

**LEARNING OUTCOMES BASED CURRICULUM
FRAMEWORK(LOCF) FOR UNDERGRADUATE
PROGRAMMES**

**DEPARTMENT OF B.COM ACCOUNTING AND
FINANCE**



**LOYOLA COLLEGE (AUTONOMOUS) CHENNAI
600034**

PREFACE

The fundamental aspect of Commerce deals with buying and selling of goods and services and this exchange activity has now evolved into various dimensions and led to the creation of various profitable businesses.

The learning outcomes-based curriculum framework for a B.com Accounting and Finance is designed in such a way to incorporate skill sets of present-day challenging business environment especially in the field of accounting and finance. The framework is expected to aid in the standards of Commerce degrees/programmes across the country by reviewing and revising a broad framework of agreed expected graduate attributes, qualification descriptors, programme learning outcomes and course level learning outcomes.

The learning Outcomes based approach to Curriculum Planning strives to deliver the basic and contemporary uses of studying commerce especially accounting and finance at the B.com Level. These courses should be studied by all students of B.com Accounting and Finance. The students should do the dissertation/project work on their subjects, wherever it is required.

The students are expected to learn the courses with excitement of acquiring globally relevant competencies in the domain of Accounting and Finance. They should be able to appreciate this framework for providing boost to their critical thinking and decision-making skills which generally act as a core for success of any business model.

These courses and their practical exercises will help the students to apply their knowledge in future course of their career development in higher education and research. In addition, they may get interested to look for engagements in industry and commercial activities employing accounting and finance. They may also be interested in entrepreneurship and create their own business based on their interest and experience.

The curriculum has been designed in such a way that the students are exposed to modern tools and techniques in the field of Accounting and Finance. More emphasis has been given to content related to accounting, finance so as to fulfil the aspiration of becoming a global financial expert.

The curriculum, teaching pedagogy and assessment methods are assigned with appropriate cognitive levels as per BLOOM's Taxonomy. The OBE based evaluation methods will pave way for the assessment of cognitive levels of the students and evaluate the expected course outcome attainment.

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VISION AND MISSION OF LOYOLA COLLEGE

VISION

- Towards holistic formation of youth, grounded in excellence, through accompaniment to serve the humanity.

MISSION

- To provide inclusive education through an integral and holistic formative pedagogy.
- To promote skills that prepare them for the future.
- To kindle in young minds the spirit of social and environmental justice with a blend of academic excellence and empathy.
- To stimulate critical and conscientious scholarship leading to meaningful and innovative human Capital.

CORE VALUES

- Cura Personalis
- Pursuit of Excellence
- Moral Rectitude
- Social Equity
- Fostering solidarity
- Global Vision
- Spiritual Quotient

VISION AND MISSION OF DEPARTMENT

VISION

- To provide students with an excellent career-oriented programme to meet global standard in the domain of Accounting & Finance.

MISSION

- To provide application-oriented skills in the domain of accounting & Finance.
- To enable the students to acquire competency to excel their skills in Accounting and Finance sectors.
- To prepare the students with behavioral skills to enable them to become a socially responsible citizen.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)
(School of Commerce and Economics)

PEO 1	Globally Relevant Curriculum To expose the students in various fields of economics and commerce.
PEO 2	Core Competency Development To think critically and creatively towards dynamic global business and economic environment.
PEO 3	Professional Skill Development To empower the students with strong interpersonal, decision making, reasoning, communication and leadership skills
PEO 4	Social Skills and Ethics To develop competent, committed, conscious, creative, and socially responsible citizens
PEO 5	Environment and Sustainability To develop a multidisciplinary perspective to augment innovatively towards business, economic and environment sustainability.
PEO 6	Life Long Learning To enable students to involve in lifelong learning in the pursuit of excellence.

PROGRAMME OBJECTIVES (POs)
(School of Commerce and Economics)

PO 1	<p>Disciplinary Knowledge</p> <p>Apply the scientific knowledge acquired in classrooms and labs in real-life situations and work environment.</p>
PO 2	<p>Professional Skills</p> <p>Internalize the learnt concepts of economics and commerce that will enable them to become skilled professionals.</p>
PO 3	<p>Entrepreneurship and Employment skills</p> <p>Become empowered individuals who will emerge as entrepreneurs or be employed in various positions in industry, academia, and Government.</p>
PO 4	<p>Competency Development</p> <p>Adapt in the workplace by possessing the capacity to embrace new opportunities of emerging technologies, leadership, and teamwork in dynamic economic and business environment.</p>
PO 5	<p>Self-Directed and Life Long Learning</p> <p>Engage in independent and life-long learning, especially through MOOCs and other online courses to acclimatize themselves in a dynamic work environment.</p>
PO 6	<p>Environment and Sustainability</p> <p>Contribute innovatively towards business, economic and environment sustainability.</p>
PO 7	<p>Social Skills and Ethics</p> <p>Become competent, committed, conscious, creative, and compassionate men and women for and with others.</p>

PROGRAMME SPECIFIC OBJECTIVES (PSOs)
(Department of B.com Accounting and Finance)

PSO 1	Demonstrate the acquired competencies in financial reporting (IFRS & US GAAP) standards.
PSO 2	Exhibit the decision-making skills in the areas of Accounting & Business management.
PSO 3	Equip with relevant financial and analytical skills to be a career ready and globally competitive.
PSO 4	Adapt with latest trends and technologies required for rapid changing business environment.
PSO 5	Apply the gained practical knowledge in various business scenarios.
PSO 6	Become global financial professionals in the domain of accounting and finance
PSO 7	Develop ethical values to become a socially responsible citizen.

B.COM (ACCOUNTING & FINANCE) – CBCS CURRICULUM 2019

Part	Semester-1	Semester -2	Semester-3	Semester-4	Semester-5	Semester-6	Credits
I	Language Paper-I (4hrs/3c)	Language Paper-II (4hrs/3c)					06
II	English –I(4hrs/3c)	English –II(4hrs/3c)					06
III(MC)	Financial Accounting (6hrs/4c)	Advanced Financial Accounting (6hrs/4c)	Corporate Accounting(5hrs/4c)	Advanced Corporate Accounting(6hrs/4c)	Practical Auditing (6hrs/4c)	Management Accounting(6hrs/4c)	24
	Financial Planning & Performance (6hrs/5c)	Financial Analytics & Control (6hrs/5c)	Strategic Financial Management –I(6hrs/5c)	Strategic Financial Management –II(6hrs/5c)	Cost Accounting (6hrs/4c)	Banking Theory Law and Practice (6hrs/4c)	28
			Financial Reporting (6hrs/5c)	Principles of Management (5hrs/4c)	Corporate & Business Law(5hr/4c)	Income tax Law & practice(6hrs/4c)	17
			Principles of Marketing (5hrs/4c)	Data Analytics in Finance& Accounts(6hrs/5c)	Data Analytics in Finance& Accounts(6hrs/5c)	Emerging Technologies in Finance(6hrs/5c)	19
					Portfolio Management /Robotic Process automation fundamentals(6hrs/5c)	Capital Markets/Financial Services(6hrs/4c)	09
AR	Business Statistics (6hrs/4c)	Elements of Operations Research ((6hrs/4c)	Business Economics(5hrs/4c)	Entrepreneurial Development/Business Environment(5hrs/4c)			16
		Internship –I(3c)		Internship –II(3c)		Internship –III (4c)	10
IV	Basic Tamil/advanced Tamil(2hrs/2c)	Basic Tamil/advanced Tamil(2hrs/2c)	Environmental studies(1hr/1c)	Environmental studies(1hr/2c)			07
	Soft Skill –I (2hrs/2c)	Soft Skill –II (2hrs/3c)	Soft Skill(2hrs/2c)	Soft Skill (1hr/2c)			09
V		Extension activities(1c)			Value Education(1hr/1c)		02
	30hrs/23c	30hrs/28c	30hrs/25c	30hrs/29c	30hrs/23c	30hrs/25c	153 c

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI - 34
DEPARTMENT OF B.COM (ACCOUNTING & FINANCE)
2019 RESTRUCTURED CURRICULUM
OVERALL COURSE STRUCTURE

Sem	Subject Code	Course Title	T/L/P	Category	Cr	Hrs
I	UFR 1107/1108	Language Paper -I	T	GL	3	4
	UEL 1209	English Paper -I	T	GE	3	4
	UAF 1501	Financial Accounting-I	T	MC	4	6
	UAF 1502	Financial Planning & Performance	T	MC	5	6
	UAF 1301	Business Statistics	T	AR	4	6
	UTL 1805/1806	Basic Tamil / Advanced Tamil	T	NME	2	2
	UHE 1003	Soft Skill - I	T	FC	2	2
II	UFR 2106/2107	Language Paper- II	T	GL	3	4
	UEL 2209	English Paper -II	T	GE	3	4
	UAF 2501	Advanced Financial Accounting	T	MC	4	6
	UAF 2502	Financial Analytics & Control	T	MC	5	6
	UAF 2301	Elements of Operations Research	T	AR	4	6
	UAF 2701	Internship	P	TP	3	
	UTL 2805/2806	Basic Tamil / Advanced Tamil /	T	NME	2	2
	UHE 2005	Soft Skill-II	T	FC	3	2
		Extension Activities			1	
III	UAF 3501	Corporate Accounting		MC	4	5
	UAF 3502	Strategic Financial Management-I		MC	5	6
	UAF 3503	Financial Reporting		MC	5	6
	UAF 3504	Principles of Marketing		MC	4	5
	UAF 3301	Business Mathematics /Business Economics		AR	4	5
	UHE 3003	Environmental Studies		FC	1	1
	UHE 3004	Soft Skill-II		FC	2	2
IV		Advanced Corporate Accounting		MC	4	6
		Strategic Financial Management II		MC	5	6
		Principles of Management		MC	4	5

		Data Analytics in Finance & Accounts		MC	5	6
		Entrepreneurial Development/Business Environment		AR	4	5
		Internship-II			3	
		Environmental Studies			2	1
		Soft Skill			2	1
V		Practical Auditing		MC	4	6
		Cost Accounting		MC	4	6
		Corporate & Business Law		MC	5	4
		Data Analytics in Finance And Accounts II		MC	5	6
		Robotic Process Automation Fundamentals		AR	5	6
		Value Education			1	1
VI		Management Accounting		MC	4	6
		Banking Theory Law & Practice		MC	4	6
		Income Tax Law and Practice		MC	4	6
		Emerging Technologies in Finance		MC	5	6
		Capital Markets /Financial Services		AR	4	6
		Internship -III				4

Course Code	UAF 1501			
Course Title	Financial Accounting			
Credits	04			
Hours / Week	06			
Category	Major Core (MC)			
Semester	I			
Regulation	2019			
Course Overview:				
This Course-				
<ol style="list-style-type: none"> 1. Financial accounting is one of the branches of accounting which involves recording, summarizing and reporting the company's financial information. 2. Financial accounting is centred on the practice of double-entry bookkeeping. 3. Financial accounting is required to follow the standards of accrual basis accounting, allow the shareholders to gain insight into a company's financial health. 4. In this subject student will acquire knowledge about how to prepare income statement and balance sheet which depicts the true picture of Business. 5. Another important aspect of this course is to know the importance of keeping the records systematically, protection of business properties, ascertainment profit/loss as well financial position of business and rational decision making. 				
Course Objectives				
<ol style="list-style-type: none"> 1. To enable the students to know the General Principles of accounting. 2. To Evaluate the surplus deficit of Non-Profit Organizations and prepare its final statement of accounts 3. To prepare a Bank Reconciliation Statement and identify the reasons for disparities 4. To determine the claim of insurance and to aware about the important aspects of Royalty accounts 5. To perceive knowledge on depreciation and its various methods. 				
Prerequisites	Basic knowledge in Accountancy			
SYLLABUS				
UNIT	CONTENT	HOURS	COs	CLs
I	Meaning and scope of Accounting, Basic Accounting Concepts and Conventions – Objectives of Accounting – Accounting Transactions – Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance – Rectification of Errors – Preparation of Final Accounts of a Sole Trader.	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
II	Preparation of Receipts and Payments Account, Income and Expenditure Account and Balance Sheet of Non-Trading Organisations.	14	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5

				K6
III	Bank Reconciliation Statement (BRS) – Need and preparation of BRS - Depreciation – Meaning – Causes – Types – Straight Line Method – Written Down Value Method – Change of method of providing depreciation.	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
IV	Fire Insurance – meaning – importance – Loss of Stock – excluding Loss of Profit – various methods of calculating Loss of Stock. Investment – Meaning – Importance – calculation of Royalty including sublease.	14	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Meaning and Features of Single Entry System – Defects – Difference between Single Entry System and Double Entry System – Methods of Calculation of Profit – Statement of Affairs Method – Conversion Method.	17	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

Text Books

1. M.C. Shukla, T.S.Grewal & S.C .Gupta, Advanced Accounting, Sulthan Chand & Sons, New Delhi.
2. Reddy,T.S & Murthy ,Financial Accounting, Margham Publications.
3. Gupta,R.L & Gupta,V.K, Advanced Accounting, Sulthan Chand & Sons, New Delhi
4. Arulanandam & Raman, Advanced Accounting, Himalaya Publishing House ,Mumbai
5. Jain S.P Narang K.L, Financial Accounting, Kalyani Publishers.
6. Parthasarathy,S.& Jaffarulla, A Financial Accounting, Kalyani Publishers, New Delhi

Suggested Readings

1. FK Musweu, The Board of directors and the responsibility for preparation of final accounts, International Journal of Public Finance, Law & Taxation, Vol. 4, Issue 1,2020, ISSN: 2581-3420,page 21-24.
2. John M, Hartwick, Natural resources, national accounting and economic depreciation ,Journal of Public Economics, volume 43,Issue 3, December 1990, Pages 291-304
3. Abraham, A. An embedded model for understanding the development of accounting control systems in a non-profit organisation 2007. <https://ro.uow.edu.au/commpapers/439>

Web Resources:

1. <http://www.csus.edu>
2. <https://ocw.mit.edu>
3. <https://icmai.in>
4. <https://future.aicpa.org>
5. <https://www.nysscpa.org>

Course outcome

Upon successful completion of this course, the student will able to:

COs	STATEMENTS	BLOOM'S LEVEL
CO1	To Understand the general principles of accounting in maintenance of financial records and preparation of financial statements.	K1 & K2
CO2	To enable the students to realize the importance of safeguard the interest of stakeholders	K3
CO3	To analyse the pros and cons of decisions taken on the basis of financial statement before its implementation.	K4
CO4	To explain the contents of financial reporting to the management.	K5
CO5	To formulate the suitable methods of accounting system to determine the profit, loss and claim.	K6

Course Code	UAF 1502
Course Title	Financial Planning and Performance
Credits	05
Hours / Week	06
Category	Major Core (MC)
Semester	I
Regulation	2019

Course Overview

1. In this subject student will discuss about different strategic planning techniques that plays a vital role to maximise the potential growth of business.
2. Budgeting, Forecasting and analysis will create a platform to understand the necessity to perform both qualitative and quantitative analysis towards the attainment of company's goal.
3. Helps to determine which of the company's products or product lines generate the largest portion of its net profit.
4. In responsibility centre students will discuss about the responsibility of Cost centre, Profit centre and investment centre to evaluate the performance of business.
5. In depth knowledge of segment reporting will enable the students to know the importance of transparency in information to investors and creditors regarding the financial results and position of the most important operating units of a company.
6. The perspectives of Balance score card will focus on the accomplishment of vision and mission of the company.

Course Objectives

1. To course aims to explain strategic planning, forecasting and budgeting for better financial decisions.
2. To make use of budget to prepare an annual profit plan, analyse performance by using flexible budgets and compare actual results to planned results.
3. To explain the importance and use of standard cost systems, propose performance measures and discuss key performance indicators
4. To understand the role and importance of each responsibility centre in growth of business.
5. To learn about different performance measures used for analysing the financial strength of business.

Prerequisites

Basic knowledge in Budgeting & Forecasting

SYLLABUS

UNIT	CONTENT	HOURS	COs	CLs
I	Strategic Planning Analysis of external and internal factors affecting strategy - Long-term mission and goals - Alignment of tactics with long-term strategic goals - Strategic planning models and analytical techniques - Characteristics of successful strategic planning process.	14	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

II	<p>Budgeting and Forecasting</p> <p>Operations and performance goals - Characteristics of a successful budget process - Resource allocation - Regression analysis - Learning curve analysis - Expected value - Annual business plans (master budgets) - Project budgeting - Activity-based budgeting - Zero-based budgeting - Continuous (rolling) budgets - Flexible budgeting - Annual profit plan and supporting schedules - Operational budgets - Financial budgets - Capital budgets - Pro forma income - Financial statement projections - Cash flow projections.</p>	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
III	<p>Cost and Variance Measures</p> <p>Comparison of actual to planned results - Use of flexible budgets to analyse performance - Management by exception - Use of standard cost systems - Analysis of variation from standard cost expectations.</p>	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
IV	<p>Responsibility centres and reporting segments</p> <p>Types of responsibility centre's - Transfer pricing - Reporting of organizational segments</p>	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	<p>Performance Measures:</p> <p>Product profitability analysis - Business unit profitability analysis - Customer profitability analysis - Return on investment - Residual income - Investment base issues – Key performance indicators (KPIs) - Balanced scorecard</p>	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

Text Books

1. Cost Accounting: A Managerial Emphasis; Charles Horngren, Srikant Datar, and Madhav Rajan; Pearson
2. Cost Management A Strategic Emphasis, Edward Blocher, David Stout, Paul Juras, and Gary Cokins; McGraw Hill
3. Strategic Management and Business Policy: Globalization, Innovation and Sustainability, Thomas Wheelen, J. David Hunger, Alan N. Hoffman, and Chuck Bamford; Pearson

Suggested Readings

1. Chavan M, (2009), "The balanced scorecard: a new challenge", Journal of Management Development, Vol. 28 No. 5, pp. 393-406.
2. Arnaldo C Hax, Nicolas S Majluf, The Corporate Strategic Planning Process, Informs journal on applied analytics, Volume 14, Issue 1, January-February 1984 Pages 3-173
3. Chinniah, Anbalagan, An Assessment of Zero-Based Budgeting to Protect the Leakage of Finance in Government and an Organizational Development. International Journal of Research in Commerce & Management. Jan-Jun2013, Vol. 3 Issue 5, p1-10. 10p.
4. Neringa Stonciuviene, Erika Januskeviciene, The Principles of Establishment of Investment Responsibility Centres, Financial Environment and Business Development, pp 435-448
5. Robert F.Gox, Ulf Schiller, An Economic Perspective on Transfer Pricing, Handbook of Management accounting Research, Volume 2, 2006, Pages 673-695

Web Resources

1. <https://www.intrafocus.com /balanced-scorecard/>
2. <https://www.wallstreetmojo.com /responsibility->
3. <https://balancedscorecard.org /strategic-planning->
4. <https://managementhelp.org /strategic planning/index.htm>
5. <https://www.accountingtools.com/ articles/what-is-the-cost-variance->
6. <https://www.venasolutions.com/ blog/budgeting-forecasting/>
7. <https://www.ibm.com/ topics/>

Course outcome

Upon successful completion of this course, the student will able to:

COs	CO Description	Cognitive Level
CO1	To understand the different strategic planning models for long term success of business.	K1 & K2
CO2	To improve the analytical knowledge in order to provide valuable suggestion for the growth of business.	K3
CO3	To apply various financial techniques for the attainment of future goals.	K4
CO4	To assess and integrate the information for the enhancement of effective decisions.	K5
CO5	To construct important quantifiable measures to track and assess the current status of business	K6

Course Code	UAF 1301			
Course Title	Business Statistics			
Credits	04			
Hours / Week	06			
Category	Allied Required			
Semester	I			
Regulation	2019			
Course Overview:				
This Course-				
<ol style="list-style-type: none"> 1. The course introduces the concepts of descriptive statistics by covering measures of central tendency and measures of Dispersion. 2. The course aims to give basic knowledge about scatter diagram, correlation and regression techniques for investigating the relationship between two quantitative variables. 3. It helps to understand the components of time series analysis and forecast the future happenings, besides to have knowledge in trend and seasonal variations. 4. The second part of this course focuses on linear programming problems which insights in to conversion of real-life problem to mathematical model and to come up with optimal solution. 5. It helps to understand the necessity to minimise the cost when goods are being distributed from various supply origins to demand destinations. 6. The course helps to formulate the alternative strategies to tackle the competitive situations. 				
Course Objectives				
<ol style="list-style-type: none"> 1. To introduce basic concepts of descriptive Statistics. 2. To impart knowledge in statistical techniques for business data analysis. 3. To enable future prediction with the help of observed data. 4. To realise the importance of minimisation of cost 5. To analyse different strategies and to use it as an essential tool for optimal decision making. 				
Prerequisites	Basic knowledge in statistics.			
SYLLABUS				
UNIT	CONTENT	HOURS	COs	CLs
I	Measures of Central tendency: Simple averages – Mean Median and Mode –Geometric mean and Harmonic Mean – weighted Arithmetic mean. Measures of Dispersion: Range – Quartile Deviation – Mean Deviation – Standard Deviation – Coefficient of Variation – Combined Mean and Standard Deviation. Skewness: Karl Pearson and Bowley’s Coefficient of Skewness – Moments – Kurtosis.	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
II	Curve fitting: Fitting a straight line and second-degree parabola. Correlation: Scatter diagram – Limits of	16	CO1 CO2	K1 K2

	Correlation Coefficient – Spearman’s Rank Correlation Coefficient– Simple problems. Regression: Properties of Regression Coefficients and Regression lines		CO3 CO4 CO5	K3 K4 K5 K6
III	Time Series: Components of Time Series-Additive and multiplicative models –Measurement of trend – Graphical method -Semi-average method-moving average method-least squares method. Measurement of Seasonal Variation – Method of Simple averages – ratio-to trend method – ratio to moving average method-method of link relatives.	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
IV	Elements of Operation Research: Linear Programming – Solving L.P.P. by Graphical method – Transportation problems– North-West Corner Rule – Least Cost Method - Vogel’s Approximation Method – Optimal Solution using Modi method	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Game Theory: Introduction – Two-Person Zero-Sum Games – Pure Strategies – Mixed Strategies.	14	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

Text Books

1. Vittal,P.R.(2010)Business Statistics.Margham Publications, Chennai
2. Gupta, S.P. (2011), Statistical Methods-Sultan Chand and Sons Publishers. New Delhi.
3. Yule and Kendall (1993). Introduction to theory of Statistics. Universal Book Stall, New Delhi.
4. Croxton and Cowden (1956). Applied General Statistics. Sir Isaac Pitman and Sons. Ltd., London.
5. Gupta,S.C. and Kapoor,V.K. (2002). Fundamentals of Mathematical Statistics. Sultan Chand and Sons. New Delhi
6. Taha,H.A. (1997). Operations Research. Macmillan Publishing Housing Co., New Delhi
7. KantiSwarup, Gupta, P.K. and ManMohan (1996), Sultan Chand and Sons (P) Ltd., New Delhi.

Suggested Readings

1. Manikandan S. Assistant Editor, JPP, Measures of Central Tendency: Median And Mode, Journal Of Pharmacology And Pharmacotherapeutics | July-September 2011 | Vol 2 | Issue 3,214-215
2. Housila P. Singh, Estimation of Bowley's Coefficient Of Skewness In The Presence Of Auxiliary Information, Communications In Statistics –Theory And Methods, Volume 43, 2014 – Issue 22, pages 4867-4880
3. Yoshiro Nishimoto And Kenichi Inoue, Curve-Fitting Approach For COVID-19 Data and Its Physical Background, KOBELCO Research Institute, Inc. Kobe, 651-2271, Japan.

4. Sham M. Kakade, Dean P. Foster, Multi-View Regression Via Canonical Correlation Analysis, International Conference on Computation Learning Theory, Pp 82-96|, DOI: 10.1007/978-3-540-72927-3_8
5. Wulff Shaun S, Time Series Analysis: Forecasting and Control, 5th Edition Journal Of Quality technology, Milwaukee Vol. 49, Issue. 4, (Oct 2017): 418-419.
6. Gaurav Sharma¹, S. H. Abbas², Vijay Kumar Gupta³, Solving Transportation problem with the various method of linear programming problem, Asian Journal of Current Engineering and Maths 1: 2 May – June (2012) 81 – 83 ISSN – No – 2277-4920

Web Resources:

1. <http://userwww.sfsu.edu>
2. <https://www.itl.nist.gov>
3. <https://www.statisticssolutions.com>
4. <http://mospi.nic.in/>

Course outcomes

Upon successful completion of this course, the student will be able to:

COs	CO Description	Cognitive Level
CO1	To understand and analyze the techniques of business statistics to take wise decisions in uncertain situations.	K1 & K2
CO2	To integrate and assess the statistical data to assure the validity of the statistical conclusions	K3
CO3	To apply different statistical techniques in the field of marketing, Banking, Finance and Insurance to forecast the demand for the product and services.	K4
CO4	To evaluate the statistical information to manage the risk arises in the business in intellectual way	K5
CO5	To construct a model around the problem that resembles the real world and variables.	K6

Course Code	UAF 2501
Course Title	Advanced Financial Accounting
Credits	04
Hours / Week	06
Category	Major Core (MC)
Semester	II
Regulation	2019

Course Overview

1. The course aims to cover the basic concepts of Branch and Departmental Accounts.
2. An emphasis on preparation of consignment Accounts.
3. Learn how to start a partnership firm and prepare partnership Accounts.
4. Systematically record the transactions of joint venture and hire purchase Accounts.
5. Learn the importance of areas of application of computer in accounting.

Course Objectives:

1. To understand the concepts of Branch and Departmental Accounting
2. To apply knowledge of accounting process to prepare the consignment accounts.
3. To identify the accounting process for the partnership firms and prepares the accounts for the same.
4. To examine the operational importance of Joint Venture accounts.
5. To analyze the principles of reporting.
6. To critically assess the importance of use of computer in accounting.

Prerequisites

Basic knowledge on accounts.

SYLLABUS

UNIT	CONTENT	HOURS	COs	CLs
I	Branch Accounts - Dependent Branches – Stock and Debtors System – Distinction between Wholesale Profit and Retail Profit - Independent Branches (Foreign Branches excluded) – Departmental Accounting – Basis of Allocation of Expenses – Calculation of profit – Inter- Departmental Transfer at Cost or Selling Price.	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
II	Consignment Accounting – Difference between consignment and sale – Main terms of consignment trade – Accounting for consignment business – Joint Venture – Accounting system when a separate set of books is kept and when no separate set of books is kept.	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
III	Hire Purchase System – Default and repossession – Hire Purchase Trading Account – Instalment System –	16	CO1 CO2	K1 K2

	Calculation of profit.		CO3 CO4 CO5	K3 K4 K5 K6
IV	Partnership Accounts - Admission of a Partner – Retirement of a Partner and Death of a Partner - Dissolution of a partnership firm	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Areas of application of computer in Accounting – Features, Advantages, Limitation and Feasibility of Computer Accounting – Reporting – Principles of reporting – Types of reports – Uses of Accounting information in managerial decision making.	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

Text Books

1. Advanced Accounting, Gupta R L & Gupta V K, Sultan Chand & Sons, NewDelhi.
2. Financial Accounting, S.P. Jain &K. L Narang, Kalyani Publishers.
3. Financial Accounting, Reddy & Murthy, Margham Publications.

Suggested Readings

1. Financial Accounting R.Gupta R. L, & Gupta V. K., Sultan Chand Publications
2. Advanced Accounts, M C Shukla, T.S Grewal, S C Gupta.,S Chand publications
3. Financial Accounting, Gabriel John & Marcus A, Tata McGraw Hill Publishing Company Ltd
4. Financial Accounting, S.N. Maheshwari, S.K. Maheshwari & Sharad K. Maheswari, Vikas Publishing House.

Web Resources

1. <https://www.intrafocus.com /balanced-scorecard/>
2. <https://www.wallstreetmojo.com /responsibility->
3. <https://balancedscorecard.org /strategic-planning->
4. <https://managementhelp.org /strategic planning/index.htm>
5. <https://www.accountingtools.com/ articles/what-is-the-cost-variance->
6. <https://www.venasolutions.com/ blog/budgeting-forecasting/>
7. <https://www.ibm.com/ topics/>

Course outcome

Upon successful completion of this course, the student will able to:

COs	CO Description	Cognitive Level
CO1	To understand the different strategic planning models for long term success of business.	K1 & K2
CO2	To improve the analytical knowledge in order to provide valuable suggestion for the growth of business.	K3
CO3	To apply various financial techniques for the attainment of future goals.	K4
CO4	To assess and integrate the information for the enhancement of effective decisions.	K5
CO5	To construct important quantifiable measures to track and assess the current status of business	K6

Course Code	UAF 2502
Course Title	Financial Analytics and Control
Credits	05
Hours / Week	06
Category	Major Core (MC)
Semester	II
Regulation	2019

Course Overview

1. Aware of enterprise resource system and implement control measures to prevent security breaches.
2. Data analytics techniques helps to frame effective decision based on the available information.
3. Helps to reduce operations cost and improve customer's service.
4. Allocate the required expenses to different departments promptly.
5. To take necessary measures to safeguard the assets against fraud.

Course Objectives

1. To enable the students to know the importance of ERP system for the organisations.
2. To analyse the huge information and to derive prompt decision by using data visualization tools.
3. To helps the companies to allocate the indirect expenses to different cost pools.
4. To maximise the customer's value and achieve a competitive advantage.
5. To analyse the different internal control measures before its implementation to safeguard the assets of the company.

Prerequisites

Basic knowledge in Finance.

SYLLABUS

UNIT	CONTENT	HOURS	COs	CLs
I	Information systems and Data Governance Accounting information systems - Enterprise resource planning systems - Enterprise performance management systems - Data policies and procedures - Life cycle of data - Controls against security breaches	14	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
II	Technology-enabled finance transformation and Data Analytics Systems Development Life Cycle – Process automation - Innovative applications - Business intelligence - Data mining - Analytic tools - Data visualization	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
III	Cost Measurement Concepts Cost behaviour and cost objects - Actual and normal costs - Standard costs - Absorption (full) costing - Variable (direct)	16	CO1 CO2 CO3	K1 K2 K3

	costing - Joint and by-product costing- Job order costing - Process costing - Activity-based costing - Life-cycle costing - Fixed and variable overhead expenses - Plant-wide versus departmental overhead - Determination of allocation base - Allocation of service department costs		CO4 CO5	K4 K5 K6
IV	Supply chain management and Business process improvement Lean manufacturing - Enterprise resource planning (ERP) - Theory of constraints and throughput costing - Capacity management and analysis - Value chain analysis - Value-added concepts - Process analysis - Activity-based management - Continuous improvement concepts - Best practice analysis - Cost of quality analysis - Efficient accounting processes	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Internal controls Internal control structure and management philosophy - Internal control policies for safeguarding and assurance - Internal control risk - Corporate governance - External audit requirements - Systems controls and security measures	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

Text Books

1. Financial Analysis And Control, by Prof. Dr. A. H. Gaikwad, Prof. Dr. G.M. Dumbre, Prof. Dr. M.G. Mulla, Prof. Dr. R.D. Darekar (Author), 1 January 2013, Success Publications.
2. Financial Analysis And Control , Dr. Suhas Mahajan, Dr. Mahesh Kulkarni, First Edition, Nirali Prakashan Publications.

Suggested Readings

1. Henk A Akkerman's et all , 2011, The impact of ERP on supply chain management: Exploratory findings from a European Delphi study, European Journal of Operational Research, volume 146, issue 2, 16 April 2003, pages 284-301.
2. Huseyin Ince et al. / The Impact of ERP Systems and Supply Chain Management Practices on Firm Performance: Case of Turkish Companies, Procedia - Social and Behavioral Sciences 99 (2013) 1124 – 1133
3. Joachin Gassen & Enver Yucessan, Kristina Schwedler, Measurement Concepts: Evidence from an Online Survey of Professional Investors and their Advisors, Volume 19, 2010 - Issue 3

Web Resources

1. <https://corporatefinanceinstitute.com>
2. <https://www.elsevier.com/books>
3. <https://www.mca.gov.in/content/mca/global/en/home.html>
4. <https://www2.deloitte.com>
5. <https://www.icaai.org/>
6. <https://www.ebookbou.edu>

Course outcome

Upon successful completion of this course, the student will able to:

COs	CO Description	Cognitive Level
CO1	To Understand the importance of data information maintained by the organisations.	K1 & K2
CO2	To enable the management to apply suitable costing techniques to allocate the expenses.	K3
CO3	To analyse the internal control measures to protect the company's assets.	K4
CO4	To evaluate the financial statements to attain the goals of the organization	K5
CO5	To implement ERP system for better management of resources.	K6

Course Code	UAF 2301			
Course Title	Elements of Operations Research			
Credits	04			
Hours / Week	06			
Category	AR - Theory			
Semester	II			
Regulation	2019			
Course Overview				
This Course-				
<ol style="list-style-type: none"> 1. Facilitate to understand the concept of Operation research. 2. Expose learners to apply various techniques of solving problems. 3. Enables the learners to gain analytical and decision-making skills. 4. Aims to sharpen critical thinking skills of the learner. 5. Aids the learner to take up a data driven business decision. 				
Course Objectives				
<ol style="list-style-type: none"> 1. Understand the significance of Operation research in business decision making. 2. Develop skills in analysis and interpretation of data. 3. Solve challenging problems by using appropriate operation research techniques. 4. Identify the nuances of each technique of operation research and their suitability to solve different problems. 5. Enhance their analytical and decision-making skills. 				
Prerequisites	Basic knowledge on statistics is essential.			
SYLLABUS				
UNIT	CONTENT	HOURS	COs	CLs
I	Meaning – definition – origin and history – characteristic features – need – scope – steps – techniques – application – limitations	14	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
II	Meaning – Requirements – assumptions – applications - Formulating LPP – advantages – limitations – formulating LP model (simple problems only)	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
III	Graphical method – problems – Simplex method for \leq type of LPP & for slack variable case – maximization function –	16	CO1 CO2 CO3 CO4	K1 K2 K3 K4

	minimization function (simple problems only)		CO5	K5 K6
IV	Assumptions – Degenerate solution – North-west corner method – least cost method – Vogel’s approximation method-Assignment problems– Features– Transportation problem Vs Assignment problem– Hungarian Method (Simple problems only)	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Meaning – types of games – basic assumptions – finding value of game for pure strategy – mixed strategy – Indeterminate matrix and average method – graphical method – pure strategy – saddle point – pay-off matrix – value of game (simple problems only)	16	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6

Text Books

1. Dr. P.R Vittal, Introduction to Operations Research, Margham Publications, 2018, Chennai.
2. Dr.Gurusamy S, Elements of Operations Research, Vijay Nicole Imprints, 2015, Chennai.
3. Agarwal N P and Sonia Agarwal, Operations Research and Quantitative techniques, R B S A Publishers, 2009, New Delhi.

Suggested Readings

1. Kapoor V K, Operations Research Techniques for Management, Sultan Chand and Sons, 2012, New Delhi
2. Kanti Swarup, P.K.Gupta & Man Mohan, Operations, Research Jain Book Agency, 2014, New Delhi
3. Anand Sharma, Operations Research, Himalayan Publishing House, 2014, Mumbai
4. R.Pannerselvam, Operations Research, Prendice Hall India, 2006.

Web Resources

1. <http://orcomplete.com/>
2. <http://www.theorsociety.com/>
3. <http://mospi.nic.in/>

Course outcome

Upon successful completion of this course, the student will able to:

COs	CO Description	Cognitive Level
CO1	Understand and remember various concepts of operation research.	K1 & K2
CO2	Apply concepts of operation research to make business decisions	K3
CO3	Develop analytical and problem-solving skills for business.	K4
CO4	Access the data and form a meaningful data driven business conclusions	K5
CO5	Design a successful business decisions using various techniques of operations research.	K6

CL AND CO BASED CIA QUESTION PAPER FORMAT FOR UG THEORY COURSES MC, AR, AO, MS, ME, GL and NME*
(Excluding other languages)

SECTION	MARKS	Q. NO	K1	K2	K3	K4	K5	K6
A	Answer ALL (6 x 1 = 6)	1	+					
		2	+					
		3	+					
		4		+				
		5		+				
		6		+				
B	Answer 1 out of 2 (1 x 6 = 6)	7			+			
		8			+			
C	Answer 1 out of 2 (1 x 6 = 6)	9				+		
		10				+		
D*	Answer 1 out of 2 (1 x 12 = 12)	11					+	
		12						+
No. of CL based Questions with Max. marks			3 (3)	3 (3)	1 (6)	1 (6)	1 (12)	1 (12)
No. of CO based Questions with Max. marks			CO1		CO 2	CO 3	CO 4	CO 5
			6 (6)		1 (6)	1 (6)	1 (12)	1 (12)

- **MC**-Major Core, **AR**-Allied Required, **AO**-Allied Optional, **MS**-Major Skill, **ME**-Major Elective, **GL**-General Languages, **NME**-Non-Major Elective.
- **Section A** could have one or more of the following: Fill in the blanks, True or False, Match the following, Definition, Comment on, Reason out etc., But, K1 and K2 should carry equal weightage.
- In **Section D** students have choice between K5 and K6. III Component Assessment carries 40% of CIA and the assessment(s) should be for cognitive levels **K1 to K4** and all should carry equal weightage.

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI 60034

DEPARTMENT OF ACCOUNTING & FINANCE

FIRST CONTINUOUS ASSESSMENT TEST, SEPTEMBER 2021

UAF 1301 BUSINESS STATISTICS (AR) – MODEL QUESTION PAPER

I B.Com: Accounting and Finance

Date :

Time :

Max. Marks : 30

SECTION A																			
Answer ALL the Questions in one or two sentences		(6 x 1 = 6 Marks)																	
1.	Identify the mode of the following set of observations: 21,21,21,23,23,23,23,23,24,24,24,25,25,25,26,26.	K1	CO1																
2.	Define Correlation.	K1	CO1																
3.	What is time series?	K1	CO1																
4.	Compute the average wage per week of 10 workers employed in a manufacturing sector and whose wages are as follows 25,30,32,40,41,47,48,50,55,65.	K2	CO1																
5.	Mean= 32 and Median = 22. Find mode using empirical relations formula?	K2	CO1																
6.	Discuss any two properties of regression lines.	K2	CO1																
SECTION B																			
Answer any ONE of the following in 150 words		(1 x 6 = 6 Marks)																	
7.	Illustrate the significance of central tendency of data in business statistics.	K3	CO2																
8.	Calculate Karl Pearson's coefficient of skewness from the data given below: <table border="1" data-bbox="268 1370 1327 1456"><tr><td>Size (x)</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Frequency (f)</td><td>10</td><td>18</td><td>30</td><td>25</td><td>12</td><td>3</td><td>2</td></tr></table>	Size (x)	1	2	3	4	5	6	7	Frequency (f)	10	18	30	25	12	3	2	K3	CO2
Size (x)	1	2	3	4	5	6	7												
Frequency (f)	10	18	30	25	12	3	2												
SECTION C																			
Answer any ONE of the following in 150 words		(1 x 6 = 6 Marks)																	
9.	Distinguish between regression and correlation.	K4	CO3																
10.	Find the trend values, fit a straight trend line and estimate the production of the year 2011. <table border="1" data-bbox="268 1796 1264 1921"><tr><td>Year</td><td>2002</td><td>2003</td><td>2004</td><td>2005</td><td>2006</td><td>2007</td><td>2008</td></tr><tr><td>Production</td><td>80</td><td>90</td><td>92</td><td>83</td><td>94</td><td>99</td><td>92</td></tr></table>	Year	2002	2003	2004	2005	2006	2007	2008	Production	80	90	92	83	94	99	92	K4	CO3
Year	2002	2003	2004	2005	2006	2007	2008												
Production	80	90	92	83	94	99	92												

SECTION D

Answer any ONE of the following in 100 words

(1 x 12 = 12 Marks)

11.	Fit a trend line for the following series. Estimate the value for 1985. What is the monthly increase in production?	K5	CO4																
	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 35%;">Year</td><td style="width: 7.5%;">1978</td><td style="width: 7.5%;">1979</td><td style="width: 7.5%;">1980</td><td style="width: 7.5%;">1981</td><td style="width: 7.5%;">1982</td><td style="width: 7.5%;">1983</td><td style="width: 7.5%;">1984</td></tr><tr><td>Production of steel in million tonnes</td><td>125</td><td>128</td><td>133</td><td>135</td><td>140</td><td>141</td><td>143</td></tr></table>	Year	1978	1979	1980	1981	1982	1983	1984	Production of steel in million tonnes	125	128	133	135	140	141	143		
Year	1978	1979	1980	1981	1982	1983	1984												
Production of steel in million tonnes	125	128	133	135	140	141	143												
12.	From the following data, find out which product is more stable in prices.	K6	CO5																
	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 35%;">Price of product A (Rs.)</td><td style="width: 7.5%;">40</td><td style="width: 7.5%;">44</td><td style="width: 7.5%;">38</td><td style="width: 7.5%;">46</td><td style="width: 7.5%;">32</td></tr><tr><td>Price of product B (Rs.)</td><td>20</td><td>40</td><td>36</td><td>24</td><td>30</td></tr></table>	Price of product A (Rs.)	40	44	38	46	32	Price of product B (Rs.)	20	40	36	24	30						
Price of product A (Rs.)	40	44	38	46	32														
Price of product B (Rs.)	20	40	36	24	30														

CL AND CO BASED END SEMESTER EXAMINATION QUESTION PAPER FORMAT FOR UG THEORY COURSES (MC, AR, AO, MS, ME and GL)

SECTION		Q. NO	K1	K2	K3	K4	K5	K6
A	(4 x 5 = 20) Answer ALL	1	+					
		2	+					
		3		+				
		4		+				
B	(2 x 10 = 20) Answer 2 out of 4	5			+			
		6			+			
		7			+			
		8			+			
C	(2 x 10 = 20) Answer 2 out of 4	9				+		
		10				+		
		11				+		
		12				+		
D	(2 x 20 = 40) Answer 2 out of 4	13					+	
		14					+	
		15						+
		16						
No. of CL based Questions with Max. marks			2 (10)	2 (10)	2 (20)	2 (20)	2 (40)	2 (40)
No. of CO based Questions with Max. marks			CO 1		CO 2	CO 3	CO 4	CO 5
			4 (20)		2 (20)	2 (20)	2 (40)	2 (40)

- MC-Major Core, AR–Allied Required, AO–Allied Optional, MS-Major Skill, ME-Major Elective, GL-General Languages.
- **Section A** could have one or more of the following: Fill in the blanks, True or False, Match the following, Definition, Comment on, Reason out, but K1 and K2 should carry equal weightage.
 - In **Section D** students have choice between K5 and K6.

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI 60034

DEPARTMENT OF ACCOUNTING & FINANCE

SEMESTER EXAMINATION, OCTOBER, 2021

UAF 1301 BUSINESS STATISTICS (AR) – MODEL QUESTION PAPER

II B.Com Accounting and Finance

Date:

Time :

Max. Marks :100

SECTION A			
1. Answer ALL the Questions in one or two sentences		(5 x 1 = 5 Marks)	
a)	Identify the mode of the following set of observations: 21,21,21,23,23,23,23,23,24,24,24,25,25,25,26,26.	K1	CO1
b)	Enumerate the components of time series.	K1	CO1
c)	What is seasonal variation?	K1	CO1
d)	Define operation research.	K1	CO1
e)	Explain game theory with example.	K1	CO1
2. Fill in the blanks		(5 x 1 = 5 Marks)	
a)	The standard deviation for the set of numbers 3,8,6,10,12,9, 11,10,12,7 is _____	K1	CO1
b)	In positive correlation, two variables change in the _____ direction.	K1	CO1
c)	Moving averages are an example of the _____ forecasting techniques.	K1	CO1
d)	Operations Research attempts to find the best and ----- solution to a problem	K1	CO1
e)	The term _____ implies that as much was won as was lost.	K1	CO1
3. Match the following		(5 x 1 = 5 Marks)	
a)	Measures of Central tendency	Understanding the relationship between variables	K2 CO1
b)	Correlation	Mean, Median & Mode	K2 CO1
c)	Time series	Vogel's Approximation Method	K2 CO1
d)	Operation Research	Mixed Strategies	K2 CO1
e)	Game Theory	Moving Average Method	K2 CO1
4. TRUE or FALSE		(5 x 1 = 5 Marks)	
a)	The value of mean is not affected by extreme items.	K2	CO1
b)	The rank correlation coefficient lies between 0 and +1	K2	CO1
c)	Time-series analysis generates forecasts by identifying cause and effect relationships between variables.	K2	CO1
d)	Operations Research cannot give perfect Solutions to problems	K2	CO1

e)	Game theory is concerned with identifying optimal strategies in conflict situations.	K2	CO1																														
SECTION B																																	
Answer any TWO of the following in 150 words		(2 x 10 = 20 Marks)																															
5.	Illustrate the properties of regression coefficients.	K3	CO2																														
6.	Find the seasonal variation by the ratio-to-trend method from the data given below:	K3	CO2																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Year</th> <th>1st Quarter</th> <th>2nd Quarter</th> <th>3rd Quarter</th> <th>4th Quarter</th> </tr> </thead> <tbody> <tr> <td>1991</td> <td>30</td> <td>40</td> <td>36</td> <td>34</td> </tr> <tr> <td>1992</td> <td>34</td> <td>52</td> <td>50</td> <td>44</td> </tr> <tr> <td>1993</td> <td>40</td> <td>58</td> <td>54</td> <td>48</td> </tr> <tr> <td>1994</td> <td>84</td> <td>76</td> <td>68</td> <td>62</td> </tr> <tr> <td>1995</td> <td>80</td> <td>92</td> <td>86</td> <td>82</td> </tr> </tbody> </table>	Year	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	1991	30	40	36	34	1992	34	52	50	44	1993	40	58	54	48	1994	84	76	68	62	1995	80	92	86	82		
Year	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter																													
1991	30	40	36	34																													
1992	34	52	50	44																													
1993	40	58	54	48																													
1994	84	76	68	62																													
1995	80	92	86	82																													
7.	Solve the following transportation problem by using Least Cost Entry Method	K3	CO2																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>S1</th> <th>S2</th> <th>S3</th> <th>ai (Availability)</th> </tr> </thead> <tbody> <tr> <td>W1</td> <td>5</td> <td>4</td> <td>3</td> <td>6</td> </tr> <tr> <td>W2</td> <td>4</td> <td>7</td> <td>6</td> <td>8</td> </tr> <tr> <td>W3</td> <td>2</td> <td>5</td> <td>8</td> <td>12</td> </tr> <tr> <td>W4</td> <td>8</td> <td>6</td> <td>7</td> <td>4</td> </tr> <tr> <td>bj (Requirements)</td> <td>8</td> <td>10</td> <td>12</td> <td>30</td> </tr> </tbody> </table>		S1	S2	S3	ai (Availability)	W1	5	4	3	6	W2	4	7	6	8	W3	2	5	8	12	W4	8	6	7	4	bj (Requirements)	8	10	12	30		
	S1	S2	S3	ai (Availability)																													
W1	5	4	3	6																													
W2	4	7	6	8																													
W3	2	5	8	12																													
W4	8	6	7	4																													
bj (Requirements)	8	10	12	30																													
8.	Two companies A and B are competing for the same product. Their different strategies are given in the following pay-off matrix:	K3	CO2																														
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">Company B</th> </tr> <tr> <th>I</th> <th>II</th> <th>III</th> </tr> </thead> <tbody> <tr> <th rowspan="3">Company A</th> <th>I</th> <td>-2</td> <td>14</td> <td>-2</td> </tr> <tr> <th>II</th> <td>-5</td> <td>-6</td> <td>-4</td> </tr> <tr> <th>III</th> <td>-6</td> <td>20</td> <td>-8</td> </tr> </tbody> </table> <p>Determine the optimal strategies for both the companies.</p>			Company B			I	II	III	Company A	I	-2	14	-2	II	-5	-6	-4	III	-6	20	-8											
				Company B																													
		I	II	III																													
Company A	I	-2	14	-2																													
	II	-5	-6	-4																													
	III	-6	20	-8																													

SECTION C

Answer any TWO of the following in 150 words

(2 x 10 = 20 Marks)

9.	Calculate the median for the following data:	K4	CO3																																				
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;">Class interval</td> <td style="width: 10%;">120-150</td> <td style="width: 10%;">150-180</td> <td style="width: 10%;">180-210</td> <td style="width: 10%;">210-240</td> <td style="width: 10%;">240-270</td> <td style="width: 10%;">270-300</td> <td style="width: 10%;">300-330</td> <td style="width: 10%;">330-360</td> </tr> <tr> <td>Frequency</td> <td>25</td> <td>65</td> <td>135</td> <td>430</td> <td>320</td> <td>175</td> <td>79</td> <td>21</td> </tr> </table>	Class interval	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360	Frequency	25	65	135	430	320	175	79	21																				
Class interval	120-150	150-180	180-210	210-240	240-270	270-300	300-330	330-360																															
Frequency	25	65	135	430	320	175	79	21																															
10.	Calculate rank correlation coefficient form the following data:	K4	CO3																																				
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;">X</td> <td style="width: 10%;">52</td> <td style="width: 10%;">63</td> <td style="width: 10%;">45</td> <td style="width: 10%;">36</td> <td style="width: 10%;">72</td> <td style="width: 10%;">65</td> <td style="width: 10%;">47</td> <td style="width: 10%;">25</td> </tr> <tr> <td>Y</td> <td>62</td> <td>53</td> <td>51</td> <td>25</td> <td>79</td> <td>43</td> <td>60</td> <td>33</td> </tr> </table>	X	52	63	45	36	72	65	47	25	Y	62	53	51	25	79	43	60	33																				
X	52	63	45	36	72	65	47	25																															
Y	62	53	51	25	79	43	60	33																															
11.	Calculate the Seasonal Index by the ratio to Moving average method	K4	CO3																																				
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20%;">Year</td> <td style="width: 20%;">I</td> <td style="width: 20%;">II</td> <td style="width: 20%;">III</td> <td style="width: 20%;">IV</td> </tr> <tr> <td>01</td> <td>68</td> <td>62</td> <td>61</td> <td>63</td> </tr> <tr> <td>02</td> <td>65</td> <td>58</td> <td>66</td> <td>61</td> </tr> <tr> <td>03</td> <td>68</td> <td>63</td> <td>63</td> <td>67</td> </tr> </table>	Year	I	II	III	IV	01	68	62	61	63	02	65	58	66	61	03	68	63	63	67																		
Year	I	II	III	IV																																			
01	68	62	61	63																																			
02	65	58	66	61																																			
03	68	63	63	67																																			
12.	Solve the following transportation problem by using Vogel's Approximation Method	K4	CO3																																				
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%;">W1</td> <td style="width: 10%;">W2</td> <td style="width: 10%;">W3</td> <td style="width: 10%;">W4</td> <td style="width: 10%;">ai</td> </tr> <tr> <td>F1</td> <td>48</td> <td>60</td> <td>56</td> <td>58</td> <td>140</td> </tr> <tr> <td>F2</td> <td>45</td> <td>55</td> <td>53</td> <td>60</td> <td>260</td> </tr> <tr> <td>F3</td> <td>50</td> <td>65</td> <td>60</td> <td>62</td> <td>360</td> </tr> <tr> <td>F4</td> <td>52</td> <td>64</td> <td>55</td> <td>61</td> <td>220</td> </tr> <tr> <td>bj</td> <td>200</td> <td>320</td> <td>250</td> <td>210</td> <td></td> </tr> </table> <p style="margin-left: 20px;">+</p>		W1	W2	W3	W4	ai	F1	48	60	56	58	140	F2	45	55	53	60	260	F3	50	65	60	62	360	F4	52	64	55	61	220	bj	200	320	250	210			
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bj	200	320	250	210																																			

SECTION D

Answer any TWO of the following in 250 words

(2 x 20 = 40 Marks)

13.	Fit a second-degree parabola from the following data:	K5	CO4														
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 10%;">Year</td> <td style="width: 10%;">1994</td> <td style="width: 10%;">1995</td> <td style="width: 10%;">1996</td> <td style="width: 10%;">1997</td> <td style="width: 10%;">1998</td> <td style="width: 10%;">1999</td> </tr> <tr> <td>Prices</td> <td>100</td> <td>107</td> <td>128</td> <td>140</td> <td>181</td> <td>192</td> </tr> </table>	Year	1994	1995	1996	1997	1998	1999	Prices	100	107	128	140	181	192		
Year	1994	1995	1996	1997	1998	1999											
Prices	100	107	128	140	181	192											

14.	Calculate the trend values by the method of moving averages, assuming a four-yearly cycle, from the following data relating to sugar production in India.	K5	CO4																																			
	<table border="1"> <tr> <td>Year</td> <td>2001</td> <td>2002</td> <td>2003</td> <td>2004</td> <td>2005</td> <td>2006</td> <td>2007</td> <td>2008</td> <td>2009</td> <td>2010</td> <td>2011</td> <td>2012</td> </tr> <tr> <td>Production</td> <td>37.4</td> <td>31.1</td> <td>38.7</td> <td>39.5</td> <td>47.9</td> <td>42.6</td> <td>48.4</td> <td>64.6</td> <td>58.4</td> <td>38.6</td> <td>51.4</td> <td>84.4</td> </tr> </table>	Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Production	37.4	31.1	38.7	39.5	47.9	42.6	48.4	64.6	58.4	38.6	51.4	84.4											
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012																										
Production	37.4	31.1	38.7	39.5	47.9	42.6	48.4	64.6	58.4	38.6	51.4	84.4																										
15.	Solve the following transportation problem by using North west corner rule.	K6	CO5																																			
	<table border="1"> <tr> <td></td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> <td>Availability</td> </tr> <tr> <td>X</td> <td>55</td> <td>30</td> <td>40</td> <td>50</td> <td>40</td> <td>40</td> </tr> <tr> <td>Y</td> <td>35</td> <td>30</td> <td>100</td> <td>45</td> <td>60</td> <td>20</td> </tr> <tr> <td>Z</td> <td>40</td> <td>60</td> <td>95</td> <td>35</td> <td>30</td> <td>40</td> </tr> <tr> <td>Requirement</td> <td>25</td> <td>10</td> <td>20</td> <td>30</td> <td>15</td> <td></td> </tr> </table>		A	B	C	D	E	Availability	X	55	30	40	50	40	40	Y	35	30	100	45	60	20	Z	40	60	95	35	30	40	Requirement	25	10	20	30	15			
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Requirement	25	10	20	30	15																																	
16.	Critically analyse the strategies of game theory.	K6	CO5																																			

**UNIT WISE DISTRIBUTION OF CL AND CO BASED QUESTIONS AND MARKS FOR
END OF SEMESTER QUESTION PAPER SETTING FOR UG COURSES
(MC, AR, AO, MS, ME and GL)**

	SECTION A (1 Mark/Question)		SECTION B (10Marks/Question)	SECTION C (10Marks/Question)	SECTION D (20 Marks/Question)	
	K1	K2	K3	K4	K5	K6
UNIT I	2 (1)	2 (1)	-	1 (10)	-	
UNIT II	2 (1)	2 (1)	1 (10)	1 (10)	1 (20)	-
UNIT III	2 (1)	2 (1)	1 (10)	1 (10)	1 (20)	-
UNIT IV	2 (1)	2 (1)	1 (10)	1 (10)	-	1 (20)
UNIT V	2 (1)	2 (1)	1 (10)	-	-	1 (20)
No. of CL based Questions with Max. Marks	10 (10)	10 (10)	2 (20)	2 (20)	2 (40)	2 (40)
No. of CO based Questions with Max. Marks	CO1		CO2	CO3	CO4	CO5
	20 (20)		2 (20)	2 (20)	2 (40)	2 (40)

MC-Major Core, AR-Allied Required, AO-Allied Optional, MS-Major Skill, ME-Major Elective, GL-General Languages.

In **Section D** students have choice between K5 and K6

**CL AND CO BASED MARKS DISTRIBUTION FOR DIRECT ASSESSMENTS OF UG COURSES
(MC, AR, AO, MS, ME and GL)**

SECTION	CL	CO	CIA I	CIA II	III Component	Semester	Total (200)	CL and CO %
A	K1, K2	CO1	6	6	20	20	52	26%
B	K3	CO2	6	6	10	20	42	21%
C	K4	CO3	6	6	10	20	42	21%
D	K5, K6	CO4, CO5	12	12	-	40	64	32%

MC-Major Core, AR-Allied Required, AO-Allied Optional, MS-Major Skill, ME-Major Elective, GL-General Languages

COMPONENT III ASSESSMENTS & RUBRICS Seminars

Seminars are given to the students of the department. Topics for the seminar is suggested by the course teacher and the students are encouraged to collective exhaustive information on the chosen topic, arrange them in order while doing a presentation. While conducting seminars, students are expected to use visual aids, models, tools for the presentation and circulate relevant literature to the students. Seminars are given to students to assist them in self-study and clear their concepts or ambiguities regarding any subject.

Rubrics for evaluation of Seminar

S. No	Criteria	Max. Marks
1.	Introduction about topic	10
2.	Collection of data	10
3.	Presentation methodology	20
4.	Articulation and communication skills	10
5.	Time management	10
6.	Discussion and interaction	20
7.	Summary and conclusion	20

Assignment

Assignments are given to the students at regular intervals. Students are expected to submit the assignments during the stipulated time period. Assignments on the relevant topics of the particular subject tend the students to learn about the latest information and new skills related to the concerned subject.

Rubrics for evaluation of Assignment

S. No	Criteria	Max. Marks
1.	Introduction about topic	10
2.	Collection of data	10
3.	Presentation methodology	20
4.	Vocabulary usage	10
5.	Originality of work	20
6.	Referencing / citation	10
7.	Summary and conclusion	20

Internship/Field visit

Internship allows the students to gain hands on experience and industry exposure. The internship for the final year UG students is conducted during the Christmas Vacation for minimum of 15 days. The UG students will be sent to industries/organization. And they are expected to submit a report on completion of the internship activity.

Rubrics for evaluation of Internship Project

S. No	Criteria	Max. Marks
1.	Industry/Organization profile	10
2.	Thrust areas and specialization	10
3.	Internship module and participation	20
4.	Expertise of the industry/organization	10
5.	Regularity and hands on training	10
6.	Presentation/Demonstration	20
7.	Report writing	20