinehart and Winston, INC, 1975.

Books for Reference

1. Mahajan : Statistical Quality Control, Dhanpat rai & sons, 1997.
2. Mann, Schafer & Singpurwarla(1974): Methods for Statistical Analysis of Reliability & life data, John Wiley & sons, NewYork, 1974.
3. Feigunbaum, A.V.: Total Quality Control, 3rd Ed, McGraw Hill, 1991.
4. ISO 9000 standards: Issued by Bureau of India.

Sem - VI
07UST633

Hours/week: 7
Credits: 7

OPERATIONS RESEARCH - II

Objective :

To impart knowledge of various optimization techniques that make use of statistical concepts abundantly. The Optimization techniques which do not involve Statistical concepts are included in OR-I . On the other hand, in this paper those optimization techniques involving the Statistical concepts, especially the probability principles are taught.

Unit - I Theory of Games

Game theory Optimal solution of Two-person Zero-sum Games-Mixed strategies-Graphical solutions of (2 x n) and (m x 2) Games-Solution of m x n games by LPP.

Unit - II PERT - CPM

Arrow (Network) Diagram representations-determination of critical path-Determination of the floates - Probability considerations in project scheduling.

Unit - III Inventory models

Advantages of keeping inventories - Deterministic models with and without shortages - finite and infinite rate of replenishment - equal and unequal production runs probabilistic models without setup costs.

Unit - IV Queueing Theory

Basic elements of the queueing model. Role of the Poisson and Exponential distribution: Arrival process-Departure processes - Detailed study of (M/M/1) / (∞ /FIFO) models.

Unit - V Simulation

Scope of simulation applications-Types of simulation-Role and generation of random numbers-The uniform distribution and its importance to simulation -Generation of random numbers by the multiplicative congruential method. Techniques for generating random deviates: Inverse transformation method(exponential weibull, Geometric distributions)-Rejection techniques(Beta and Gamma distributions). The convolution method(Poisson, Erlange and Binomial) concepts - no problem.

Books for study:

1. Hamdy,A. and Taha : Operations Research, 6th ed., PHI, 1998.
Unit 1 : chapter 11
Unit 2 : Chapter 12
Unit 3 : Chapter 13 exclude 13.34,13.3.5 & 13.4.3.
Unit 4 : Chapter 15 Article (excluding 15.1,15.2 & 15.3), 15.3.3, 15.3.6 & 15.37.Chapter 16 Article 16.2 & 16.3
2. Philips,D.T., Ravindran,A and Solberg,J.J: Operations Research Principles and Practice
Unit 5 : Chapter 9 Relevant article

Books for Reference

1. Kanti Swarup, Gupta,P.K. and Man Mohan : Operations Research, Sultan Chand & co, 3rd ed., 1984.

Sem - VI
07UST634

Hours/week: 3
Credits: 2

STATISTICAL PACKAGES THEORY AND PRACTICAL
(Internal)

Objective :

To train the students in using good statistical packages for solving a variety of statistical problems.

1. Formation of discrete and continuous frequency distributions- descriptive statistics.
2. Graphs and diagrams: Pie, bar, line and scatter diagrams-Histogram and Normal probability plot
3. Correlation coefficient rank correlation, partial and multiple correlations.
4. Regression : Simple and multiple linear regression.
5. Curve estimation.
6. Compare means: Independent sample test and paired t- test.
7. Cross tabulation and χ^2 - test.
8. One way and two way ANOVA - Factorial designs.
9. Non parametric test: Binomial tests, run test, sign test, Median test, Mann-whitney test, Kruskal-Wallis, Kendall's and Friedman tests.

Sem - VI
07UST635

Hours/week: 4
Credits: 3

SEMINAR AND STATISTICAL INTERVIEW SKILLS
(Internal)

Objective:

To train the students to confidently face the competitive examinations and interviews.

Seminar is conducted with the aim of developing the communication skills of the students. A common seminar hour will be held in every week. The student has to choose a topic from a set of pre-determined topics by a simple random sampling technique to avoid any personal bias. He has to prepare the required written material and submit it to the staff co-ordinator, for which 20% of the marks will be assigned. The mode of presentation of the matter by the student is evaluated for 20% of marks. The logical sequence of ideas, clarity and presentation will be given due weightages in the evaluation.

The twin purposes of conducting viva-voce examination are to enable the students to dispel the fear about competitive examinations and interviews and equip the students to face them with better skills and self confidence. The entire syllabus is rapidly reviewed by allotting one hour in every week. At the end, an objective type examination will be conducted in a spaced manner which will carry 20% of marks each. In the final stage, the viva-voce (oral) examination is conducted and it carries 20% of marks.

**ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR
UG COURSES**

Sem	Code No.	Title of the Paper	Hours	Credits
Department of Business Administration				
IV	07UBU481	Soft Skills Development	4	3
V	07UBU582	Advertisement and Sales Promotion	4	3
VI	07UBU683	Personal Growth Programme	4	3
Department of Chemistry				
IV	07UCH481	Food and Nutrition	4	3
V	07UCH582	Everyday Chemistry	4	3
VI	07UCH683	Soil Testing	4	3
Department of Commerce				
IV	07UCO481	Elements of Business Process Outsourcing (BPO)	4	3
	07UCO482	Accounts for Executives	4	3
V	07UCO583	Soft Skills Development	4	3
	07UCO584	Fundamentals of Investment Management	4	3
VI	07UCO685	Small Scale Business Development	4	3
	07UCO686	Hotel Management	4	3
Department of Computer Science				
IV	07UCS481	MS Office	4	3
	07UCS482	Internet Concepts	4	3
V	07UCS583	Fundamentals of Computer Network	4	3
	07UCS584	Information Technology	4	3
VI	07UCS685	E-Commerce	4	3
	07UCS686	Foundations of Computer Science	4	3
Department of Computer Application (BCA) (SFS)				
IV	07UCS481	Personal Soft Skills	4	3
Department of Economics				
IV	07UEC481	Indian Economy	4	3
V	07UEC582	Tamil Nadu Economy	4	3
VI	07UEC683	Economics of Social Issues	4	3
Department of Electronics				
IV	07UEL481	Computer Electronics	4	3
V	07UEL582	Radio and Television	4	3
VI	07UEL683	DVD Player Assembling and Troubleshooting	4	3

Department of English

IV	07UEN481	English for Competitive Exams	4	3
	07UEN482	Film Studies	4	3
V	07UEN583	English for Communication	4	3
	07UEN584	Public Speaking in English	4	3
VI	07UEN685	English of Literature	4	3
	07UEN686	English for Empowerment	4	3

Department of History

IV	07UHS481	Tourism and Travel Agency	4	3
V	07UHS582	Tourism and Automation	4	3
VI	07UHS683	Indian History for Competitive Examinations	4	3

Department of Mathematics

IV	07UMA481	Mathematics for Competitive Examinations	4	3
V	07UMA582	Graph Theory	4	3
VI	07UMA683	Operations Research	4	3

Department of Physics

IV	07UPH481	Photography	4	3
V	07UPH582	Everyday Physics	4	3
VI	07UPH683	Cell Phone Servicing	4	3
	07UPH684	Electrical Wiring	4	3

Department of Plant Biology & Plant Biotechnology

IV	07UBO481	Mushroom Culture	4	3
V	07UBO582	Everyday Biology	4	3
VI	07UBO683	Remote Sensing	4	3

Department of Statistics

IV	07UST481	Statistics for Management	4	3
V	07UST582	Data Analysis for Competitive Examination	4	3
VI	07UST683	Actuarial Statistics	4	3

Department of Tamil

IV	07UTA481	மைய அரசுப்பணித்தேர்வுத் தமிழ்	4	3
V	07UTA582	தமிழ் இலக்கியத்தில் மனித உரிமைகள்	4	3
VI	07UTA683	சித்த மருத்துவம்	4	3
VI	07UTA684	மக்கள் தகவல் தொடர்பியல்	4	3

